VIRGINIA TECH magazine
SPRING 2021

LIFE ONLINE
Expert tips for cyber safety

SPACED OUT
From parking garages to gardens, Virginia Tech faculty create avant garde classrooms

BREAKING THROUGH

The many layers of substance misuse: How research, technology, and *Ut Prosim* uncover opportunities for support, recovery, and awareness on campus, at home, and in the community

VIRGINIA TECH

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ALUMNI
VIRGINIA TECH

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We're celebrating all alumni and recognizing milestone anniversaries for the classes of 1971, 1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011, and 2016 **from wherever Hokies are.**

Registration is $30 and includes all online programs–**plus a box of Hokie gear with a tumbler, coaster, stickers, snacks, and pennant flag.**

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Wash your hands.

nrvroadtowellness.com #BeCommittedBeWell

New River Valley PUBLIC HEALTH TASK FORCE

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DESIGNING SAFE SPACE

The Virginia Tech School of Architecture + Design is one of only a few design schools in the country offering in-person studio courses this year for students like Alyssa S. Jeffries, a first-year architecture student. School faculty and staff—and even current students—worked diligently over the summer to preserve the studio experience in Cowgill and Burchard halls. Together, they crafted an evenly spaced, physically distanced studio with desks placed throughout the buildings, along with colorful Plexiglas barriers and directional signage for traffic flows.

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What information is safe to divulge online? How can people stay connected virtually without exposing themselves to digital threats? Virginia Tech experts weigh in.

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When it comes to substance misuse, there are no easy answers. Through medical and behavioral research, Virginia Tech is peeling back the layers, revealing the problems, and uncovering meaningful solutions.

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ON THE COVER: Through research, support services, and outreach education, Virginia Tech is breaking through the problems associated with substance misuse. (at right) Even though pandemic restrictions limited gatherings, alumni around the globe joined together virtually for activities like the first-ever Hokie Hike.

RM, COURTESY MEGAN REMSEN

ADVANCING BEYOND BOUNDARIES: On Jan. 13, President Tim Sands delivered his fifth State of the University address. The presentation was streamed digitally, in keeping with the university's coronavirus mitigation guidelines.

PRESIDENT'S MESSAGE

SCIENCE-BASED APPROACH

More than a year after the pandemic changed our world, Virginia Tech continues to adapt, using a science-based approach to planning and decision-making to fulfill our education, research, and engagement missions.

We advance into spring and early summer with caution, but also with the hope that vaccines and the work of talented scientists here at Virginia Tech and around the world will lead us to a new normal in which Hokies can once again gather in numbers.

Meanwhile, our faculty and staff continue developing innovative solutions for both in-person and remote learning, and our students are rising to the challenges, participating in Virginia Tech's enhanced pods and seeking out new ways to define their college experience.

University alumni are providing relief through volunteerism, developing new businesses and programs, and finding ways to improve their communities, reflecting the worldwide impact of *Ut Prosim* (That I May Serve.) And we are deeply grateful for the way our alumni continue giving back to the university. Despite the pandemic, Hokies stepped forward and set new records for giving in FY20, with more than $185 million in new gifts and commitments and a 2 percentage gain in alumni giving participation. And on Giving Day, Feb. 24-25, more than 12,000 donors gave more than $6.1 million in just 24 hours.

Research expenditures have also gained momentum. External funding rose by more than 6 percent last year, and researchers' awards grew by an average of 13 percent. Researchers like Linsey Marr are focused on addressing complex problems facing our world today. The Fralin Life Sciences Institute and Fralin Biomedical Research Institute at VTC have expanded their roles in direct response to the pandemic, serving our communities with COVID-19 testing and other important outreach. Our expansion in the greater Washington, D.C., area is hitting important milestones, including Alexandria City Council's approval of the Innovation Campus's first building. And the Virginia Tech-led Commonwealth Cyber Initiative has amassed $85 million in active research grants to advance research, innovation, and workforce development in this sector.

Undergraduate applications for admission to Virginia Tech rose more than 30 percent over last year, including a significant increase in applications from underrepresented and underserved students. The increased demand for a Virginia Tech degree reflects the relevance and value of the university's mission and the accomplishments of our students, faculty, and alumni. We look forward to welcoming a talented new class of Hokies to campus in the fall.

We acknowledge the losses our global community has endured and yet are inspired for the future by the resilience and ingenuity of Hokie Nation. Our challenges notwithstanding, Virginia Tech is growing, leading, and advancing in alignment with our strategic plan, The Virginia Tech Difference: Advancing Beyond Boundaries. Thank you for your ongoing interest and support. I look forward to continuing our journey together. ■

Tim Sands is Virginia Tech's 16th president.

RM

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SOMETHING TO SAY?
Send us a message at vtmag@vt.edu.

TO THE EDITOR

THE HOKIE STORY

I enjoyed reading the fall 2020 issue of Virginia Tech Magazine.

From the very start with President Sands' message, to the last page, this particular issue made me very proud to be a graduate (and supporter) of Virginia Tech.

I was impressed by the school's response to the pandemic and have been pleased with how Virginia Tech is involved not only in inventing the future, but also in dealing with today's issues in a pragmatic and intelligent way.

Thank you for telling the Hokie story in this issue.

Very respectfully,

J. Scott Burhoe '76
Purcellville, Virginia

FROM THE EDITOR

STAY IN TOUCH

At Virginia Tech Magazine, we enjoy hearing from our readers. Please keep us posted on your career and personal experiences. Send your updates to classnotes@vt.edu. Don't forget to include your pictures! See example below.

And if you move, please be sure to update your address with the university so that you keep receiving the magazine without interruption. Visit alumni.vt.edu/contact or email your updates to alumnidata@vt.edu. Be sure to include your full name and class year in the email.

HOKIE SANTA: Bill Eubank '65, Matthews, North Carolina, gave each of his grandchildren Virginia Tech swag for Christmas. "Even though some of them attend other universities, they all love their sweatshirts," he said.

AROUND THE DRILLFIELD

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HANDLE WITH CARE: Nick Dervisis, associate professor of oncology, and Jennifer Carroll, oncology resident, work with a patient in the chemotherapy room at the new Animal Cancer Care and Research Center in Roanoke, Virginia.

ANDREW MANN

NEWS

A GRAND OCCASION FOR REGION'S PETS

GRAND OPENINGS ARE USUALLY, WELL, GRAND.

In line with these physically distanced times, however, the recent grand opening of Virginia Tech's state-of-the-art Animal Cancer Care and Research Center in Roanoke, Virginia, was a decidedly modest affair.

Instead of a local dignitary cutting a ribbon or a popular politician delivering a rousing speech, the new clinical and research facility was inaugurated by an 11-pound domestic shorthaired cat named Kokomo, the first pet to set paw in the new center as a clinical patient.

Although Kokomo is surely more interested in batting around her favorite yellow banana toy than in cutting-edge medicine, her presence at the center, which is housed in the 139,000-square-foot addition to the Fralin Biomedical Research Institute at VTC, represented the culmination of more than six years of planning.

"This center will develop and deploy novel modalities for treating a variety of cancers," said M. Daniel Givens, dean of the Virginia-Maryland College of Veterinary Medicine at Virginia Tech. "This exciting new initiative creates the opportunity for advanced, integrated cancer treatment for dogs and cats in our region and transformative, translational research that will advance cancer treatment in pets and people alike."

PURR-FECTING CARE: Joanne Tuohy, assistance professor of surgical oncology, and Stefanie Olsen, oncology technician review a patient's test results in the center's pre-operative room.

A GRAND OCCASION (CONT. FROM P. 7)

The new facility is a vital part of the Virginia Tech Carilion (VTC) Health Sciences and Technology Campus, adjacent to the Virginia Tech Carilion School of Medicine, and integrates human and veterinary biomedical researchers. The center's faculty clinicians offer comprehensive, integrated services, including medical, surgical, and radiation oncology, as well as frontline cancer diagnostics and treatment for dogs and cats.

Kokomo was referred to the center to explore treatment options for a bladder tumor called transitional cell carcinoma, but patients like Kokomo and their owners aren't the only beneficiaries of the oncology clinicians' expertise and advanced care. The center's unique co-location alongside human-focused clinicians and researchers embodies a true One Health approach that recognizes the dynamic interdependence of animal, human, and environmental health. Because companion animals often develop the same or similar cancers as humans, therapies developed by researchers can help human patients and serve as new treatments for pets. ■

DEPARTMENT OF DEFENSE AWARDS $1.5 MILLION TO PREPARE STUDENTS FOR CYBERSECURITY CAREERS

VIRGINIA TECH HAS BEEN AWARDED $1.5 million to fuel workforce development in cybersecurity and related professional roles as one of six Department of Defense (DoD) senior military colleges participating in the U.S. Cyber Command Cyber Leadership Development Program (SMC2I).

Virginia Tech, the Citadel, the University of North Georgia, Norwich University, Virginia Military Institute, and Texas A&M will work collaboratively on this national initiative.

The funds for SMC2I are part of a $10 million DoD appropriation to the National Security Agency to identify and develop a diverse population of students from various academic disciplines into technical experts and leaders in cybersecurity through five primary program elements: pipeline programs, experiential learning, curriculum development, program development, and enhancing cybersecurity research. ■

ANDREW MANN, VIRGINIA TECH

VIRGINIA TECH CARILION SCHOOL OF MEDICINE SEES 48 PERCENT INCREASE IN APPLICATIONS

THE VIRGINIA TECH CARILION School of Medicine received 6,374 applications, a 48 percent increase from last year's total of 4,299.

The school's application deadline for the Class of 2025, which has 49 available seats, was Dec. 1.

"More and more people are discovering the Virginia Tech Carilion School of Medicine and recognizing it as a place to become systems-minded scientist physicians," said Lee Learman, dean of the Virginia Tech Carilion School of Medicine. "In addition, our continued success in matching all of our graduates to top-choice residency programs is attractive to prospective students."

The Virginia Tech Carilion School of Medicine has been in demand since the first class started studies in 2010, but has become more competitive each year. Over the past five years, the school averaged around 4,000 applications for fewer than 50 available positions.

Medical school applications are up nationwide this year. The American Medical College Application Service, which processes submissions for most U.S. medical schools, reported a nearly 17 percent increase in applications near the end of October. In the past decade, the year-over-year increase has averaged less than 3 percent. ■

STEVEN MARTIN

ELEMENTS OF SUCCESS: Students from the chemical engineering Chem-E-Car team powered and stopped a robotic car by means of a chemical reaction for the 2020 AICHE Chem-E-Car Competition.

CHEM-E-CAR TEAM WINS INTERNATIONAL COMPETITION

IN NOVEMBER, THE VIRGINIA TECH Chem-E-Car team won first place at the 2020 AICHE Chem-E-Car Competition, defeating more than 20 other teams from around the country and the world in the virtual event.

The Chem-E-Car competition tests a team's ability to design and construct a shoebox-sized car that is both powered by and stopped as precisely as possible by using chemical reactions. Virginia Tech's car won the competition by traveling 17.40 meters and stopping almost exactly at the target distance. The team used four concurrent vitamin C clock reactions as a stopping mechanism and built a zinc-carbon battery as their power source.

The Virginia Tech team has now won two consecutive international Chem-E Car competitions, having also placed first at the previous year's international competition in Orlando, Florida.

The 2020 Chem-E-Car team consists of 14 chemical engineering undergraduate students: team lead Jared Arkfeld, Aashi Agarwala, Abby Boyles, Alejandro Rodriguez, Carlos Prieto, Anshul Paripati, Paul Stiles, Ian Davis, Catie George, Lexi Swift, Katy Carney, Mackenzie Roach, Lindsey Wallen, and Sara Schlemmer. Their faculty advisor was Stephen Martin, associate professor in the Department of Chemical Engineering. ■

RAISE THE GAVEL: Elizabeth McClanahan will lead the Virginia Tech Foundation.

VIRGINIA TECH FOUNDATION NAMES NEW CEO

ELIZABETH MCCLANAHAN, A FORMER justice on the Supreme Court of Virginia who now serves as president and dean of the Appalachian School of Law, has been named CEO of the Virginia Tech Foundation.

The foundation manages the university's endowment, has an extensive real estate portfolio, and encourages economic development by fostering connections between Virginia Tech and numerous partners.

McClanahan has served as an adjunct professor of finance and senior advisor to the dean in Virginia Tech's Pamplin College of Business since September 2019, but her ties to the university go back much further.

"Virginia Tech played a formative role in my life," McClanahan said. "My mother hosted Extension homemaker clubs when I was a young child. I joined 4-H at age 9 and in my teenage years attended 4-H Congress on campus. Virginia Tech is now a global university and world leader in higher education. Joining the foundation is the opportunity of a lifetime—especially at a time when Tech's energy, innovation, and trajectory are unmatched."

McClanahan will become foundation CEO on June 1, succeeding John Dooley, who in August 2020 announced he would retire. The foundation CEO is a member of the Virginia Tech President's Cabinet.

"The foundation is deeply involved in realizing the university's mission and vision," Virginia Tech President Tim Sands said. "Elizabeth brings a wealth of experiences in law, leadership, and higher education, and I look forward to working closely with her on our key strategic initiatives and partnerships."

McClanahan has served as the Williamson Fellow at the College of William & Mary Law School and taught at the Wake Forest School of Business and Accountancy. She has chaired the State Council of Higher Education for Virginia and has also served on the Board of Visitors for the College of William & Mary as vice-rector and the Board of Trustees for Emory & Henry College.

McClanahan earned her bachelor's degree from the College of William & Mary and her law degree from the University of Dayton School of Law. Her law career includes having served as a shareholder and director at Penn, Stuart, & Eskridge; being chief deputy attorney general for Virginia; and serving as a Virginia Court of Appeals judge before joining the Supreme Court of Virginia. ■

RM

VIRGINIA TECH RESEARCHERS DISCOVER 635 MILLION-YEAR-OLD FUNGI-LIKE MICROFOSSIL

A TEAM OF SCIENTISTS FROM Virginia Tech, the Chinese Academy of Sciences, Guizhou Education University, and University of Cincinnati has discovered the remains of a fungi-like microfossil that emerged at the end of an ice age some 635 million years ago. It is the oldest terrestrial fossil ever found, predating the oldest dinosaurs about three times over.

The findings were published in Nature Communications on Jan. 28.

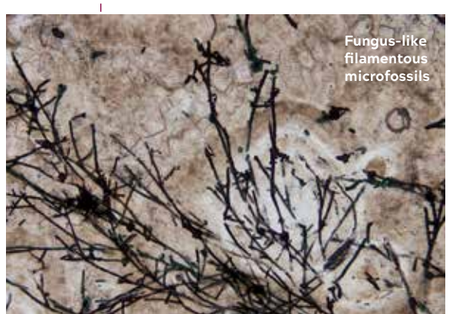
The fossil was found in small cavities within sedimentary dolostone rocks of the lowermost Doushantuo Formation in South China.

But against all odds, Gan found a few long, thread-like filaments, one of the key characteristics of fungi.

"It was an accidental discovery," said Gan. "At that moment, we realized that this could be the fossil that scientists have been seeking for a long time. If our interpretation is correct, it will be helpful for understanding the paleoclimate change and early life evolution."

This discovery is key for understanding multiple turning points throughout Earth's history: the Ediacaran period and the terrestrialization of fungi. ■

ANDREW CZAJA OF UNIVERSITY OF CINCINNATI, RM



Fungus-like filamentous microfossils

HARVESTING THE FUTURE: The new Institute for Advanced Learning and Research in Danville, Virginia, is one of the testbed operations for the new Center for Advanced Innovation in Agriculture, where technology and research are leveraged to accelerate advancements, economic development, and regional participation in the developing industry of indoor farming.

COLLEGE LAUNCHES CENTER FOR ADVANCED INNOVATION IN AGRICULTURE

THE AGRICULTURAL LANDSCAPE IS changing. Increased food production is needed to support the world population. Innovative efficiencies are needed throughout agriculture. Climate change scenarios suggest significant modifications in agriculture.

In order to address these issues and use informed scientific discovery and technology-driven innovation to develop solutions, Virginia Tech's College of Agriculture and Life Sciences has created the Center for Advanced Innovation in Agriculture (CAIA). The center's work will focus on technology, data analytics, and decisions to address challenges and security in the natural world and in human society in the domains of plants, animals, and food systems.

This center is a direct result of listening to agriculture stakeholders express their needs during the 2018 Virginia Agriculture and Natural Resources Summit held in Richmond, Virginia.

The world needs efficient and flexible agriculture and food systems, and the Center for Advanced Innovation in Agriculture combines the existing expertise of the college to chart a path that addresses these issues in the natural world and human society.

Some of the existing expertise and platforms the CAIA will utilize include the SmartFarm Innovation Network; cyberbiosecurity and biosecurity in agriculture and life sciences; and data analytics, decisions, and machine learning for food, agriculture, communities, and health systems. ■

MULTIPLE CHOICE: MBA students attend a class at the Northern Virginia Center taught by Bill Becker, associate professor of management. A new, fully online MBA will expand the options for students seeking the graduate business degree.

FULLY ONLINE MBA LAUNCHED TO MEET CHANGING NEEDS

VIRGINIA TECH IS LAUNCHING ITS newest MBA program option—the Online MBA.

Responding to the changing needs of students and the workplace in the wake of the COVID-19 pandemic, the Pamplin College of Business intentionally designed this new program to deliver a deep understanding of business principles and practices to a wider range of working professionals through the flexibility of fully online delivery.

While fully online, delivery of the new program will be evenly split between synchronous and asynchronous experiences. The program is cohort-based, which means that students complete their studies in lockstep and have the opportunity to build meaningful professional relationships with their classmates.

Students can also choose to specialize their MBA curriculum in subject areas where Pamplin and Virginia Tech have a strategic emphasis and significant expertise, such as cybersecurity, entrepreneurism, health information technology, and business data analytics. These topic areas are popular choices for those seeking better jobs and career growth.

The students will also have the option to study abroad, through the international business specialization. Optional international travel provides an opportunity to examine global business in action and take part in an immersive in-person experience with fellow MBA classmates.

As with all of Virginia Tech's MBA programs, the Online MBA will be taught by experienced Pamplin College of Business faculty steeped in scholarly research with practical applications.

Beyond faculty, Online MBA students will also share the support and resources available to all Virginia Tech MBA students. This includes access to an established MBA alumni mentoring program, personalized academic advising, and membership in Virginia Tech's vast alumni network.

Pending approval from the State Council of Higher Education for Virginia and The Southern Association of Colleges and Schools Commission on Colleges, applications for the inaugural cohort will be due May 1, with classes starting in July. Graduation for the first cohort is expected in May 2023. ■

SONGBIRDS EXPOSED TO LEAD-CONTAMINATED WATER PREDICT HUMAN IMPACTS

HUMANS, WILDLIFE, AND THE environment play a role in one another's health and well-being. Sentinel species, such as birds, are good indicators of environmental health, and they can send subtle warning signs that humans may be in danger.

In an experimental exposure study, Kendra Sewall, an associate professor of biological sciences in the College of Science, and a diverse team of scientists and students found that lead levels like those reported in Flint, Michigan, can interfere with the vocal development of songbirds and affect mate attraction.

By examining the effects of lead exposure in songbirds, more information will be known about how lead affects learning and underlying neural networks in humans.

"Our study shows that levels of lead in water that are known to be concerning for human health also have negative effects on the brain and the learning ability of male songbirds," said Sewall, who is affiliated with the Fralin Life Sciences Institute and the Global Change Center.

Their findings were published in Ecotoxicology and Environmental Safety on Jan. 8. ■

EW; ADOBE STOCK/XAVIER MARCHANT

BRIGHT IDEAS: Last held on Feb. 21, 2020, The Virginia Tech Entrepreneur Challenge, a campus-wide, student startup competition that brings together successful alumni-entrepreneurs, industry partners, and students is an initiative of the Apex Center for Entrepreneurs. Virginia Tech was ranked No. 25 for undergraduate entrepreneurship programs in Princeton Review's rankings for 2021, released Nov. 17, 2020.

APEX CENTER WINS INTERNATIONAL AWARD FOR ENTREPRENEURSHIP RESEARCH

VIRGINIA TECH'S APEX CENTER FOR Entrepreneurs has won the top award from the Global Consortium of Entrepreneurship Centers for exceptional contributions in entrepreneurship research.

The award was announced at the consortium's annual conference, hosted virtually by the University of Nevada, Las Vegas. Virginia Tech is a co-winner of the award with Texas A&M University. The other finalists from the 106 nominee schools were the Stockholm Institute for Economics, the University of Louisville, and the University of North Carolina.

Judging criteria included the volume of research produced and quality of the publication outlets; the potential of the research to significantly advance the entrepreneurship discipline; and demonstrated ability to connect research efforts to teaching and community engagement.

"The award is clear testimony of the high quality and significance of our entrepreneurship research," said management department head Devi Gnyawali. "Our faculty have published in all major entrepreneurship journals. Several current Ph.D. students and recent Ph.D. graduates have been working on entrepreneurship research in recent years."

Virginia Tech's entrepreneurship research community has been extraordinarily productive, Gnyawali said. "Since the Apex center's founding in 2014, Virginia Tech has gone from being unknown in the realm of entrepreneurship research to being one of the most frequently mentioned for its quantity and quality of research output."

The achievements of Apex researchers in the past six years include 72 peer-reviewed publications in top journals, 34 peer-reviewed proceedings at major conferences, and thousands of Google citations.

Research honors include the Academy of Management's Outstanding Dissertation and multiple awards for the academy's Outstanding Paper on Entrepreneurship Theory, the Sumantra Ghoshal Research-Practice Award, and multiple best paper awards at other conferences.

This is the center's second award from the Global Consortium. The Apex Center, which serves students from any Virginia Tech major and any year who are interested in building new business ventures, received the Outstanding Emerging Entrepreneurship Center Award in 2018. ■

THOMAS MILLER

SWEET DREAMS: Stamps Scholar Sengal Ghidewon-Abay, a senior majoring in electrical engineering, predrills bolt holes to aid in the assembly of a bed.

VIRGINIA TECH STAMPS SCHOLARS GIVE BACK BY BUILDING BEDS FOR KIDS IN THE NEW RIVER VALLEY

THE VIRGINIA TECH HONORS COLLEGE Stamps Scholars recently took to the top deck of a parking garage to build 24 beds for children in need.

The project's genesis was a meeting between Christina McIntyre, the director of professional development and national and international scholarships at the Virginia Tech Honors College, and Paul Mele, the president of the New River Valley (NRV) chapter of the Sleep in Heavenly Peace, which is dedicated to building, assembling, and delivering high-quality bunk beds to children and families in need.

The chapter has completed multiple bed builds since August 2020. Volunteers have delivered more than 55 beds to children in the NRV, but there is a waiting list.

"There is need in the New River Valley," said Mele. "Bedlessness is a problem in every community across America. We in Sleep in Heavenly Peace believe the average is probably 3 to 4 percent of kids between 3 and 17 do not have a traditional device to sleep on."

The build day, Nov. 7, was made possible by contributions from the community. Lowe's of Christiansburg donated more than $2,500 worth of lumber, Heavener Rental loaned the group generators, and the Virginia Tech Foundation provided access to University Mall Parking Garage.

Stamps Scholars are high-achieving student leaders selected from incoming freshmen by the Virginia Tech Honors College each year to receive a multiyear merit scholarship through the national Strive Foundation to help them achieve their educational aspirations. Service is foundational for the Honors College and Stamps Foundation. ■

LAUREN CHILDS HELPS ADDRESS MALARIA

CHRISTINA MCINTYRE, STEVEN MACKAY

EVERYONE KNOWS THAT 2 + 2 = 4, but what about mosquitoes plus malaria? Lauren Childs, an assistant professor in the Department of Mathematics at Virginia Tech, says there's an equation for that, too.

Childs recently co-authored a report with a team from Harvard University on the role of natural mosquito behavior on transmission of a disease that threatens half the world's population.

The study was published in the December 2020 issue of PLOS Pathogens.

"Worldwide there are about 400,000 deaths and 200 million cases each year from malaria," said Childs, who last year was named the Cliff and Agnes Lilly Faculty Fellow. Plasmodium, the parasite that causes malaria, is transmitted through the interaction between mosquitoes and humans. Efforts to study this interplay solely in nature can be problematic due to constantly changing conditions.

"All these complicated pieces, mathematically we can put them all into a system and see how that feedback affects the next level and the next level so we can think about it quantitatively and make predictions," said Childs. ■

PAUL MAREK

GET BUGGY: Paul Marek, a systematics and taxonomy associate professor, recently discovered a new species of millipede on Virginia Tech's Blacksburg campus. Visit vtmag.vt.edu to find out even more about the creature.

THERE'S A NEW BUG IN TOWN

HEARING THE WORDS "NEW SPECIES discovered" may conjure images of deep caves, uncharted rainforests, or hidden oases in the desert.

But the reality is that thousands of new species are discovered each year by enterprising scientists all over the world. Many of these new species come from exotic locations, but more surprisingly, many come from just down the road, including the newest member of the Hokie Nation, the millipede *Nannaria hokie*.

The newest Hokie—which has about 60 more legs than the HokieBird—was first discovered living under rocks by the Duck Pond behind the president's house on Virginia Tech's campus. Since then, the critter has been spotted at Stadium Woods and in downtown Blacksburg.

"It's not every day that we find new species, let alone on our campus, so we wanted to name the new species for the Virginia Tech community and to highlight the importance of conserving native habitat in the region," said Paul Marek, a systematics and taxonomy associate professor in Virginia Tech's Department of Entomology in the College of Agriculture and Life Sciences.

Measuring in at about 2 centimeters long, *Nannaria hokie* (pronounced nanaria ho-key) is a dark, reddish millipede with yellow-white highlights (apologies to those who thought it would be maroon and orange). Roughly the size of a penny, these creatures usually make their homes under rocks, leaves, and among forest floor debris. The name "Hokie twisted-claw millipede" comes from the twisted claws on their feet just before their reproductive organs.

Millipede biodiversity is the primary focus of Marek's lab, which investigates habitats all over the world, including Vietnam, Japan, and the United States. Marek, recent entomology graduate Jackson Means, and other co-authors recently published a paper in Insect Systematics and Diversity that describes 10 new species of millipedes, including the Hokie twisted-claw millipede, which was found only a stone's throw from Marek's lab window.

The announcement of these new species speaks to the biodiversity that has yet to be discovered, not just in far-off exotic locations, but in the average backyard.

"Millipedes are surprisingly abundant and diverse, yet have thus far avoided major attention from both the scientific community and the public," Jackson said.

Millipedes are a unique group of arthropods that are characterized by having two pairs of jointed legs on most segments of their bodies. Some have bright colors, some glow in the dark, and some can even exude cyanide in self-defense. Most millipedes are known as detritivores or decomposers, and feed on decaying plant matter on forest floors.

Despite an ancient lineage and a plentiful food source, changing climate and habitat destruction threatens the existence of many millipede species. Millipedes typically remain confined to select, relatively small geographical regions, due to their limited mobility and their dependency on specific habitats.

Research was supported by a National Science Foundation Advancing Revisionary Taxonomy and Systematics grant. ■

CENTER FOR GERONTOLOGY RECEIVES $2.1 MILLION

KAREN ROBERTO AND TINA SAVLA, both core faculty members of Virginia Tech's Center for Gerontology, are leading a five-year, $2.14 million study that will examine the role of extended family caregivers and their service use, needs, and challenges.

The National Institute on Aging—part of the National Institutes of Health—awarded the grant.

While most of the caregiving literature to date has focused on close kin, such as adult children and spouses, this new study will turn the spotlight on other family caregivers, such as grandchildren, siblings, nieces and nephews, and step-kin.

What is daily life like for them as dementia caregivers? How is the type and manner in which they provide for their relative different, if at all, than the care provided by spouse or adult child caregivers? Do these extended family caregivers need more support, education, or training?

The research team will recruit 240 extended family caregivers for the study, which they have named "CareEx." They will also recruit 120 adult children and spouse caregivers to serve as a comparison group.

Roberto and Savla anticipate the CareEx study findings will inform the development of tailored interventions for extended family caregivers. The research may also have policy implications, particularly if the study team finds that extended family caregivers encounter unique barriers to accessing care for relatives with dementia. ■

NEWSREEL

VIRGINIA TECH VIDEOGRAPHERS HAVE BEEN HARD AT WORK CAPTURING THE UNIVERSITY'S NEWS AND EVENTS. CHECK OUT THIS SAMPLING AND MANY OTHERS AT **VIDEO.VT.EDU.**

STATE OF THE UNIVERSITY

On Jan. 13, President Tim Sands delivered his fifth State of the University address. During the virtual event, Sands shared progress on strategic priorities while responding to the pandemic. Listen to a recording of the address at vt.edu/state-of-the-university.

VENTURE OUT OPENS NEW BOULDERING WALL

Venture Out's bouldering wall is located in the new Venture Out Center at 540 Beamer Way, in the South Recreation Area next to the Recreational Field House. Use of the bouldering wall is free for students during open hours.

INNOVATION CAMPUS PROGRAM ATTRACTS STUDENTS FROM ARRAY OF BACKGROUNDS

Meet four members of the first Virginia Tech Innovation Campus class. Their backgrounds vary, but they share a common goal: earning a master's degree that will quickly advance their careers.

UNDERSTANDING THE NEW CORONAVIRUS VACCINES

Infectious disease ecologist Kate Langwig explains the complicated dynamics that are at play in determining how effectively the new COVID-19 vaccines will help us regain pre-pandemic normalcy.

GIVING DAY VIRGINIA TECH

HOKIES COME TOGETHER

OVER THE COURSE OF 24 HOURS, Virginia Tech supporters across the country and around the world came together for a resounding demonstration of the dedication and generosity of the Hokie Nation.

On the university's third Giving Day, which ran from noon to noon Feb. 24-25, more than 12,000 alumni, faculty, staff, parents, and friends combined to provide more than $6.1 million in support that will benefit a wide variety of the university's colleges and programs.

"Giving Day brings out the best in Hokies everywhere, as the Virginia Tech community shows its support for the university's mission and expanding impact on the world," said Virginia Tech President Tim Sands. "We're grateful for all the dedicated Hokies who step forward and make a difference."

It was Virginia Tech's first Giving Day since 2019, when more than 6,600 Hokies gave over $2.8 million combined. The onset of the COVID-19 pandemic led the university to cancel a Giving Day that had been planned for spring 2020. Unlike previous Giving Days, which included a mix of opportunities for Hokies to connect through online and in-person celebrations on campus in Blacksburg, this year's event was a completely digital affair in order to adhere to public health guidelines.

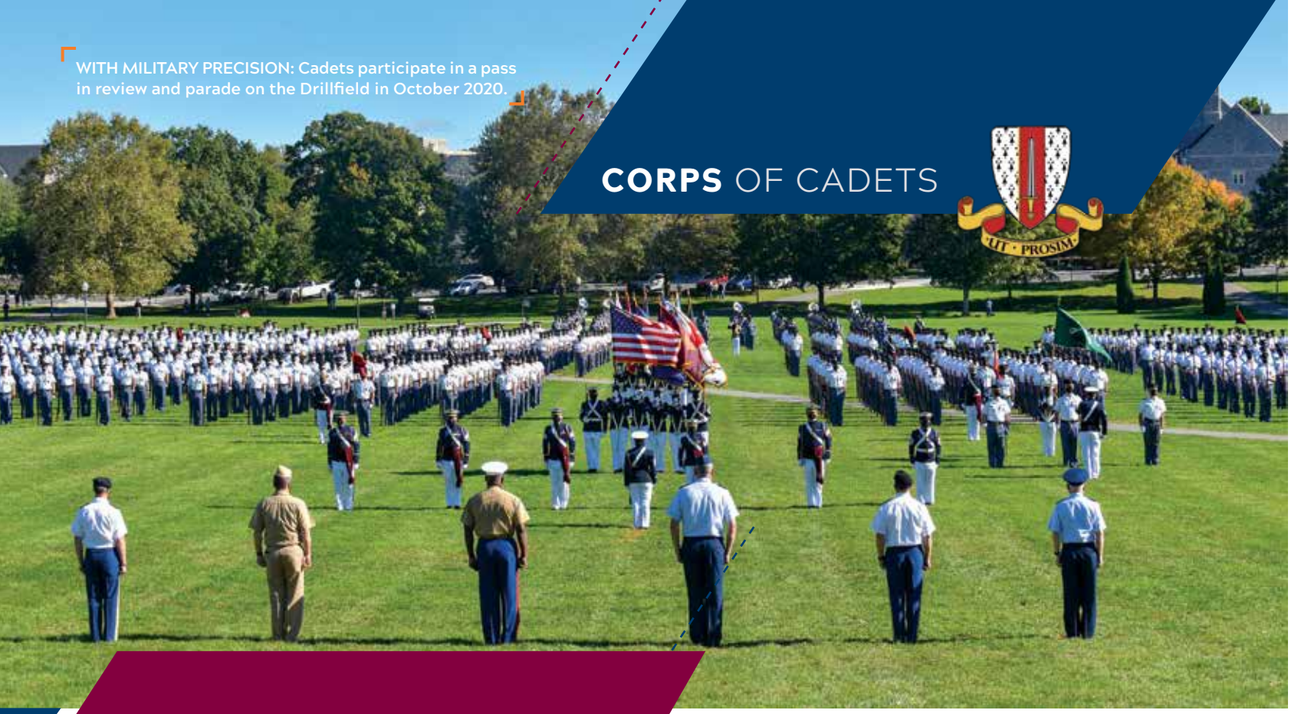
"It's incredible to see so many people come together once again to show so much generosity," said Heather Kopec, the university's director of annual giving. "Virginia Tech supporters really came together in a big way to support their fellow Hokies. This is such a great example of the strength of our community, and it will have a huge, cumulative impact on our university."

Virginia Tech received gifts from Hokies in all 50 states and more than 30 countries. Engaging more than 12,000 donors in a single day required a concerted effort, not just from Virginia Tech faculty and staff but also from a group of more than 700 Giving Day Ambassadors who helped spread the word. Giving Day's impact was further amplified by numerous challenges, which provided more than $500,000 in bonus funding for dozens of colleges, departments, programs, and student organizations across the university when certain conditions were met.

"Giving Day is an exciting, inspiring example of the power of our community to come together in unique ways to make a positive impact," said Charlie Phlegar '78, M.S.'87, Virginia Tech's vice president for advancement. "It demonstrates the commitment of Hokies everywhere to maintaining the bonds that unite us and to supporting each other and the mission of our university. I could not be more grateful to be a part of such a generous and engaged community." ■ *BS*

MORE THAN 12,000 HOKIES RAISE OVER

$6.1 MILLION



WITH MILITARY PRECISION: Cadets participate in a pass in review and parade on the Drillfield in October 2020.

4TH BATTALION TO RETURN

TO PREPARE FOR ITS GROWTH TO 1,400 cadets, the Virginia Tech Corps of Cadets plans to reactivate two key units from the past.

The most visible change will be the re-establishment of a 4th Battalion and the hiring of a fourth deputy commandant to provide oversight. Mike Company also will be reactivated.

The goal is to keep unit sizes manageable for both the cadet leadership and the corps' staff leadership, said Maj. Gen. Randal Fullhart, commandant of cadets.

The aforementioned units were deactivated in 1970 during a decline in enrollment that continued for more than a decade. The perseverance and generosity of corps alumni reversed that trend by raising tens of millions toward cadet scholarships and serving as volunteers to help ensure the program's future.

The goal is to grow cadet enrollment to 1,400 by the mid-2020s.

In the fall 2020 semester, 1,182 cadets, the largest corps since 1968, tackled an ambitious schedule of academics and training.

Among them was Cadet James Ryal, a junior in Army ROTC majoring in economics in the College of Liberal Arts and Human Sciences. He said the growth of the corps provides new opportunities for cadets to take on leadership roles.

"It is a great time to be in the corps, but it is challenging because we must provide a consistent, top-notch military leadership development experience to every cadet that walks through our doors," said Ryal, who is serving as the regimental command sergeant major this semester.

"We must do all this while adjusting our playbook because of COVID, new rules, regulations, and other challenges," he said.

Meanwhile, philanthropy is making possible a new Corps Leadership and Military Science Building near Lane Hall on the Upper Quad of Virginia Tech's Blacksburg campus to bring together corps and ROTC programs now dispersed across several buildings. Work also continues on a new residence hall for cadets, the third since 2015. ■

Shay Barnhart is the Corps of Cadets' communications director.

CADET CLAIRE SEIBEL

OFF COURT WITH
MIKE YOUNG

DAVE KNACHEL

THE 2020-21 VIRGINIA TECH MEN'S basketball season is giving fans plenty to talk about, and Head Coach Mike Young was the perfect person to lead the conversation. Young, who was named ACC Coach of the Year, took some time to share his thoughts on the offseason, team culture, and the future.

How has it felt to be back on the court for regular-season games?

"Honestly, it's been great. Sure, it's still a little different with no fans and the crowd noise playing on the speakers, but it's been so good being back at doing what we all love."

What's been the biggest challenge in preparation and practice related to the pandemic?

"About everything we do is spaced out, and that includes group huddles on the court, our team breakdown to end a practice, and when we're watching film together. So, it's challenging, but I feel like our guys have been able to stay focused and abide by our protocols."

What have you found to be key in building community and collective culture?

"One of my favorite lines is, 'Love your neighbor,' which certainly is true now, and it's arguably harder with not as much gathering time. So, with so many new guys on our roster this year, it's been pivotal for our players to love one another, be respectful of others around them, and be always reminded that we are all here for each other. Being present and in the moment with everyone has been a key ingredient to our culture."

This year, you initiated an anti-bullying program, inspired by your father, Bob Young. MY TURN targets public school students in the New River Valley. While player participation is strictly volunteer, how do you hope those who do choose to get involved will benefit?

"Spending time not thinking about yourself when you're not practicing, doing schoolwork, or playing a game is crucial for someone's development off the court. This has been a terrific time for the local children in the NRV, with our players making an impact on them in a positive light and giving them someone to look up to. And I would argue the same influence has been able to trickle into our players' minds as well, with seeing how great these young kids are and giving them a sense of hope that our future in the area is strong."

What types of bonding activities have you found to be helpful?

"It's been tough these last few months with following COVID-19 protocols, but I know quite a bit of our players have really enjoyed their participation in MY TURN. Our players have had the pleasure of reading children's books to elementary school kids over Zoom. It's been wonderful to see the players truly get more out of it than the kids. In the past, we've also done cooking classes. We have an exceptional nutritionist who has really readied the guys for treating their bodies the right way with food intake and smartened them up on the best way to refuel after workouts, practices, and more."

What are the key character traits players need to successfully face this evolving situation?

"Adaptability has to be up there. It happens in a game with how it ebbs and flows and teams going on runs and being able to respond to that. And it has happened with our game schedule. That's a different dynamic, one that will take some time to become accustomed to. But I believe our guys are off to a good note on that end and are truly taking it one day at a time." ■ *TW*

DROPPING DIMES
Read more of the interview with Mike Young at vtmag.vt.edu.

OLOGY

a subject of study

ol·o·gy
äləjē

GAME ON

IN THE MIDST OF A GLOBAL PANDEMIC, a new relationship bloomed in Blacksburg, bringing together virtual gaming and sports journalism.

"It's been a perfect marriage," said Evan Hughes of the partnership between 3304 Sports, the online platform for students studying sports journalism at Virginia Tech, and Rec Sports' esports program.

Throughout the fall semester, 3304 Sports produced live broadcasts of Rec Sports' virtual gaming leagues. The broadcast students called play-by-play for the online contests, created in-game graphics, and organized pre and post-game shows.

A senior studying multimedia journalism and the sports director for 3304 Sports, Hughes said the arrangement allowed students to get broadcast experience during a time when going to athletic events in-person was prohibited.

"Even though the fall semester looked different, we couldn't just take a semester off," Hughes said.

According to Hughes, the relationship began with a phone call from Will Trent, an alumnus of the School of Communication and interim associate director of administrative services for Virginia Tech Rec Sports.

"I've seen the potential for a partnership between Rec Sports and 3304 Sports since coming back to work at Virginia Tech," said Trent.

Rec Sports launched esports this fall, offering a variety of games ranging from sports-themed contests, to nontraditional games, such as Rocket League, which features playing soccer with vehicles.

3304 Sports is part of the university's sports media and analytics major (SMA) and taught in part by the former Voice of the Hokies, Bill Roth.

"Our students embraced the opportunity to call esports and other events. Anchoring and hosting shows while wearing a mask was a challenge, but it didn't slow their resolve or the momentum we are building in SMA," said Roth.

Esports allowed students to gain experience calling games for a live audience and offered Virginia Tech senior Shaakir Janmohammad the chance to produce and direct live, remote shows.

Janmohammad, a sports media and analytics major, estimated that he spends five to six hours on each broadcast, managing pre- and post-production, scheduling in-game graphics, and directing the broadcast team via earpieces.

"It's exposed me to a whole different side of broadcasting that I'd never been involved with before," said Janmohammad. ■ *TW*

LIAM SMENT

QUESTION

DOES NUTRITION AFFECT
THE IMMUNE SYSTEM?


Carlin Rafie

COURTESY CARLIN RAFIE

WEARING A FACE COVERING, PHYSICAL distancing, and handwashing are not the only ways that people can protect themselves from COVID-19 and other illnesses, such as the flu or common cold.

Eating a healthy diet is essential to building a strong immune system so that your body is less susceptible to infections of all kinds, including the coronavirus, said Carlin Rafie, a registered dietitian and professor in Virginia Tech's College of Agriculture and Life Sciences.

Evaluate your plate

Eat five to nine servings of fruits and vegetables a day, including fresh, canned, or frozen varieties, Rafie said.

"Higher fruit and vegetable consumption is associated with reduced risk of chronic disease and results in lower infection rates," she said.

Plant-based diets also are best, which include such foods as whole grains, nuts, and seeds. These foods contain healthy fats and provide vitamin E, in which people are often deficient.

It's also important to eat dairy or non-dairy alternatives that contain vitamin D every day. Most vitamin D comes from exposure to sunlight.

Rafie also recommends swapping red meat for white meat and eating fish, including such fatty varieties as salmon and trout, at least twice a week.

Vital vitamins and minerals

The majority of people can get all of the required vitamins and minerals in their diet if they choose foods wisely. But there are groups of people who are at risk for nutritional deficiencies and who may need to take vitamin and mineral supplements.

In particular, B vitamins, including vitamins B6, folate, and B12, play specific roles in strong immune system function, Rafie said.

Additionally, another vitamin, vitamin C, is an antioxidant.

"We have pretty strong evidence that supplementation with vitamin C during the common cold and respiratory infections actually reduces the severity and length of the illness," Rafie said.

Also, some older adults are deficient in zinc, a mineral that is important to the immune system. Rafie suggests adding zinc as a supplement if deficiency exists.

Vitamin D has been highlighted in the past year as an important vitamin for fighting coronavirus. There are receptors for vitamin D in immune cells, Rafie said, and vitamin D's actions appear to regulate the immune system's response.

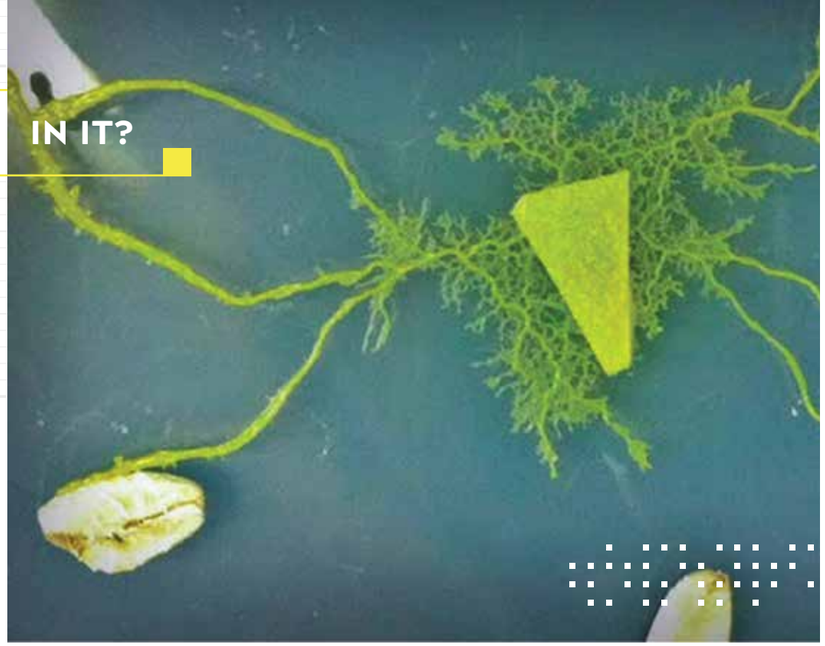
Research is ongoing to determine if there are benefits of vitamin D supplementation for people with COVID-19, Rafie said.

Anyone considering vitamin or other dietary supplements should first consult a doctor.

Be pro probiotics

About 70 to 80 percent of the immune system is associated with the gastrointestinal or GI tract. That's why including probiotics, which are good bacteria that keep the gut healthy, in a daily diet is important, Rafie said.

People can find this beneficial bacteria in foods, such as yogurt, buttermilk, and fermented vegetables. Look for live cultures on the food labels. Probiotic supplements are also available. ■ *JKB*



BIOTECH-IN-A-BOX

HIDDEN AWAY ON THE LOWER LEVEL of Fralin Hall are boxes of DNA and protein gel electrophoresis kits, slime molds, colorful pipettes, and other Biotech-in-a-Box adventures.

For aspiring young scientists, hands-on experience in the laboratory is ideal for piquing their scientific curiosity. For many schools across Virginia, accessing expensive scientific materials can be difficult. The Fralin Life Sciences Institute Biotech-in-a-Box program helps alleviate this strain.

The Biotech-in-a-Box program is directed by Kristi DeCourcy, senior resource associate, and Kristy Collins, director of education and outreach programs at the Fralin Life Sciences Institute.

"Even if schools can afford to buy some of the equipment, they can't get the expendables like samples, agarose, buffers, and stains," said DeCourcy. "Some schools are very well-equipped and have the resources. But most of the schools have a very small budget. That is why we provide these kits for them."

In a normal year, the Biotech-in-a-Box program provides pre-made biotechnology kits for 10,000 to 15,000 science activities to public and private high schools and community colleges all over the commonwealth.

Since its inception in 1994, the program has continued to expand. But, COVID-19 required DeCourcy and Collins to tailor the program to a mostly virtual educational system.

DeCourcy debuted demo kits that teachers could present to their students via the Zoom video conferencing platform. Some teachers collaborated to film demos that could be shared with colleagues across the commonwealth to alleviate the stress of self-recording and to help ensure quality videos that will engage students.

"The teachers that borrow these kits are the best of the best. They are willing to go the extra mile to get these activities for these students," said DeCourcy. "It's not easy. They get this crate with everything in it, but they still have to make the buffers, set everything up, and get the students going. So, the ones that are doing this program are the ones who really want their students to get the experience."

Barbara McGrath, biology teacher from William Byrd High School in Vinton, Virginia, has had an exceptional experience with Biotech-in-a-Box. "The Biotech-in-a-Box labs have allowed me to run vigorous, hands-on technical experiments with my AP Biology students that would normally be beyond me financially and equipment-wise," McGrath said. "Being able to let my students experience ELISA, protein and DNA gel electrophoresis, and other labs has allowed me to instill a spark of excitement and curiosity in the biological sciences that they take on to college."

Many of McGrath's students go on to earn degrees in the biological sciences.

"Without Dr. DeCourcy, these labs would be forever out of reach for a biology teacher like me in the public-school setting. I am so grateful for her hard work and continued support in this partnership," said McGrath.

A former Biotech-in-a-Box student from Faith Christian School, Kathryn Conrad, said, "You can study all day long with a book, but when you touch things with your hands, it brings the science to life."

The Biotech-in-a-Box program was born in 1994 when former Fralin Director Tracy D. Wilkins launched an initiative with Dennis Dean to increase and improve early science education in Virginia. Through workshops held at Virginia Tech for high school teachers around the commonwealth, Wilkins and Dean discovered that teachers were having difficulty affording equipment for science experiments.

The Biotech-in-a-Box program offers five different kits that range from chromatography to immunological tests: Protein Electrophoresis, Column Chromatography, Immunology Introduction, DNA Biotechnology, and Caging the Blob.

Let's take a closer look at Caging the Blob:

The Caging the Blob kit teaches students about the survival tactics of living organisms. Students construct mazes of Lego blocks to examine how slime mold responds to physical barriers.

The kit contains the materials needed to test the ability of *Physarum polycephalum* to navigate a simple maze made of Lego blocks.

During guided inquiry, students construct mazes using Lego blocks, and the slime mold is allowed to navigate the maze and respond to the barrier. Students then generate and test hypotheses about the movement of the slime mold in response to different barriers in the open inquiry phase of the investigation. ■

Kristin Rose Jutras is the director of communications for Fralin Life Sciences Institute.

ACTION PACKED: (opposite page) Students can observe the intelligent behavior and survival tactics of organisms like slime mold. Students track the path that the mold takes to navigate the maze to reach oat flakes. (above) The Caging the Blob kit teaches students about the survival tactics of living organisms. Students construct mazes of Lego blocks to examine how slime mold responds to physical barriers. (bottom left) Boxes of DNA and protein gel electrophoresis kits, slime molds, and colorful pipettes are among the tools included in each Biotech-in-a-Box adventure kit. (bottom right) Kristi DeCourcy and Kristy Collins assemble a biotechnology kit.

PHOTOS BY ALEX CROOKSHANKS AND KRISTI DECOURCY

SPACED OUT

THROUGH A LOOKING GLASS: (above) Throughout campus, labs, classrooms, and other spaces were rearranged to accommodate distancing guidelines. In the College of Architecture and Urban Studies, colorful plexiglass panels were installed between workspaces. The individual spaces with see-through partitions helped create a studio environment that, while different, maintained an atmosphere conducive to student's design needs.

CREATIVE, EXPERIENTIAL LEARNING opportunities are central to the Virginia Tech experience. So when restrictions related to the COVID-19 pandemic altered the day-to-day routines of campus life and learning, students, faculty, and administrators innovated, restructuring traditional classrooms and lecture halls. Different in-classroom arrangements were used to maximize space, while staying safe, and Hans Robinson, a professor in the Department of Physics, provided resources, including a slide presentation and a software program to support departments in reconfiguring layouts specific to variances in classroom shapes and instructional needs.

Many Hokies also took teaching outside and into campus spaces, developing what some might call avant-garde academic areas.

During a time when many universities across the country were forced to return to fully online learning due to outbreaks of COVID-19, Virginia Tech successfully completed the fall semester as planned. In total, 360 courses were held in-person and 1,604 courses followed a hybrid model, having some level of in-person activities, this fall. To date, the Virginia Department of Health has not see evidence of the transmission of COVID-19 in those classrooms or laboratories during the fall semester, according to Noelle Bissell, health director of the New River Health District. ■ *TW*

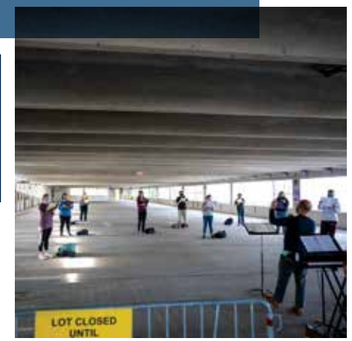
ELBOW ROOM

For videos and more information about how Virginia Tech faculty and students adapted spaces to maintain physical distancing, visit vtmag.vt.edu.

RM

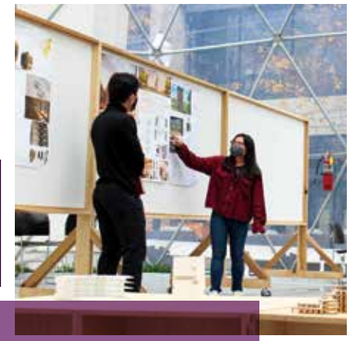
GARAGE BAND VOCALS

The Virginia Tech Chamber Singers didn't expect to start a garage band, but the global pandemic called for a little improvisation. They barricaded a section of a parking garage to create a low-risk space to rehearse. The parking space lines served as a visual reminder to maintain physical distance, and the natural ventilation helped mitigate airborne secretions as the members sang.



GETTING OUT AND ABOUT

In an effort to maximize in-person learning opportunities, faculty members in the School of Visual Arts are taking to the great outdoors–and providing a much-needed outlet for students in their classes. To increase these options, the school made an agreement with the Town of Blacksburg to use the covered pavilions at the Blacksburg Farmers Market as open-air classroom space.



A DOMECOMING

Standing out in stark contrast to the familiar façade of Cowgill Hall, a bright white, 2,900-square-foot geodesic dome now bridges the gap to Bishop-Favrao Hall and adds a futuristic aura to the Hokie Stone surroundings. The dome can host up to 25 people with proper physical distancing and provides additional space for faculty teaching, student presentations, and small gatherings into the spring 2021 semester.

RY, CHIRAVI PATEL FOR VIRGINIA TECH, PETER MEANS

ENGINEERING DISTANCE

The Ware Lab is a 10,000-square-foot design space. Plexiglass partitions were installed in lab spaces, and students interested in using the lab were required to adhere to rules that included limiting capacity, maintaining distancing, wearing a mask at all times, and following protocols for disinfection of spaces, self-quarantine, and testing for potential exposures.

MOMENT

Linsey Marr

EXPONENTIAL EXPERTISE

> I KNEW THE WHO WAS OUT THERE SAYING COVID-19 IS NOT AIRBORNE, SO BECAUSE OF THAT AND THE WIDESPREAD MISUNDERSTANDING OF HOW AIRBORNE SPREAD WORKS, **I KNEW IT WAS IMPORTANT FOR PEOPLE WHO UNDERSTAND IT TO GET THE KNOWLEDGE OUT THERE, AND IT WASN'T GOING TO BE BY READING OUR ACADEMIC PAPERS."**
>
> Linsey Marr

LINSEY MARR AWOKE TO AN UNUSUally full inbox during the July 4, 2020 holiday weekend.

"I had like 20 interview requests in my inbox that morning just over the course of a couple of hours," said Marr, the Charles P. Lunsford Professor of Civil and Environmental Engineering. "At that point, I reached out to the Virginia Tech Media Relations team for a little help."

Days earlier, a letter Marr helped write, which was directed to to the global medical community and relevant governing bodies, had been made public. Signed by 239 scientists from 32 countries, the letter urged powerful groups, such as the World Health Organization (WHO), to stop downplaying the potential for the airborne spread of COVID-19 during routine activities and to use their platforms to advocate for mitigation strategies.

The bold letter, which was printed in major media publications, including The New York Times, drew worldwide attention. It ultimately helped change the global conversation about how COVID-19 spreads and the types of precautions recommended by groups like the WHO and Centers for Disease Control and Prevention (CDC).

The milestone moment came after Marr spent months advocating through traditional media and social media channels for a better understanding of the deadly virus' spread. Marr, who has spent more than a dozen years studying the airborne spread of viruses, has now been interviewed hundreds of times, quoted thousands more, and amassed more than 36,000 followers on Twitter since March 2020.

"When I first started researching the airborne spread of viruses, I told my parents, you'll hear about this someday. I knew there was a gaping hole in the academic literature and the misunderstanding was so bad. There was a lot of research to do," said Marr, now one of only a handful of experts on the topic.

Marr came to Virginia Tech in 2003 after earning her bachelor's in engineering science from Harvard and her doctorate from the University of California at Berkeley.

It was Marr's experience placing her children in daycare that first sparked her interest in studying the airborne spread of viruses. When her son continued to catch colds despite the daycare center's cleaning protocols, Marr decided to figure out the cause.

"I was frustrated, I guess, and really just curious to know more," she said.

During the 12 years that followed, Marr has amassed numerous honors. They include a National Institutes of Health New Innovator Award in 2013 and an appointment to a National Academies of Sciences, Engineering, and Medicine board in January.

"To emphasize the relevance of course material to real life, I begin most of my lectures with a news story, and then I try to weave personal connections into the ensuing discussion," said Marr.

Marr took a similar approach to sharing complex information when she realized the possibility that COVID-19 was being spread by airborne particles wasn't garnering a lot of attention. In early March, she took to Twitter, sharing what is now a pinned Tweet atop her profile warning of the virus' airborne transmission. In contrast, the CDC didn't permanently publish a position accepting the virus could be spread by tiny particles lingering in the air until October.

"I knew the WHO was out there saying COVID-19 is not airborne, so because of that and the widespread misunderstanding of how airborne spread works, I knew it was important for people who understand it to get the knowledge out there, and it wasn't going to be by reading our academic papers," Marr said.

Marr had about 3,000 followers when she pinned that tweet in March, and she now has more than 36,000 people following her on the social media platform. There, she's used the visual of cigarette smoke to explain viral plumes, illustrated mathematically proven safer ways to hug with photos of her and her daughter, and regularly shared practical safety tips for everyday life in the pandemic era.

As a June article in The New York Times said, "Her Twitter feed is a daily exchange of ideas among fellow scientists, and it's also peppered with questions from followers, which she tries to answer. Part of the reason Dr. Marr has become so popular in public forums is her ability to explain difficult scientific concepts in easy-to-understand terms."

In July, she was asked by the same newspaper to pen an op-ed. In November the ventilation measures she helped the gym she attends put in place gained national attention when 50 athletes were potentially exposed to the virus but none contracted COVID-19.

"If you start a research project, and it takes you at least six months to a year to complete it, then another six months to publish. Sometimes, two years have passed before you really share [the project's findings]," Marr said. "With the pandemic, we don't have that kind of time, so there's been a lot of good discussions on Twitter, as well as getting those critical messages to the public."

According to Pamela VandeVord, associate dean for research and graduate studies in the College of Engineering, Marr's efforts to make research more accessible create meaningful learning experiences for a broad spectrum of the community as well as students at the university.

"Experts like Linsey Marr not only actively contribute to the ongoing conversation we're having about these issues in the research community, they're also instrumental in informing the public," said VandeVord. "Linsey does a phenomenal job of making her research accessible to everyday people. We've seen her break down those barriers in real-time throughout this pandemic, and that kind of outreach is important when it comes to educating the next generation of experts, too." ■ *TW*

IN THE **NEWS**

From March 2020 through late February 2021, Linsey Marr has been interviewed several hundred times in local, regional, national, and international news coverage. She's been mentioned roughly 171,000 times in media clips across the globe, including roughly 148,000 in the U.S.

Some of the more notable mentions include:

The New York Times: *"Most of us had never heard of aerosol science before the pandemic. Then Virginia Tech's Linsey Marr showed up and became our tour guide to the invisible world of airborne particles."*

The Times of UK: *"Professor Linsey Marr's hugging rules during the COVID crisis have made her a social media star. The science behind it is deadly serious, she explains."*

The Wall Street Journal: *"Linsey Marr is an engineering professor at Virginia Tech who specializes in a field that has never been so useful to so many people: She's an expert on viruses in the air. Marr's research during a pandemic driven by airborne transmission of a virus has made her a trusted source of advice for people all over the world. And in her local CrossFit."*

Marr is prolific on Twitter at https://twitter.com/linseymarr.

LIFE ONLINE

A PRIMER FOR SAFETY AND PRIVACY IN THE DIGITAL AGE

BY JENNY KINCAID BOONE WITH DOM BENJAMIN, SUSAN GILL, AND FAIREN HORNER.

INSTAGRAM, ZOOM, GOOGLE MEET, MARCO POLO, FACEBOOK, TWITTER, SNAPCHAT, TIKTOK, SKYPE, THERE ARE A PLETHORA OF WAYS TO COMMUNICATE ONLINE.

WITH THE ADVENT OF THE PANDEMIC, RELYING ON REMOTE ACCESS FOR EVERYTHING FROM WORK AND SCHOOL TO SOCIALIZING, HEALTH CARE, AND SHOPPING HAS BECOME ESSENTIAL TO DAY-TO-DAY ROUTINES. THESE ONLINE EXPERIENCES ALSO HAVE OPENED A WINDOW INTO PERSONAL LIFE THAT ISN'T EASY TO SHUT.

LOGAN WALLACE

A PLACE IN THE SUN: During spring semester 2017, a first-year student takes advantage of the unseasonably warm temperatures to study outside on the Blacksburg campus.

CLEAN UP YOUR GAME

KEEP THESE TIPS IN MIND WHEN SHARING, POSTING, AND TWEETING:

QUESTION EVERYTHING: Think and evaluate something before you share it to make sure you're not amplifying fake or harmful information.

BUTTON IT UP: Before you take to your public social media page to vent, consider having a private/protected account or utilize privacy features to keep your personal audiences tailored and narrow. Use "public" post settings sparingly.

ALTER EGOS: Make sure your alter ego doesn't make a cameo appearance in your real life. Don't forget to switch from a business account to your personal account before posting something personal.

COOKIE CRUMBS: Know that "likes" and other activities could show up on others' feeds, including your web browsing history. Also, your content may end up on social media, even if you didn't intend it.

BEWARE OF BOTS: Not all social media users are human. Bots adopt profiles, sometimes even using images stolen from real posters. These infiltrators interact with people, all the while collecting data about user behavior, which may be used in hacking, identity theft, or other questionable activities.

THINK BEFORE YOU POST: Anything can be easily screenshot and resurface, even if it's been deleted.

BREECH DETECTED: Sharing isn't always caring, especially when it's a post asking you to share your first pet's name. Don't share personal contact or security information with others online.

FOLLOW THE RULES: Your employer may have specific regulations related to social media. Make sure you know what you can or can't do. Social media platforms also have their own rules for what is allowed.

BE KIND: Do not cyberbully, troll, or engage in other activities online that may cause harm to others.

Aaron Brantly and his kids love Legos—specifically Star Wars sets. After occasional online searches to find the best ones, Brantly now receives unsolicited advertisements for the latest Stars Wars Lego creations in his social media feed. He understands that's not a coincidence.

But is the increased marketing good or bad? That depends. Many of the ads are for deals that Brantly says are too good to be true, stressing that proper vetting is important before a purchase.

In the online world, humans are considered products, not consumers, explained Brantly, an assistant professor of political science at Virginia Tech who directs the Tech 4 Humanity Lab. The lab focuses on the impact of technology on the human condition.

"When you click on anything from a video to a product, you are helping that company build a robust database on you, your likes, your dislikes," he said. "The social media vendors know exactly who you are. Just because you are in your own home doesn't mean that you are engaging in privacy-conscious activities if you are on social media or on the web."

In fact, Brantly suggested that it's nearly impossible to maintain a private life if you use social media and the Internet. Add the coronavirus pandemic that forced the world to turn to virtual options for everything—working, teaching, learning, family gatherings, happy hours, and more—and all of a sudden, we are living our lives online.

Although across-the-board e-privacy may be hard to maintain, ultimately, each person must decide what information they want to divulge online, said several Virginia Tech faculty who are experts in social media communications.

KNOW WHAT IS PUBLIC

Maintaining some level of privacy online starts with understanding which personal information is truly private. Mike Horning, an associate professor of multimedia journalism at Virginia Tech, suggested that people review the information that others can see publicly in their individual social media accounts. For example, some users don't realize that others can see the comments they write on a friend's Facebook photos or understand that a photo in which they are tagged may show up elsewhere.

Horning said that people should check the settings on social media accounts and adjust privacy or security options to ensure that certain information is more secure based on who can see it.

Horning also stressed that biographical details listed on a social account are public. And that information could be shared.

"The thing that people don't realize is if you share a little bit over here on social media, it's not too hard for people to make assumptions," Horning said. "There's the privacy question about how much information you want to give to these social media companies. Then, there's the privacy question of the degree that you want to share your information with perfect strangers."

BE CAUTIOUS OF CYBERTHEFT

More time spent using technology naturally makes anyone more susceptible to having their personal information stolen, Brantly said.

With the large volume of people working and learning from home during the pandemic, cyberattacks have increased. In particular, the incidence of ransomware attacks, which occur when cybercriminals hold computer data or a network hostage until a ransom is paid, has risen, according to MonsterCloud, a cybersecurity firm.

To guard against attacks, do not share personal passwords over social media or via email, Brantly said. These are the main avenues through which personal information can be stolen.

Also, he suggested that people activate two-factor authentication whenever possible to ensure increased security for certain networks and websites. This extra security measure often requires people to verify identity using a 6-digit code. Most major services, including Google and Yahoo, offer this feature, and some workplaces require it. Although the practice may seem a little inconvenient, the increased layer of protection is worthwhile.

"Enabling these types of features increases the time that you can get into accounts by about 30 seconds, but it will protect you," Brantly said.

Aside from digital threats, people also should be conscious of on-the-ground attacks, particularly as a result of sharing certain kinds of photos or personal details on social media accounts.

For example, to guard against home theft, Brantly discouraged sharing photos of an out-of-town vacation spot until the travelers have returned. Check-ins or posts with details that indicate the writer's whereabouts may alert would-be thieves that a home or business is unattended. Also, neighborhood social media accounts may reveal information about homeowners that isn't intended for public consumption. Even games and social media challenges are used to collect personal information, so think twice before participating. The ninth photo in a digital library may offer strangers a peek at that new television or computer. The answers in a get-to-know-your-Facebook-friends questionnaire may offer up password prompts or clues to personal information.

It's important to know that with any online post, information can be shared without your knowledge, Brantly said.

"It is possible for people to screenshot; it's possible for people to share it [information] outside your social media group, or if you use hashtags, the post will move beyond your user groups," he said.

> "The thing that people don't realize is if you share a little bit over here on social media, it's not too hard for people to make assumptions. There's the privacy question about how much information you want to give to these social media companies. Then, there's the privacy question of the degree that you want to share your information with perfect strangers."
>
> MIKE HORNING
> *ASSOCIATE PROFESSOR OF MULTIMEDIA JOURNALISM*

SOCIAL MEDIA KNOWS YOU

Choosing to have a social media account is an automatic agreement to share some personal information.

Megan Duncan, assistant professor in the School of Communication, described personal information as a type of currency. Users offer that currency in exchange for free online services, such as staying connected to family and friends via Facebook.

"Part of what keeps society together has to be a little bit of social trust," Duncan said.

Certain apps, such as Google maps, even require that users share their geographic location for the information to be useful.

"That's sort of the Catch-22," Horning said. "It's hard to totally opt out of this. You can, but you lose out on a lot of advantages."

Ultimately, users must decide if sharing their personal data is worth the payoff. After all, Duncan said, she would rather see advertisements for items that she likes than for products that don't interest her.

"We all have to decide what we can live with," Horning said. "Most of this data is being collected to advertise to you. If you're okay with that, then it's not something you need to worry about."

THINK BEFORE YOU POST

When Duncan was growing up, her neighborhood had a party phone line. Neighbors could hear others' phone conversations. Her parents always reminded her to watch what she said if she talked through the party line.

"Don't confess to murder on the phone, you never know who's listening," they would joke with her.

That same reminder applies to social media, Duncan said. In her classes, she discusses research on self-censorship on Facebook, which illustrates the number of times that a person writes a post and then deletes it.

Before social media, people often did not know what friends thought about certain subjects, such as politics.

"It's not necessarily that we are more polarized, it's that we have more knowledge about a private side of our everyday acquaintance that we used to not know about," Duncan said, suggesting that thinking before posting is a good rule to employ. "We all have that moment when we want to express ourselves, but we can take a breath and think 'Is expressing myself in this way really going to be worth it?'" ■

SAFE AND SOUND

For more stories and videos about online safety and issues related to cybersecurity, visit vtmag.vt.edu.

STUDY HALL: A student takes advantage of one of the study spaces in the Classroom Building in 2016.

PETER MEANS

FULLY DEFINED

SOCIAL MEDIA HAS SPAWNED AN ASSOCIATED LANGUAGE. HERE ARE A FEW DEFINITIONS OF SOME OF THE MORE PREVALENT WORDS CONNECTED TO PRIVACY AND SECURITY.

CLICKBAIT: Clickbait is content that is written specifically to attract as many clicks as possible. Just about any type of content can be considered clickbait, but the technique usually involves a piece of content that intentionally over-promises or misrepresents in order to pull users onto a particular website.

CYBERSTALKING: Cyberstalking is stalking that takes place using electronic devices or the internet. It is the technological harassment directed toward a specific individual. There are several forms of cyberstalking that can take place, including:

- Placing orders for delivery in someone else's name.
- Gathering personal information on the victim.
- Spreading false rumors.
- Encouraging others to join in the harassment.
- Threatening harm through email.
- Creating fear and paranoia for someone else.
- Hacking into online accounts.

CYBERBULLYING: Cyberbullying, or cyberharassment, is bullying with the use of digital technologies. It can take place on social media, messaging platforms, gaming platforms, and mobile phones. It is repeated behaviour, aimed at scaring, angering, or shaming those who are targeted. Examples include:

- Spreading lies about or posting embarrassing photos of someone on social media.
- Sending hurtful messages or threats via messaging platforms.
- Impersonating someone and sending mean messages to others on their behalf.

LURKER/LURKING: A lurker is someone who browses social media, social media profiles, and forums, but without interacting or posting anything themselves. While lurking, people simply observe and follow the posts and interactions of others.

NSFW: Not safe for work (NSFW) is used as a warning before a link that contains anything that would not be okay to look at if you're at work. These links usually contain inappropriate images, profanity, or anything else you probably wouldn't want your supervisor to see you looking at.

SOCIAL MEDIA INFLUENCER: A social media influencer is a user who has established credibility in a specific industry, has access to a huge audience, and can persuade others to act based on their recommendations. An influencer may be anyone from a blogger to a celebrity to an online entrepreneur.

TROLL/TROLLING: Trolling is defined as creating online discord by starting quarrels or upsetting people by posting inflammatory or off-topic messages. A social media troll is someone who purposely shares something controversial in order to evoke a negative response. The best advice is, "Don't feed the trolls." Just block them and move forward.

BREAKING THROUGH

By Jenny Kincaid Boone and Travis Williams,
with Rosie Hutchison, John Pastor, and Max Esterhuizen

THE MANY LAYERS OF SUBSTANCE MISUSE: HOW RESEARCH, TECHNOLOGY, AND UT PROSIM UNCOVER OPPORTUNITIES FOR SUPPORT, RECOVERY, AND AWARENESS ON CAMPUS, AT HOME, AND IN THE COMMUNITY

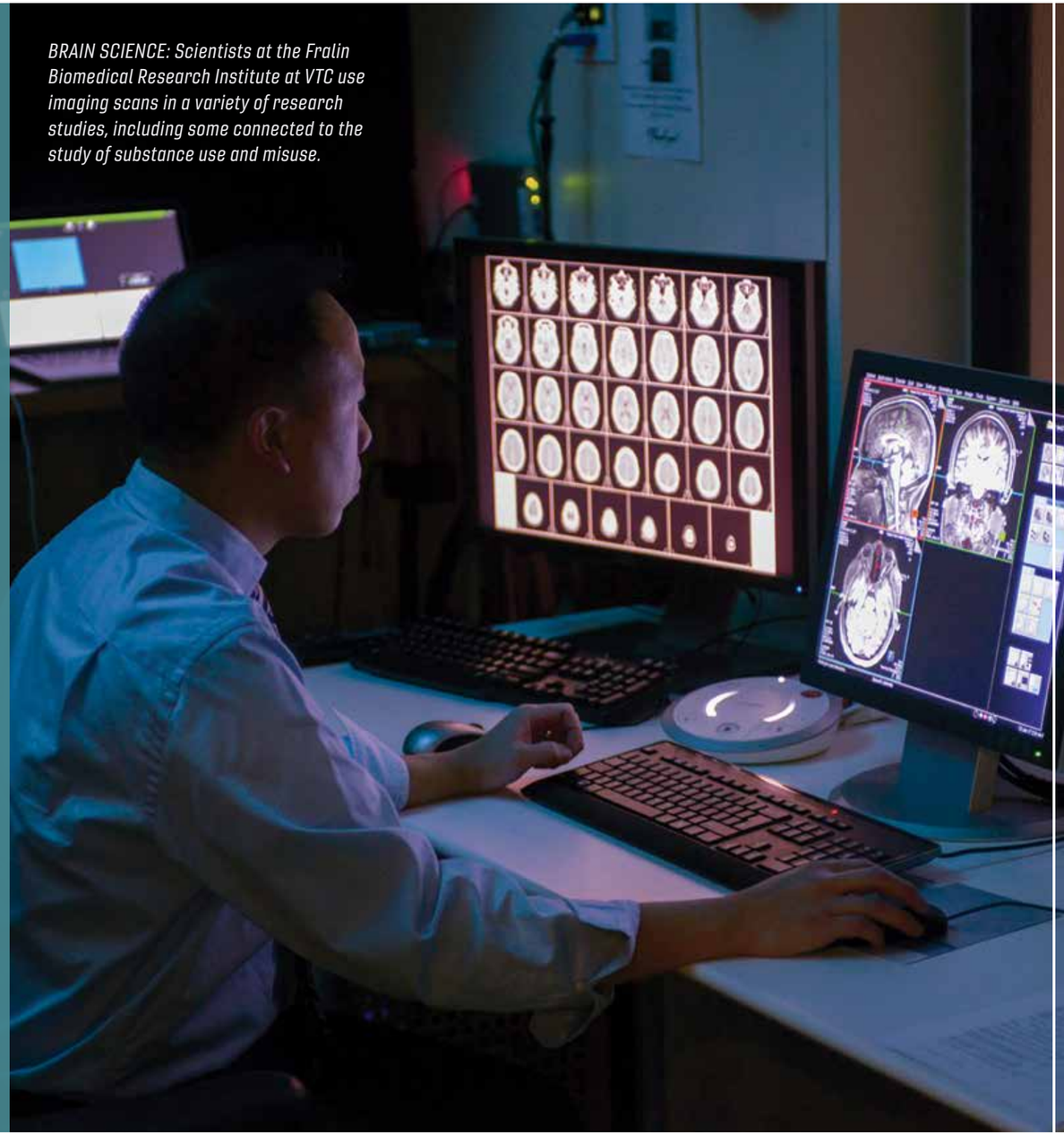
Alcohol, marijuana, Adderall, LSD. Richard has not only tried them all, he once was addicted to several at the same time.

"I was staring at myself in the mirror, and I just saw death," said the Virginia Tech graduate student. "I thought, 'I need to start making changes.'"

Richard's treatment and recovery journey began in early 2020. Because of the existing and often harmful stigma surrounding substance use disorders, he elected to disclose his first name only. After about six years battling addiction, Richard was determined to make sure graduate school and a new environment didn't slow or stop his positive progress. And it didn't. He recently celebrated one year of sobriety, thanks in large part to the support he found within the Virginia Tech Recovery Community. For students like Richard, as well as some Virginia Tech employees, the recovery community has been a lifeline on their journeys toward a positive well-being.

In the U.S., there were more than 81,000 deaths from drug overdoses from May 2019 to May 2020, the highest number of overdose deaths recorded during a 12-month period, according to the Centers for Disease Control and Prevention. Synthetic opioid use, up 38 percent from June 2019 to May 2020, drove the overall jump in overdose deaths. Meanwhile, binge drinking also spiked significantly during the pandemic, and distancing restrictions that have prohibited in-person attendance at support group meetings has led to feelings of isolation and depression. Across the country, this rampant substance misuse results from a web of individual and societal issues and leads to numerous personal and community-wide problems.

Across the university, scientists are conducting research to learn more about why people use substances, working with community groups and public schools to evaluate the impact of positive interventions, and using what they learn to advocate for better outcomes for both people who use and those impacted by using.



BRAIN SCIENCE: Scientists at the Fralin Biomedical Research Institute at VTC use imaging scans in a variety of research studies, including some connected to the study of substance use and misuse.

DAVID HUNGATE

RESEARCH

Nobody ever expects to get hooked on opioids—not people who take prescription drugs to manage pain, nor those who want the high that comes with being under the influence of heroin or fentanyl.

But opioids have different ideas.

They bind to brain receptors, making it hard for users to feel pleasure from anything else, according to the National Institute on Drug Abuse. Once people become dependent, getting better is a complex process that involves an immediate intervention directed at stopping the drug use, followed by an often years-long recovery period.

"Our understanding of addiction has evolved in recent years to more fully appreciate that opioid use disorder is chronically relapsing and requires enduring treatment," said Warren Bickel, a professor at the Fralin Biomedical Research Institute at VTC and director of the institute's Addiction Recovery Research Center (ARRC) and its Center for Transformative Research on Health Behaviors. "Living with opioid use disorder is like living with diabetes, obesity, or a host of other chronic ailments that are, in many cases, aggravated by a person's own behavior."

Recently, Bickel and colleagues announced positive results using the medication buprenorphine to assist long-term recovery for individuals with moderate to severe opioid use disorder. The work was funded through a grant from the global pharmaceutical company Indivior.

And beyond drug treatments, Bickel is researching a "behavioral economics" approach to substance abuse, which aims to understand why some people chose the greatest immediate appeal at the cost of long-term happiness.

People who use alcohol believe that when it comes to immediate satisfaction, nothing works quicker than liquor, and new interventions have not kept pace to help individuals resist the siren song of alcohol, the second-most-abused substance in the U.S. Tobacco ranks No. 1.

FOR MORE HELP, PLEASE REACH OUT

Substance Abuse and Mental Health Services Administration:
samhsa.gov/find-treatment
National Hotline: 1-800-662-HELP (4357)

Narcotics Anonymous:
na.org:
(818) 773-9999

Alcoholics Anonymous:
aa.org
(212) 870-3400

Al-Anon:
al-anon.org:
(757) 563-1600

Now, Bickel and Stephen LaConte, an associate professor at Fralin and an expert in advanced neuroimaging, are studying whether people battling alcohol use disorder might gain some relief by "pre-experiencing" the future.

"People who have problems with alcohol have a decision-making process focused on immediate outcomes, and they make choices that aren't very healthy for them," said Bickel. "When time is short, reinforcers that offer brief, intense, and reliable rewards, such as alcohol, have greater value. Instead, we want to explore ways for people to mentally construct how they will feel at future events, and this lowers the value they place on alcohol."

With support from the National Institute on Alcohol Abuse and Alcoholism of the National Institutes of Health and using behavioral analysis, an in-laboratory drinking situation, neuroimaging, and computational modeling, the new approach dives right into efforts to understand the decision-making involved in alcohol use and abuse. The scientists have also used the applications to study opioid addiction.

Study volunteers belly up to an experimental bar, where they "self-administer" alcohol. But it's not exactly party time.

"We have safety limits," said Bickel, who is also a professor of psychology in the College of Science. "There's only a limited amount they can drink in our bar lab during the window of time that we give them. And, of course, study volunteers are not permitted to leave until they're no longer affected by alcohol."

LaConte, an associate professor in the Department of Biomedical Engineering and Mechanics in the College of Engineering, oversees a form of functional brain imaging called real-time fMRI—a technique he refined to further understand the events that occur in the brain. As with alcohol use disorder, people struggling with opioid use place a much higher priority on immediate gratification than future rewards—an indicator they may need extra help during recovery.

"When time is short, especially when people feel sick because they are in withdrawal, opioids are intense, immediate, and reliable," Bickel said. "The person is trapped in the moment. If we use technology to 'teleport' their thinking into the future, get them to think about loved ones, family members, or goals that have greater long-term value, we can change that short-term focus."

This technique, called "episodic future thinking," has worked before in situations where scientists measured how much people normally drank during their daily activities and then introduced episodic future thinking to the mix.

"If someone said, 'A month from now I'm going to go to my nephew's birthday party,' we would text them reminders, 'Nephew's birthday party,'" Bickel said. "It worked. People who were drinking an average of six beverages a day cut their consumption nearly in half, only because we were texting them with the titles they wrote for themselves during episodic future thinking.

"We still have more to understand about the nature of alcohol use disorder and believe the results of our studies will positively impact public health," Bickel continued.

The study is just one of the efforts scientists at the institute have been making to address the substance addiction crisis since Bickel launched the International Quit and Recovery Registry in 2011. A kind of social media option for people in recovery, the registry has logged nearly 10,000 members in its first 10 years. In addition to being a safe forum, the site is a tool for collecting the data needed to develop further methods for overcoming addiction.

"They are teaching us what recovery looks like," said Sarah Snider, a former postdoc and senior research associate at Fralin Biomedical Research Institute and founder of BEAM Diagnostics. The company, for which Bickel works as senior scientific advisor, spun out of the institute in 2017. "Employment, social interactions, family relationships, the circumstances of people's lives—all play a part. There's so much more to it than just the drug or the substance."

CLAYTON METZ

OUTREACH

Sometimes navigating the complex web of substance misuse starts with a simple piece of fabric.

"You'd be amazed at the gratitude that comes from getting a washcloth when you haven't had those means in a long time," said Christine Baldwin, a certified peer recovery specialist and the peer recovery services coordinator for HOPE Initiative. Peer recovery specialists and peer educators most often have some level of lived experience related to the topic with which they are providing assistance.

A program of the Bradley Free Clinic in Roanoke, Virginia, the HOPE Initiative assists individuals battling substance use disorders. The organization operates in partnership with Virginia Tech researchers from the Institute for Policy and Governance, the Center for Public Health Practice and Research, Fralin Biomedical Research Institute, and the Center for Biostatistics and Health Data Science to address the opioid crisis through an innovative combination of research and service. Together, they distribute lifesaving resources to at-risk populations via backpacks as part of the Connection 2 Care (C2C) project. The project is funded by the Center for Drug Control Policy & Enforcement's Combating Opioid Overdose through Community-level Intervention grant program.

The bags contain not only basic life essentials, such as fleece blankets, water bottles, and personal hygiene products, but also the overdose reversal drug Naloxone, more commonly known as Narcan, which is provided via training by authorized partners. In addition, C2C funds the work of community-based peer recovery specialists who support partnership building, and organize outreach and education events.

"It's like a fire extinguisher. It should be close to where the fires are," said Lawson Koeppel, executive director of the Virginia Harm Reduction Coalition (VHRC), of Naloxone. "Overdoses are part of life for people suffering with addiction, and saving their lives is often done by folks who also use drugs. This is helping make sure they have the tools to do that."

FOR MORE HELP, PLEASE REACH OUT

National Suicide Prevention Lifeline:
suicidepreventionlifeline.org
(800) 273-8255

SMART Recovery:
smartrecovery.org/community
(440) 951-5357

Psychology Today:
psychologytoday.com/us
(Find local therapists)

WE ARE FAMILY: Grandparents play a special role in the lives of children. In some families, grandmothers and grandfathers may even step in as primary caregivers when necessary.

COURTESY TRAVIS WILLIAMS

Since December 2019, 540 Connection 2 Care bags have been given out, and more than 300 have gone to individuals who are housing-insecure. The Department of Health and Human Services has defined housing insecurity as high housing costs in proportion to income, poor housing quality, unstable neighborhoods, overcrowding, or homelessness. The backpacks are distributed through community-based partners, such as HOPE and VHRC, as well as to people who have been treated for overdose in emergency rooms and those being released from incarceration.

"It's kind of like sending them out with survival kits," said Leigh Ann Sparks, an inmate recovery services coordinator with the Western Virginia Regional Jail in Salem, Virginia. Sparks said the bags are most often supplied to people who aren't held long enough to become involved in the jail's other long-term treatment programing.

"Now we can actually offer something to those folks who aren't engaged in our programming and empower them with some potentially life-saving information," Sparks said. "If people aren't ready to change, there's nothing any of us are going to do to change that. But we can give them all the information to do so, and say, 'Here is the help, just in case you decide you want it.'"

Through the backpack distribution and other programming efforts under the Connection 2 Care umbrella, the researchers reported more than 1,200 successful contacts with individuals in the program's first year, with about 240 people being referred to some level of treatment services.

Connection 2 Care is just one of the efforts researchers across the university are developing to learn more about the results of positive interventions related to substance use disorders. Much of this research takes place in settings common to the most at-risk populations, including certain segments of the criminal justice system, alongside health care providers, and in public schools.

"We always joke that our lab is the community," said Sophie Wenzel, associate director of Virginia Tech's Center for Public Health Practice and Research. "It's all public-health-based, practice-based implementation research. So our lab really is working with people."

This work often includes helping facilitate grants that support positive interventions, providing training related to implementation, and documenting the outcomes so they can be used in policymaking and to secure future funding.

Monica Flora, treatment and recovery coordinator with Piedmont Community Services in Rocky Mount, Virginia, works with Virginia Tech researchers at the Institute for Policy and Governance on the PACE to Recovery initiative.

"Virginia Tech's involvement in this program has directly impacted the lives of people living in our community," said Flora.

The goal of PACE is to create a bridge between emergency room patients with overdose-related issues and access to Medication Assisted Treatment (MAT) and substance use disorder specialists. PACE to Recovery has been funded by the State Opioid Response grant program and the Virginia Higher Education Opioid Consortium.

"They [our Virginia Tech partners] have helped us organize the program from its conception, going above and beyond to link us with other partners; develop materials, such as a brochure and logo; and helping with training people in MAT," Flora said. "The researchers are always looking for ways to collaborate with others and make an impact on the communities in Southwest Virginia."

The work of professionals like Wenzel; Mary Beth Dunkenberger, associate director of the Institute for Policy and Governance (IPG) in the School for Public and International Affairs; and Lara Nagle, IPG community-based learning projects manager, differs from commonly held notions of research. Their studies not only require collaborations with groups, such as community service boards, health districts, local governments, and various nonprofit organizations, but a commitment to building relationships that extend beyond grant cycles.

"A challenge we've found is that we'll get a grant that covers sometimes just a year, but when you're working with community partners, you can't just say, 'Oh well, our grant's up,' and go on your merry way," said Dunkenberger. "We're committed to those relationships too much for that."

Since much of the work typically takes place in person, the COVID-19 pandemic has created new hurdles, but also offered new opportunities to better understand real-life circumstances.

"We recently got in around 400 [C2C] backpacks, and normally I would have had graduate students help deliver those. But I couldn't ask them to do that right now," said Dunkenberger. "So, I've been out talking those to community partners, but what that has enabled is more community conversations. And those conversations can provide invaluable understanding of what's actually happening and what the needs are in the community."

Addressing the needs of communities relevant to substance misuse is also at the heart of Kimberly Horn's research. Horn, a professor at the Fralin Biomedical Research Institute and

in the Department of Population Health Sciences in Virginia Tech's Virginia-Maryland College of Veterinary Medicine, is a co-principal investigator on the Connection 2 Care project.

"Despite an ever-growing number of people seeking help for opioid use disorders, only about 10 percent get the treatment they need for recovery," said Horn. And she suspects better peer support services may be one key to reverse the trend.

Horn is also a principal investigator with the Studies To Advance Recovery Support (STARS) Network. The partnership, which involves researchers across multiple universities as well as those associated with several health care systems, is focused on building research and support networks to address treatment and recovery support services.

"It is important for people in treatment to interact with others like themselves—people who have successfully navigated the same journey in their community and who can give them support as they rebuild their lives," Horn said. "We need to figure out how to create a recovery ecosystem that bridges the gaps. Our hope is that more in-depth studies will prove the value of peer support models so that they can be more fully accepted and utilized in our communities."

Part of the existing Opioid Research Consortium of Central Appalachia, STARS fosters teamwork between scientists, clinicians, practitioners, and community members. The network provides access to online inventories of peer recovery support resources and support professionals, as well as offering online training and certificate programs, consultations, and collaborations with clinics within communities.

A similar commitment to addressing all the needs surrounding substance use disorder drives the research of Megan Dolbin-MacNab, an associate professor in the Department of Human Development and Family Science at Virginia Tech. Dolbin-MacNab has spent her career studying grandfamilies–grandparents serving as primary caretakers for grandchildren–and more recently, the impact of the opioid epidemic on these families.

Nationally, the number of children entering foster care due to a parent's drug misuse has more than doubled since 2000, according to a study by JAMA Pediatrics, a journal published by the American Medical Association. If possible, it is preferred that children live with relatives, rather than enter foster care, Dolbin-MacNab said.

For decades some kind of substance misuse by a parent has been a primary factor behind grandparents' decisions to assume responsibility for their grandchildren. Crack cocaine was the primary substance of choice in years past, but today, it's the opioid epidemic that's once again pushing grandfamilies into the spotlight throughout America.

"The lethality and the highly addictive nature of opioids means that if a parent is misusing these substances, they may very quickly get to a point where they can't take care of their children," Dolbin-MacNab said.

In 2017, Dolbin-MacNab testified before the U.S. Senate Special Committee on Aging about the epidemic, and the next year, Congress passed a new law designed to evaluate and disseminate resources for grandfamilies on the federal and state level.

"Part of the reason I got into this field was to help families," she said. "You can help them one-on-one, but the policy level is where you can put larger resources and support in place."

Connecting people to resources and information is the core mission of Virginia Cooperative Extension (VCE), and as the incidence of substance misuse has increased, VCE has worked to implement programs that provide families with educational resources that target prevention. Since 2016, VCE has helped public schools in some of the most economically challenged areas of the state curb substance misuse by employing the Botvin LifeSkills Training Program, an evidence-based prevention program designed to teach students to make positive life decisions.

CLAYTON METZ

"It's really taking it away from the old, general health class that's about nutrition and talking about hygiene," said Patrick Mills, a health and physical education teacher at Laurel Park Middle School in Henry County, Virginia. "The program meets a lot of the needs of this age group, especially in this community, which has a lot of self-esteem issues related to poverty."

The discussion-based program teaches the skills required to resist drug, alcohol, and tobacco use, while also supporting the reduction of violence and other high-risk behaviors. VCE has trained more than 200 school teachers, who have reached more than 18,000 third through ninth grade students across 26 rural counties in Virginia. The program is often incorporated into the health curriculum.

"This is a really powerful connection across a lot of different community partners," said Kathy Hosig, Extension specialist, director of the Virginia Tech Center for Public Health Practice Research, and associate professor in the Department of Population Health Science. "Teachers are constantly saying how important it is that they have this training because it helps them interact with the students."

Such is the case for Mills and Melissa Bowers, a fellow health teacher and co-leader of the Laurel Park Middle School program. The pair said the real-world approach of the content keeps their students engaged, even in an online format.

"I've been surprised how many students really want to talk about these issues," Bowers said. "And sometimes during the lessons, you can hear a pin drop. It just really taps into some of the things they're experiencing at home."

Hosig is leading a multi-agency team to expand public school and community programs designed to curb the misuse of opioids and other substances, funded in part by a two-year, $1 million grant awarded by the Substance Abuse and Mental Health Services Administration to the Center for Public Health Practice and Research and VCE.

"This programming gives young people the tools to choose not to go down the path they see other people around them taking," Hosig said. "Long term, hopefully this will break the cycle of generations of substance abuse."

The areas in which these Virginia Tech researchers work vary tremendously as do their methods. Nevertheless, they are connected by a common thread—the commitment to serve people and communities in the tradition of *Ut Prosim* (That I May Serve.)

"We're committed to our community partners. We're committed to those relationships," said Dunkenberger. "And that's where we get our energy for the work."

RM

CONNECTION 2 CARE

Connection 2 Care backpacks come in two forms: drawstring bags for people who are housing secure and heavy duty bags for those who are housing insecure. Most backpacks include some combination of the following:

KITS ALSO INCLUDE:

- Fleece blanket.
- Personal hygiene items, such as a toothbrush, toothpaste, and feminine products.
- Portable battery for charging mobile devices.
- Gloves, socks, and hat.
- Water bottle.
- Sun screen.
- Pen and notebook.
- Rescue breathing face mask.
- Referral cards to various community and health-related services and resources.
- Naloxone, the opioid overdose reversal drug, in some form.
- Sharps box–needle disposal container–available if desired.

PARTY POSITIVE: A program of Hokie Wellness, the 21st Birthday Project was created to help students transition into the legal drinking age in a safe and happy manner.

SUPPORT

When Jack Mills turned 21 in March, Hokie Wellness helped him celebrate.

"I don't think many universities would think to give out birthday gifts, but then again, Virginia Tech isn't like most schools," said Mills, a junior studying marketing.

Shortly before his birthday, Mills took part in the Hokie Wellness 21st Birthday Project, where he received a book of coupons and vouchers for food at some of his favorite downtown Blacksburg spots, along with education about how to celebrate safely.

"They give you really helpful tips to navigate your first night downtown and a ton of free stuff, which is awesome," he said. "It's such a cool way for Virginia Tech and the Blacksburg community to show students they care about us."

A part of Hokie Wellness' Party Positive programming, the 21st Birthday Project is just one example of university-organized peer-to-peer, harm reduction strategies to address the use of alcohol and other substances. Student peer educators on the IMPACT—Initiating and Motivating a Positive Alcohol Culture Together—team work with Hokie Wellness staff to hold regular workshops for student groups and perform outreach on campus.

"I really like sharing the Party Positive message because it's not saying, 'Don't party.' It's saying, 'Hey, let's talk about drinking and doing it in a healthy way,'" said Lia Dopp, a senior Virginia Tech student studying public health and a member of IMPACT. "I think there's this misconception about college life—that everyone is getting blackout drunk every night—when really people are drinking a lot less than you think. I like that the university is talking about that and making it okay to not drink. I think it takes the pressure to drink off students a little bit."

The peer-to-peer format is a foundational tool that spans all Hokie Wellness programming. Not only does this format help overcome some of the barriers in talking about sensitive subjects, it provides valuable leadership, teaching, and real-world problem-solving opportunities for the peer educators.

FOR MORE HELP, PLEASE REACH OUT

Cook Counseling Center:
ucc.vt.edu/
(540) 231-6557

Hokie Wellness:
hokiewellness.vt.edu
(540) 231-2233

(offers a variety of wellness programs and workshops)

VT Recovery Community:
hokiewellness.vt.edu/students/recovery
(540) 231-2233

During the past five years, IMPACT members have helped educate thousands of Hokies about alcohol-related safety, providing more than 200 presentations to such groups as Greek organizations, university athletic teams, residence halls, and academic classes. And more than 5,100 students have taken part in the 21st Birthday Project since spring 2016.

The birthday project was founded by Hokie Wellness assistant directors Kelsey O'Hara-Marasigan and David Andrews on a simple premise.

"It is universally good knowledge to have in college," said O'Hara-Marasigan. "We never assume that any student drinks, but we know that having harm-reduction strategies will be helpful if they ever choose to do so or if they are around friends who are drinking. We want everyone to have all the information they need to make sensible decisions."

The program's success at Virginia Tech has garnered the attention of educators across the country. More than a dozen institutions have reached out for assistance with implementing similar opportunities for their students.

"The peer education model was the most inspiring part of Virginia Tech's idea," said Mindy Koon, assistant director of Alcohol and Other Drug Abuse Prevention at James Madison University. "What stood out to me was the opportunity for peer educators to use one-on-one time to speak with students about topics they wouldn't regularly bring up. While we have staff members that are able to facilitate the meetings, it's really our peer educators that have the most effective conversations."

For Virginia Tech senior Yadeen Rashid, it was the opportunity to have such meaningful conversations with fellow students that led him to join the IMPACT team.

"Being on the receiving end of one of their presentations is what drew me in," said Rashid, who is studying economics and political science. "I thought, 'oh, it's just going to be an alcohol seminar,' but it was really more about, 'hey, here's some basic knowledge so you can drink, you can go out and have fun, but you do it in a way that's safe.' Now I get to be the one sharing that information and seeing it being processed and really understood. I really like that."

While Hokie Wellness' Party Positive programs are focused on empowering current students, the REVIVE training program is aimed at equipping people from across the entire Virginia Tech community to help save lives.

The roughly hour-and-a-half-long course covers how opioids work, why they're extremely addictive, and how to respond in the event of an overdose. Those completing the course are eligible to receive Narcan, the opioid overdose reversal drug. Hokie Wellness supplies the nasal spray version of the drug free of charge, and other forms are available via health care providers or local health departments after completing the course.

"I wanted to be sure that I could prevent a tragedy," said John Galbraith, a professor in Virginia Tech's School of Plant and Environmental Sciences, who attended an in-person training prior to the COVID-19 pandemic. "Being able to administer Narcan seemed such an easy way to save a life until professional help could arrive. I often take large numbers of students on long field trips, and I wanted to prepare myself to bring them home safely."

Galbraith is one of the more than 530 people Hokie Wellness has trained through REVIVE since it began in spring 2018. Over the past year, the course has been made available online, and the accompanying REVIVE kit, which includes Narcan nasal spray and other resources, can be picked up at a later date.

"REVIVE not only gives members of the university community an understanding of opioids and the ability to reverse related overdoses, but also helps to decrease the stigma surrounding this crisis," said O'Hara-Marasigan. "It's a great way for any person at Virginia Tech to demonstrate their care for the community and build empathy around topics that sometimes feel hard to discuss."

Such efforts help support the type of welcoming and supportive environment that Richard knew he would need when he arrived in Blacksburg to start his graduate studies.

Seeking a group to hold him accountable in recovery from alcohol and substance misuse, Richard researched Virginia Tech's Recovery Community. He contacted Monica Stanley, a recovery support specialist who works for Hokie Wellness. She invited him to lunch to learn more.

Now, he is a regular at the Recovery Community's meetings and other events. He even meets up with Joshua Redding, a counselor and assistant director at Hokie Wellness who runs the Recovery Community, at 5:30 a.m. several days a week for exercise and weightlifting.

"It's like out of everyone I've met here, I feel the most connected to them," Richard said of the group.

When Redding initially came to Virginia Tech in 2014 to help students struggling with drugs, alcohol, and other substances, he noticed a gap. He would refer many students who were interested in long-term recovery to local Alcoholics Anonymous groups because those kinds of resources did not exist on campus. But the majority of the students found their way back to Redding.

"It [AA] didn't fit for all of them," said Redding, a 2000 Virginia Tech graduate and a former football player for the Hokies who earned a master's degree in counseling from Eastern Mennonite University in Harrisonburg before returning to his alma mater. "They didn't see themselves there."

Soon after that, Redding learned about a $10,000 grant, which was available through Transforming Youth Recovery, to launch recovery groups on campuses. He also met Tom Bannard, program coordinator for Rams in Recovery at Virginia Commonwealth University, who is considered a guru for college recovery programs. Bannard has served as a mentor to Redding and many others at universities across the country as they develop recovery groups at their respective campuses.

The private seed grant fueled the start of Virginia Tech's Recovery Community, formed in 2015 with the mission of bringing students and even faculty and staff together as part of their journey in recovery from substance use disorder. The community also helps students balance academics and social activities with their recovery. The cohort, which consists of about 10 to 15 members, meets once a week to discuss personal experiences and at other times for social events.

GET TRAINED!

The opioid epidemic is a public health crisis. Any person, no matter their age, income, or any other demographic, can experience and suffer from addiction. Knowing how to respond and possibly reverse an opioid overdose can save someone's life and might help them access needed resources for recovery.

Hokie Wellness offers specialized training for the campus community through REVIVE. Other organizations throughout the commonwealth and around the nation offer similar educational sessions.

Anyone who completes REVIVE training through Hokie Wellness is eligible to receive a Virginia Department of Health REVIVE Opioid Overdose Response Kit. Each kit includes the lifesaving drug Naloxone in the form of FDA-approved Narcan nasal spray. Additional forms of Naloxone are available through local health departments and pharmacies.

KITS ALSO INCLUDE:

- Latex-free gloves.
- Rescue breathing face masks.
- Naloxone instruction card.
- Training completion card.
- Stickers to document the time of dosing.

Prior to the pandemic, the group also gathered one evening a week at Bollo's Cafe & Bakery in downtown Blacksburg for free coffee and games. Bollo's would close to the public on those evenings to host the group. Redding also regularly opened his Blacksburg home for informal group dinners.

"College is a recovery-adverse environment, and some of these students feel there is no place [for them] in college," Redding said. "They feel socially isolated. To me, this [the recovery group] is the inclusivity part that we have been missing for awhile."

For the majority of Virginia Tech students who deal with substance use disorder, alcohol is largely the substance of choice because it is readily available and not illegal for those 21 and older, Redding said.

Typically, the first step in overcoming addiction is treatment for the problem, which may include everything from individual counseling to other kinds of intervention. After treatment comes the recovery phase, which is when a person seeks to sustain the behavior that they used to treat the problem and move away from negative patterns for good.

Hokie Wellness is not the only group at Virginia Tech that counsels students who need help with substance misuse. Cook Counseling Center offers therapy with a focus on harm reduction depending on students' preferences, while the Recovery Community is specifically for those who are interested in stopping the use of substances altogether.

One of the biggest challenges that people in recovery face is the stigma associated with addiction. The fear and shame associated with substance misuse can lead to isolation and even relapse. Recovery Ally training, a relatively new Hokie Wellness program, is designed to promote understanding and stamp out the stigma. The program, hosted by Stanley and Redding, is open to anyone at Virginia Tech.

Recovery Ally training, offered virtually during the pandemic, raises awareness about the factors that may lead to substance use disorder, explains treatment options, and offers tips for supporting family and friends in recovery.

"You can talk to a lot of folks on campus in recovery, but unless we have other folks who aren't in recovery talking for them as well, it's hard to make change," Redding explained. Both Stanley and Redding stressed that finding connection through a group like the Recovery Community is especially important for people who feel isolated in their misuse or related struggles.

During their weekly meetings, group members often discuss how they can give meaning to their past suffering, and each spring, there is a special commencement ceremony to celebrate the Recovery Community's graduates.

About a year ago, Hokie Wellness opened the Roost, a room inside the Wesley Building on Roanoke Street that is a dedicated space for the Recovery Community to socialize and host weekly meetings. This spring the Roost will relocate to a house on West Roanoke Street, which will include office space for Redding and Stanley along with more room for participants to hang out.

"Having a sober space is important," Stanley said. "It's a little bit more of a sanctuary."

The Roost was a much-needed haven for Michael Whalen, who graduated from Virginia Tech last year with a degree in material science and engineering. Whalen, who was in recovery for alcohol misuse, described the Recovery Community as a bridge between himself and Virginia Tech, and he enjoyed his first-ever sober spring break trip to Florida with the group.

"This is the place where we can just be together and not have to worry about being shamed or judged," he said. "I also saw the Recovery Community as giving me an opportunity to reach other students in need of help."

But the plans don't stop there. Several new initiatives are in the works, and there is no shortage of ideas to continue to grow the programs. Ultimately, the vision for the future of the Virginia Tech Recovery Community focuses on the well-being of students, and the implementation of these ideas and others will be contingent on funding.

One new avenue of awareness for the Recovery Community will arrive to campus this spring in the form of a traveling electric tricycle that serves coffee. Redding saw a similar concept at VCU and successfully pitched the idea to students and faculty in Virginia Tech's industrial design program. The bike will serve coffee and offer materials that raise awareness about substance use and related campus programs. Although the coffee will be free, the bicycling baristas will accept donations to support the recovery community.

In addition, Redding and Matthew Hulver, executive director of the Fralin Life Sciences Institute at Virginia Tech, are developing plans for a Recovery Scholars Program. The program would offer specific courses for students in recovery, from interviewing skills and personal finance to research and hands-on opportunities, and provide scholarships.

Hulver, who is in long-term recovery himself for alcohol use disorder, collaborated with Redding on the idea because he wanted to contribute in some way to the Recovery Community's growth and to address campus needs.

"For students in recovery, just getting to college is a big deal," Hulver said. "I think there are confidence levels that we need to help grow."

Although the project is currently conceptual, Hulver's aim is for the institute to support its development financially and instructionally and to help connect students with research. But philanthropic support will also be needed to launch this kind of initiative, he said.

"At the institute, our goal is to make impacts at the environment and human condition interface," he said. "So helping students, faculty, and staff in recovery, that speaks to the human condition."

Eventually, Redding said, he would like to develop community housing for students in recovery. Together, the students could navigate day-to-day routines of college life while they keep each other accountable and motivated in their recovery journey.

This kind of space would provide the like-minded support, community, and friendships that students like Richard need so that they can overcome challenges and be successful.

In recovery, "you have to reinvent your entire life, and you have to get to the core of your being and uproot all of these feelings and emotions. It's like getting reborn," Richard said. "No one really understands it except people who have been through it." ■

TOKEN OF HARD WORK

Each spring, Hokie Wellness hosts a special commencement ceremony for graduates of the Virginia Tech Recovery Community.

To commemorate the occasion, each graduate receives a round chip, carefully crafted from Hokie stone and with a mountainscape image and Hokie-Bird feet printed on the front. On the reverse side, the graduate's name is printed with their graduation year.

The chip is a physical symbol of achievement in school and also in recovery.

Graduates also receive a purple cord to wear at the university's commencement ceremonies. Purple is the traditional color of recovery.

The Recovery Community is a support network for Virginia Tech students and employees who are recovering from substance misuse in a variety of forms. Its goal is to support students in their recovery journey while also helping them to balance academics and social life. The community meets weekly and is a lifeline for many members who find security and acceptance among others who are on a similar path.

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Mehul and Hema Sanghani

CHUCK KENNEDY

AN INVESTMENT IN HIGHER EDUCATION

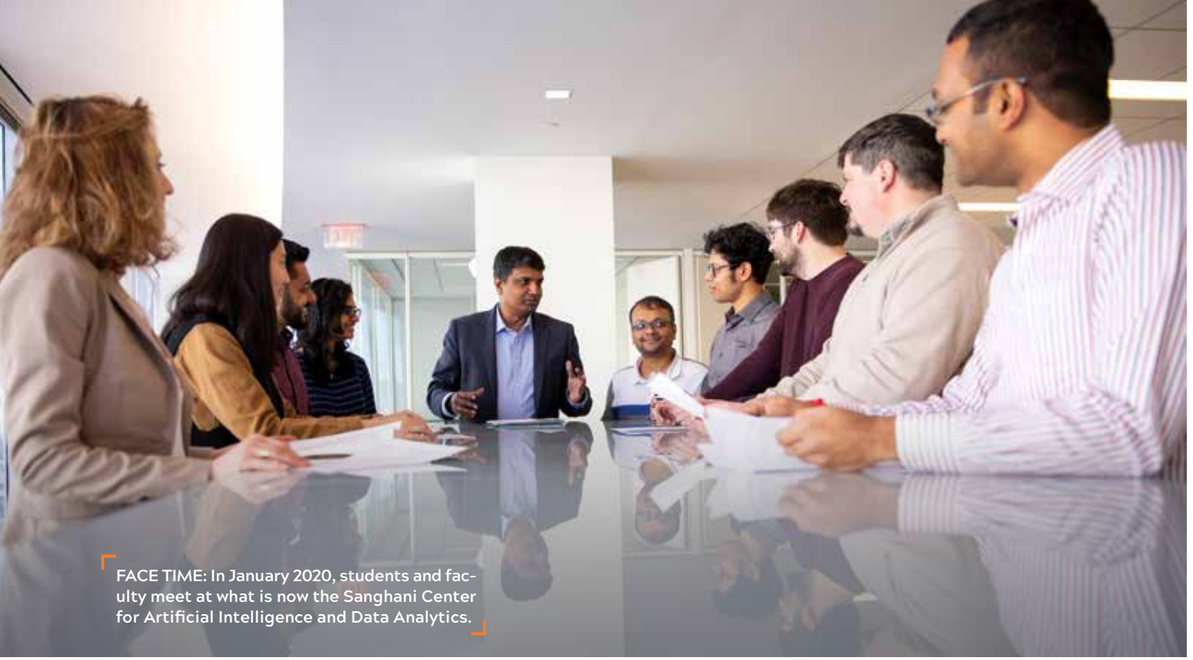
VIRGINIA TECH'S GROWING IMPACT IN THE GREATER Washington, D.C., metro area will receive a significant boost thanks to a multimillion-dollar gift from Octo founder and CEO Mehul Sanghani '98 and his wife, Hema Sanghani '99.

The couple's $10 million gift primarily supports the newly renamed Sanghani Center for Artificial Intelligence and Data Analytics, which will be headquartered in the first academic building at the university's Innovation Campus in Alexandria, Virginia.

A majority of the gift is endowed to support recruiting, research, and fellowships at the center, which has operated since 2011 and was formerly known as the Discovery Analytics Center. Funding will also be allocated toward a Sanghani Center scholars program, which will afford scholarship opportunities to underrepresented minorities to pursue graduate degrees with a focus on artificial intelligence.

"We thank the Sanghanis for their landmark contribution," said Virginia Tech President Tim Sands. "This gift fuels growing momentum as we expand the university's footprint in the greater D.C. area and explore the human-computing frontier. The Sanghanis' investments in data analytics and artificial intelligence will advance Virginia Tech as a catalyst for discovery, growth, and opportunity."

The gift comes as Virginia Tech continues to build momentum for its $1 billion Innovation Campus, which played a key role in the commonwealth's successful effort to lure Amazon's second headquarters to Virginia. The campus will be located in the Alexandria



FACE TIME: In January 2020, students and faculty meet at what is now the Sanghani Center for Artificial Intelligence and Data Analytics.

portion of National Landing near Potomac Yard, about two miles from Amazon's new location in Arlington, Virginia.

"Higher education is the perfect vehicle for a gift like this," said Mehul Sanghani, who earned degrees from Virginia Tech's College of Engineering and College of Science and founded Octo, a company that provides emerging technology and IT modernization services—including artificial intelligence—for the federal government. "With Virginia Tech's Innovation Campus coming online, we were presented with the unique opportunity to be part of growing our university's standing as a world-class institution that uses innovation—specifically artificial intelligence and data analytics—to transform our society for the greater good."

The Sanghani Center is the first research group identified to move its headquarters into the Innovation Campus.

Construction of the campus's first academic building is on track to start in 2021, with the building expected to open in August 2024. By the end of the decade, the university expects to have up to 750 master's degree students enrolled at the campus, along with hundreds more doctoral students and postdoctoral fellows. The campus will anchor a 65-acre innovation district and is a major component of Virginia's Tech Talent Investment program goal to prepare about 31,000 computer science graduates over the 20 years to fill a critical workforce need.

"This is a transformative gift that opens up new possibilities at a pivotal time," said Lance Collins, vice president and executive director of the Virginia Tech Innovation Campus. "Support from alumni like Mehul and Hema broadens the scope of what we can accomplish. As we build this campus, having partners like the Sanghanis makes a major difference, and we are extremely grateful."

The Sanghani Center epitomizes Virginia Tech's growing emphasis on data science, which has coincided with the increasing impact of that field over the past decade. From just four faculty nearly a decade ago, the center has grown to 20 faculty and over 120 graduate students. While headquartered in the D.C. area, the center also has faculty and students based at Virginia Tech's Blacksburg campus and is part of the Department of Computer Science in Virginia Tech's College of Engineering. The center has been supported by Virginia Tech's Institute for Critical Technology and Applied Science, known as ICTAS.

"Mehul and Hema Sanghani are investing in Virginia Tech's future, but more importantly in a better world," said Julia Ross, the Paul and Dorothea Torgersen Dean of Engineering. "This gift will help attract talented new students and faculty to the emerging Innovation Campus, and their work will help shape the future of how humanity engages with artificial intelligence and data analytics."

The center is directed by Naren Ramakrishnan, who is the Thomas L. Phillips Professor of Engineering in the Department of Computer Science.

"As the Innovation Campus launches, the Sanghanis' gift will enable us to be more ambitious in our research and education objectives," Ramakrishnan said. "These funds will be used to create endowments to support the recruitment of top-notch academic and research faculty, launch new educational programs, pursue high-risk seed projects, and recruit promising Ph.D. students."

Sanghani Center faculty and students leverage their expertise in data science and artificial intelligence on projects to help decision-making in a wide range of contexts, including public health, urban systems, defense, business, and environmental conservation.

"Automation ushered in by data analytics, machine learning, and AI is continuing to permeate many businesses and scientific processes," Ramakrishnan said. "While some fear that human workers will get automated out of the workforce, the growing consensus is that AI and humans can leverage complementary strengths and effectively augment each other."

Portions of the Sanghanis' gift benefit other Virginia Tech initiatives. Of the $10 million, $7.4 million supports the center and $1.5 million helps the university run an innovative program to enhance food access for students. The rest of the gift supports Virginia Tech Athletics and the Global Business and Analytics Complex that is planned for the Blacksburg campus.

The Sanghanis are the youngest alumni couple to have ever made a gift of such magnitude to Virginia Tech, and it comes as the university is engaged in a $1.5 billion fundraising campaign.

"Mehul and Hema set an extraordinary example," said Charlie Phlegar '78, M.S. '87, the university's vice president for advancement. "Our university has a bold vision of how to make a greater impact on the world. But to get there, we need alumni and friends to step forward in support of that vision. Mehul and Hema have done that in a powerful and inspiring way."

The Sanghanis live in Vienna, Virginia. Mehul Sanghani grew up in Blacksburg, and is a member of the university's Board of Visitors. Hema Sanghani grew up in Lynchburg, Virginia, a less than two-hour drive from where she would earn her degree from the Pamplin College of Business.

"Virginia Tech is where we both met and it opened the doors of opportunity to both Mehul and myself," said Hema Sanghani, who is a manager at CGI federal, which provides information technology services to U.S. federal agencies. "We believe we have a responsibility to give back to the school that has afforded us so much, and that investing in higher-education will have a return that not only supports our university, but also helps the greater good." ■ *AR*

DRAWING BOARD: The Sanghani Center for Artificial Intelligence and Data Analytics will be headquartered in the first academic building at the university's Innovation Campus in Alexandria, Virginia, as shown in an architectural rendering.

SMITH GROUP, RY EW

THE MARKET OF VIRGINIA TECH

Supported by a $1.5 million donation by Hema and Mehul Sanghani in fall 2020, the university launched an innovative program to enhance food access for today's Hokies. The Market of Virginia Tech provides up to 75 students with enough fresh ingredients for seven days of meals each week. The program is run by Virginia Tech Student Affairs.

Hundreds of colleges and universities run food pantries, but the vast majority are physical spaces where students go in and select items. Virginia Tech took a decidedly different approach by structuring its support system online. Students who are referred to the program log into a special website, choose from among several menu items, and later pick up their food.

The Sanghanis were inspired to make their gift, in part, by a Virginia Tech study released in October 2019 that showed 29 percent of undergraduates and 35 percent of graduate students having low or very low food security. "Low food security" means a student has a reduced diet quality, whereas "very low food security" means a student is experiencing disrupted eating patterns and reduced food intake.

Fundraising for The Market is ongoing. Visit give.vt.edu and designate your donation to Student Affairs, The Market at Virginia Tech.

DISTANCING TO NEW HEIGHTS

MANY PEOPLE ACROSS THE COUNTRY found themselves cancelling plans to avoid social interaction and limit the spread of COVID-19 in the spring of 2020. Virginia Tech Alumna Rebecca Meegan Means '96 was not one of those people.

Means wasn't indifferent to the safety of others; in fact, her plans kept her even more distant than most.

Means and her family embarked on a unique adventure. The goal: to find the "remotest" location of each of the 50 states. The endeavor is known as Project Remote.

"We define 'remoteness' as the farthest distance from a road," said Means. "Remote is often a qualitative concept. There is a feeling of remote that you get when you are 'away from it all,' but as a scientist, we wanted remoteness to be quantifiable—so calculable, repeatable, and comparable from state to state."

The adventure in itself is extraordinary, but Means took it to another level, partnering with her husband, Ryan Means, and including her then-10-month-old daughter, Skyla. Project Remote is a family affair, which found Skyla sometimes trekking alongside on foot and other times being carried, safely strapped to her mother's back.

"I climbed the Continental Divide with my daughter on my back twice on my 40th birthday," said Means. "That was pretty empowering."

Both professional biologists, the Means are lifelong lovers of nature. Their inimitable partiality to the outdoors is evident in their work at Coastal Plains Institute, where Rebecca Means serves as the nonprofit's director, and Ryan Means serves as president. It was one of the factors that allowed them to gravitate toward each other and continues to shape their lives.

"Skyla was born into this life of field work, camping, and a love of being outdoors," Means said. "She really did grow up imprinted on wild things rather than electronic things. She is now 12 and is as comfortable outdoors as she is inside."

Skyla's preference for wide open spaces is certainly an inherited trait; her father has the same mindset. Ryan Means once returned from a hike on a crowded Florida beach and wondered aloud to his wife what the farthest someone could possibly get from a crowd. Thus, Project Remote was born.

"Project Remote feels natural to us," Rebecca Means said. "Not only did we see the opportunity to embark on a series of outstanding and unique adventures, hopefully inspiring other families to get out and do something similar, but we also realized the potential to use such an endeavor as a platform to raise awareness and contribute to wildlands conservation."

Calculating "remoteness" is not straightforward. Road data is not always consistent, especially when traveling on unpaved and private roads. The process can take weeks, and Rebecca Means has found herself repeating calculations up to 40 times to ensure accuracy. Along the way, the family has also encountered lightning, hail, snowstorms, and poor water conditions.

So far, the family has tackled 38 states and is working on the remaining 12.

Rebecca Means hopes that Project Remote will raise awareness about the ecological impact of the country's vast road network and highlight the importance of public lands in preserving wild areas. Documenting the remotest location of each state is just the beginning of the family' s adventure.

The Means are enlisting help to assist in their research. To get involved, visit projectremote.com. ■

Rosie Hutchison, a senior majoring in public relations, is an intern with Virginia Tech Magazine.

COURTESY OF REBECCA MEANS

CLASS NOTES

Alumni, we want to hear what you've been doing. Mail career, wedding, birth, and death news to Class Notes, Virginia Tech Alumni Association, Holtzman Alumni Center, 901 Prices Fork Road, Blacksburg, VA 24061; email the information to classnotes@vt.edu; or submit the news online at vtmag.vt.edu/submit-classnote.php, where photos may also be uploaded for consideration. For assistance, call 540-231-6285.

'61

CAREER **James T. Steffens,** Bradenton, Fla., was named a fellow with the Institute of Fire Engineers.

'62

CAREER **Charles S. Blethen Jr.,** Marshall, N.C., published his second book, "Entertaining with Wine, Your Defense Against Wine Snobbery."

WEDDING **Donald E. Womeldorph Jr.,** Argyle, Texas, married Anne Blakesly, 11/9/19.

'63

CAREER **John G. Danz Jr.,** Towson, Md., is a lecturer of American history at Notre Dame University of Maryland and serves as minister of pastoral care at Grace United Methodist Church.

'68

CAREER **Alphonso P. Boxley III,** Waynesboro, Va., retired on Jan. 31, 2020, after 43 years as a McDonald's owner and operator.

James A. Casada, Rock Hill, S.C., published his 18th book, "A Smoky Mountain Boyhood: Memories, Musings and More."

'72

CAREER **Emory Randall Wertz,** Christiansburg, Va., wrote "Overworked & Underpaid, The Life of An Election Official."

'73

CAREER **Frederick H. Ray,** Springfield, Pa., received the CRC Watersheds Environmental Volunteer Leadership Award.

'74

CAREER **John G. Kines Jr.,** Disputanta, Va., was appointed to a second four-year term on the Virginia Board of Social Services by Gov. Ralph Northam.

'75

CAREER **James A. Mize Jr.,** Cleveland, S.C., has published his third humor book, "Hunting with Beanpole."

'77

CAREER **Fredrick S. Najjar,** San Francisco, Calif., was elected to a two-year term as the chair of the Association for Healthcare Philanthropy.

Harold Benjamin Short, Herndon, Va., retired from Turner Construction in January 2019.

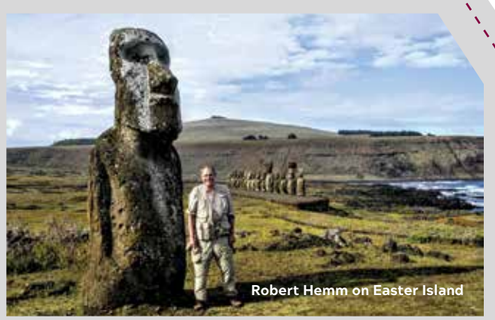
'78

CAREER **William F. "Rick" Hinson Jr.,** Riner, Va., received the 2020 Jack A. Proctor Meritorious Service Award from the Virginia Building and Code Officials Association.

'79

CAREER **Thomas A. Carnevale,** Clearfield, Pa., was elected chairman of the Board of Directors of Penn Highlands Clearfield Hospital.

COURTESY OF ROBERT HEMM



Robert Hemm on Easter Island

THE ADVENTURES OF A LIFETIME

After retiring from a successful business career, Robert Hemm '50 really put his natural curiosity to work.

Building on earlier experiences with skydiving and international travel, Hemm embarked on decades of adventure and scientific exploration through the famed Explorers Club.

The engineer turned business major made nine trips to Easter Island, dove into underwater caves in the Yucatan, operated a one-man deep diver sub, took up flying at age 60, and climbed in and out of volcanoes at age 75.

Recently, he chaired the Explorer Club's 500th anniversary celebration of Magellan/Elcano's circumnavigation of the world.

Hemm credits his varied experiences at Virginia Tech–varsity wrestling, acting, editor and columnist for the student newspaper, spelunking–for his lifelong curiosity.

'80

CAREER **Ronnie W. Rouse,** Chesapeake, Va., joined E.T. Gresham Company in Norfolk, Va., as a project manager.

'81

CAREER **Paul J. Clarke,** Sioux Falls, S.D., was named the South Dakota Municipal League's 2020 Code Enforcement Officer of the Year.

Sheryl Wright McLaughlin, Hampton, Va., a science teacher at Jones Magnet Middle School, received the Virginia Association of Science Teachers Science Education RISE award.

'83

CAREER **Donald Kenneth Johnson,** Portland, Ore., co-authored a book, "Reconsidering Flannery O'Connor."

'84

CAREER **Michael J. Mankosa,** Erie, Pa., executive vice president of global technology for Eriez, received the 2021 Robert H. Richards Award for his contributions in mineral beneficiation.

Carl W. Jackson, Charles Town, W.Va., a captain for American Airlines, was upgraded to the Boeing 787 Dreamliner in 2020 and will be flying his 34th year with the company in 2021.

'85

CAREER **Douglas S. King,** Fort Myers, Fla., is the chair of the board of directors of CFP Board.

Jodi Ecker Detjen, Newton Highlands, Mass., wrote, "The Next Smart Step: How to Overcome Gender Stereotypes and Build a Stronger Organization."

'86

CAREER **Gary W. "Obie" Obermeyer,** Woodbridge, Va., was awarded the Defense Intelligence Agency Directorate of Operations (DIA/DO) Colonel John Lansdale, Jr. Award recognizing him as the outstanding DIA/DO Counterintelligence Professional for 2020.

'87

CAREER **Lawrence L. Kirchner,** Chesterton, Ind., is principal and senior vice president of the Chicago office of TranSystems.

'88

CAREER **Thomas C. Anderson,** Charlotte, N.C., co-authored "Restructuring the Hold: Optimizing Private Equity and Portfolio Company Partnerships."

Jonathan C. Clough, Springfield, Va., was awarded the Office of the Secretary of Defense Medal for Exceptional Civilian Service.

Norman T. Hepner, Yakima, Wash., retired from the Air National Guard effective Dec. 31, 2020. Colonel Hepner's final assignment was as the 156th Medical Group Commander for the Puerto Rico Air National Guard.

Sang W. Hwang, Charlottesville, Va., was named COO of Enshored. He is initially based in the Philippines, where he will oversee global operations.

BIRTH **James C. Galonsky,** Fort Walton Beach, Fla., a daughter, 9/9/20.

'89

CAREER **Joseph W. Guthrie,** Dublin, Va., was elected chair of the Pulaski County, Virginia, Board of Supervisors.

'90

CAREER **Susan Tinsley Gooden,** Richmond, Va., was elected vice president of the Network of Schools of Public Policy, Affairs, and Administration.

Samantha H. Hand, Chesapeake, Va., was a finalist in the Portrait Society of America's Members Only Competition in the noncommissioned portrait category for her painting, "Derek."

Evelyn Vaughan McGill, Richmond, Va., was named immediate past president of the International Association of Industrial Accident Boards and Commissions.

'91

CAREER **Martha Cabell Peters,** Bozeman, Mont., was appointed assistant provost of Montana State University.

Nandita Rastogi Mishra, Bloomfield Hills, Mich., was named president of the Association for Learning Environments, Michigan Chapter, for 2021.

'92

CAREER **William H. Hume,** Wirtz, Va., was recognized as veteran of the year by the Virginia Small Business Development Center.

SAVE THE DATES

JOIN US ONLINE

Because of the risks large gatherings pose, alumni events will continue to be virtual. Now, Hokies from around the world can meet together without leaving home.

Here's a look at what's coming up. Registration is open! So make plans to log on and have some fun.

April 12-18

Black Alumni Reunion

Join us online for celebration and connection. Enjoy opportunities to network, connect with students, and celebrate with fellow Hokies. Learn more at alumni.vt.edu/bar.

May 19-21

Cornerstone Alumni Reunion

Hokies who graduated 50 or more years ago are Cornerstone Alumni. They are the foundation of the university and among Virginia Tech's most engaged and passionate alumni. For details, go to alumni.vt.edu/cornerstone-reunion.

For more information, including a complete listing of events, visit alumni.vt.edu/events.

John L. MacKay Jr., Wake Forest, N.C., was named COO of McDonough Boylard Peck, a nationally recognized construction management firm.

'93

CAREER **Michael J. Michalowicz,** Boonton, N.J., was featured in Israel's prominent business magazine, The Epoch Times.

BIRTH **Kenneth A. Long Jr.,** Chesterfield, Va., a daughter, 06/24/20.

'94

CAREER **Jennifer P. Bierly,** Port Matilda, Pa., was appointed vice chair of the Supreme Court of Pennsylvania's Domestic Relations Procedure Rules Committee.

Kimberley Vandenberg Lanham, Leesburg, Va., joined the Institute for Defense Analyses (IDA) as the senior manager, financial strategy and analytics in IDA's Finance Directorate.

'95

CAREER **Jason A. Darish,** Chesapeake, Va., reported to U.S. Fleet Forces Command in Norfolk, Va.

'97

CAREER **Matthew D. Reames,** Winchester, Va., was awarded the Stewart Bell Jr. Excellence in Teaching Award by the Handley Board of Trustees.

'98

CAREER **Janet R. Wojcik,** Charlotte, N.C., was named professor, exercise science, Department of Physical Education, Sport, and Human Performance, Winthrop University, Rock Hill, S.C.

Robin E. Rogers, Cranberry Township, Pa., created a children's picture book, "Journey to the Neverending Sea," published Dec. 2020 by Brolly Books in Australia and in the U.S. in April 2021.

WEDDING **Gregory R. Milas,** Alexandria, Va., and Lacy Marie Baugher, 11/14/20

'99

CAREER **Kevin Baird,** Middletown, Del., was named to Delaware Today's Top Lawyers 2020.

'00

CAREER **Anthony P. Harris Jr.,** Fort Washington, Md., was named 2020 Fairfax County Public Schools Outstanding New Principal of the Year.

Jennifer S. Parker, Spartanburg, S.C., was appointed director of child, youth, and family initiatives for The Spartanburg Academic Movement.

'01

BIRTH **Christopher S. Cassell,** Roswell, Ga., a son, 8/10/20.

'03

CAREER **Richmond T. Brittingham,** Fairfax, Va., is business unit manager in Dewberry's Leesburg, Virginia, office.

Meredith L. McComas, Berryville, Va., purchased Wiles Mensch Corporation's Federal Projects Division Assets and formed Sorba Engineering and will serve as president.

Ishraq Zraikat, Amman, Jordan, was featured in Archinect, a digital network of architects, designers, students, educators, and others with an interest in the field.

BIRTH **Paul A. Carlson,** Washington, D.C., a daughter, 1/19/21.

'05

CAREER **Matthew J. Zuraw,** San Diego, Calif., founded Better Brains Inc. with a mission of better brains and better lives through lifestyle products for brain health.

BIRTH **M.E. Kawika Chang** and **Bethany Draggoo Chang** '06, FPO, AP, a daughter, 11/4/20.

Laura King Schinkel, Colonial Heights, Va., a son, 4/15/20.

'08

CAREER **Megan Story Gillespie,** San Bruno, Calif., will oversee farm operations for Plenty, including its latest facility—the world's first high-output, indoor vertical farm in Compton, Calif.

Manisha Pravinchandra Patel, Danville, Va., earned the Legal Elite distinction as published by Business North Carolina. She was honored as an inductee into the North Carolina Pro Bono Honor Society and was appointed to the Legal Aid of North Carolina Board of Directors.

WEDDING **Heidi M. Field,** Fairfax, Va., and Seth Adam Field, 3/30/20.

'09

CAREER **Shaun Bockert,** Philadelphia, Pa., was elected partner in the Philadelphia office of Blank Rome.

'10

CAREER **Laura A. Pennington Briggs,** St. Paul, Minn., published two books, "How to Start Your Own Freelance Writing Business" and "Six Figure Freelancer." She delivered two TEDx talks on the freelance economy during 2019.

David L. Silberstein, Los Angeles, Calif., was featured in Rolling Stone's series, At Work.

BECOME A

MENTOR

How we work and what we do is changing. Your career experience is valuable to current students, and signing up to mentor makes a difference for young Hokies.

Hokie Mentorship Connect is our online platform where alumni can virtually volunteer their time and expertise by mentoring undergraduate and graduate students.

Learn more at alumni.vt.edu/careers

DIVERSITY IN EDUCATION

Maurice Smith Jr. '12 earned a Master of Science in agriculture from Virginia Tech and a Ph.D. from Penn State. A former assistant professor at Virginia State University and a 4-H development Extension specialist, Smith works as a national program leader with the U.S. Department of Agriculture, National Institute of Food and Agriculture. He works with 4-H youth development and 1890 land-grant institution programs.

The 1890 land-grant system consists of 19 universities across the nation. These historically Black universities were established under the Second Morrill Act of 1890.

Smith's research revolves around the involvement of minority communities, Black male youths, and parents in 4-H. Smith hopes to increase minority youth enrollment in 4-H.

Learn more about the diverse voices in agriculture at magazine.cals.vt.edu/black-voices.

TIM SKILES

HOW TO START A SMALL BUSINESS IN QUARANTINE

IN MARCH 2020, COVID-19 FORCED Jarred Green and college students like him to finish the semester via remote learning from home. Not one to sit around with nothing to do, Green, who graduated in May, turned his boredom into a woodworking business by implementing a series of simple and easily replicable steps.

1. FIND SOME FREE TIME

Green left behind a hectic class schedule and a heavy workload in Blacksburg when he moved back home to Chesapeake, Virginia. Searching for something to fill the time, he turned to a table saw he had received from his parents at Christmas.

2. FIND SOMETHING YOU LOVE TO DO

Armed with the saw and a passion for craftsmanship, Green had his ticket to a new business venture. A quick online search pointed Green to a few product ideas. After purchasing the necessary supplies, Green got to work, finishing five cutting boards in one weekend.

3. USE YOUR CURRENT NETWORK AND RESOURCES TO YOUR ADVANTAGE

Green's first clientele base was a clear choice. He knew his mother and her friends would be interested in his custom cutting boards, so he reached out to them. They were enthusiastic about his products and supporting his business. "It just kind of exploded from there," he said. Now, he uses social media apps as a platform for making cold calls to potential customers, which he says has been highly (and surprisingly) effective.

4. MAKE A BUSINESS PLAN

After the initial boom, Green knew he had to make a plan in order to keep up with orders and maintain his sales figures. Each month, Green reviews spending and earning in order to stay solvent. Aside from reaching his monthly business goals, a measure of Green's success is the amount of space his venture takes up in his parents' garage. Green's mom no longer can park her car there.

5. KEEP UP WITH TRENDS AND GET CREATIVE

Green expanded from making cutting boards when he realized he had the tools and talent to experiment with more products. It became clear that his customers were eager for more, as well. Green now builds custom painted Adirondack chairs for sports fans, plant hangers for gardeners, and even specially made countertops. He refuses to become complacent and continues to work hard and stay ahead of the curve. ■

Rosie Hutchison, a senior majoring in public relations, is an intern with Virginia Tech Magazine.

THE CUTTING EDGE: Armed with a table saw he had received as a gift, Jarred Green transformed his parents' garage into a small business space.

COURTESY MEGHAN GREEN

SAVE THE DATES

JOIN US ONLINE

In the months ahead, stay tuned for more information about upcoming virtual events. We'll be sharing information online and through email.

You can always find the most up-to-date details and catch event replays at alumni.vt.edu/events.

June 8-11
Reunion Weekend

We're planning something special this year. We've got new ways for you to explore Virginia Tech and connect virtually. Want to know more? Visit alumni.vt.edu/reunion2021

Oct. 15-16
Homecoming Weekend

Celebrate 150 years of Virginia Tech during a special Homecoming celebration.

WEDDING **John P. Deis,** Richmond, Va., and **Sarah Irby,** 10/19/19.

BIRTH **Edward Collins Mehfoud** and **Kathryn M. Slaughter Mehfoud** '13, Champaign, Ill., a daughter, 11/15/20.

'11

CAREER **Andrew T. Bowers,** Poolesville, Md., was recently named to Healthcare Design's Rising Stars.

Danielle M. Jakubowski, Philadelphia, Pa., is a project manager at The Martin Architectural Group.

Allison M. Jarett, Richmond, Va., is an associate in the Richmond, Va., office of Quinn Evans. Jarett has extensive expertise in the design of K-12 and higher education facilities, as well as libraries.

'12

CAREER **Nikos M. Cox,** Woodbridge, Va., wrote an illustrated children's book, "Jurni."

Christina Brianne Robinson Puterbaugh, Reston, Va., earned licensure as a marriage and family therapist in Va.

'14

CAREER **Carl Austin Jackson,** Berryville, Va., received a master's in cybersecurity from the University of Maryland and was promoted to IT Security Analyst at DMS Inc.

'15

CAREER **Jaclyn M. Sanders,** Raleigh, N.C., was featured in Milktoast, an online magazine.

BIRTH **Ashley M. Nelson Dustin,** Los Angeles, Calif., twin girls, 12/6/20.

'16

CAREER **Kiruthika Balasubramanian,** Falls Church, Va., a LEED green associate, has been promoted to architect in the Washington, D.C., office of Quinn Evans.

'17

CAREER **Brett M. Huhman,** Waldorf, Md., has been tasked by NAVSEA to evaluate commercial ultraviolet sources for viral disinfection on ship and shore facilities to combat COVID-19 spread in the fleet.

WEDDING **Emma Powers Swanson** and **Sam Swanson** '18, Houston, Texas, 9/5/20.

'18

CAREER **Alexandra Chase Jackson,** Charles Town, W.Va., operations manager for Northrop Grumman, was hired by the USAF as a pilot on the Boeing C-17 in Martinsburg, W.Va., while working with the AF and NGB to change height standards for female pilots.

Patrick A. Schulz, Charles Town, W.Va., was named project engineer following two years of rigorous training and traveling along the East Coast for Cives Steel Company.

STAY CONNECTED

Make sure the university has your up-to-date mailing address, phone number, and email address. You can easily check your information online and make updates. Visit alumni.vt.edu/contact.

You can also email your updates to alumnidata@vt.edu. Make sure you include your full name and class year in the email.

HOKIE™ HIKE 2020

OUR FIRST-EVER

THIS FALL 2,820 HOKIES GOT OUTSIDE, explored, and had fun in the first-ever Hokie Hike. Together, alumni, friends, students, faculty, and staff traveled thousands of miles and raised more than $28,000 for Rec Sports at Virginia Tech.

More than 500 hike participants shared their journeys using an online leaderboard. The board tally indicates that Hokies traveled more than 2,783 miles in locations across the country and as far away as Germany.

Hokies hiked in states from Virginia to California—and even Hawaii. Their ventures included walks across campus, strolls on the beach, and miles on trails across Appalachia.

See more at alumni.vt.edu/hike. ■

Shared by Stefano Brizzolara

Shared by Carolyn Rathburn

Shared by Tricia Roy

Shared by Gene Ball

Shared by Veva Zanjani

Shared by Mark Brokaw

37°13'39.9"N 80°25'20.1"W

MAPPING OUT THE FUTURE

PETER FORISTER

DARK CLOUDS GATHER ACROSS A dusk sky. The wind picks up, and the temperature drops perceptibly. Thunder rolls in the distance, and then a first bolt of lightning illuminates a nearby mountaintop. For most people, these are signs to take cover.

For Peter Forister '19, it's time to grab the camera and get on Twitter.

"I grew up in Colorado Springs, with Pikes Peak out one window and the Great Plains out the other, and I'd watch the storms come down from the Rockies," explained Forister. "I knew when I was 5 years old that I wanted to pursue a career in meteorology. As Virginia Tech is the only school in the state with a meteorology degree program, it was always my first choice."

Forister majored in geography and minored in meteorology—a combination that offered the opportunity to learn about utilizing geographic information systems (GIS) technology to provide a perspective for meteorological science. Along the way, he realized that social media was a way to connect with other weather watchers.

In 2015 he began building a social media presence that has now garnered him national attention: He has had several mentions in the Washington Post and local weather broadcasts and has a following that runs the gamut from passionate storm chasers to those who just like to watch from the safety of their smartphones or computers.

Currently a master's student, Forister is using GIS technology to create maps to show the scars in forest vegetation that tornadoes leave behind. An April Washington Post article on a devastating storm that hit in Mississippi showed maps of tornado damage that Forister generated and outlined his research.

MALLORY NOE-PAYNE

MALLORY NOE-PAYNE '13, RICHMOND bureau chief of WVTF/Radio IQ, was awarded a Fulbright Young Professional Journalist Grant, which will allow her to travel to Germany to research and examine the history of that nation and the U.S. Noe-Payne will engage in a project titled "Memory Wars: How we move forward by confronting our past," which will examine and compare the two countries' histories of racism.

Noe-Payne, a lifelong resident of Richmond, graduated in 2013 with a degree in communication and political science. She recalls growing up among the city's Confederate monuments and wondering about a city struggling with its history rooted in slavery. Her regional stories reporting on home health workers, transgender teens, and Richmond's Slave Trail have won multiple news awards.

Noe-Payne will center her residency in Munich, former capital of Germany's Nazi movement. She will work with experts in public history there and lecture at Munich's Ludwig Maximilian University.

COURTESY OF PETER FORISTER, BOB BROWN/RICHMOND TIMES-DISPATCH)

JACKIE SANDERS

IF SUCCESS ISN'T A STRAIGHT LINE, then Jackie Sanders '15 should have it made.

The Virginia Tech alumna's visual creations—in which sharp angles and stark, geometric patterns feature prominently—have found a flourishing home in the Raleigh, North Carolina, art scene.

Although her unique geometric style originated when she was young, she has architecture to thank for her beginnings as an artist. Her parents own and operate a small architecture firm where Sanders spent countless hours watching her father draw designs by hand.

"I grew up watching my dad and just hanging out in the office," said Sanders. "I would play with extra Prismacolor pencils, stencils, and protractors on a drafting table with sheets of paper. Those were my coloring books, essentially."

As she neared the end of high school, Sanders was still trying to figure out her career goals and aspirations. At one point, she considered following in her father's footsteps. As a result, she enrolled in Virginia Tech's popular summer program, Inside Architecture + Design, and she was drawn to the university's School of Visual Arts.

Sanders has thoughtfully taken advantage of every opportunity since graduating. She's an active member of VAE Raleigh, a downtown visual art exchange and gallery that hosts artist critique groups and networking opportunities for painters, photographers, and more. Her work was also accepted last March into the 311 Gallery.

Despite her success, the life of an artist isn't always easy. Sanders frequently jokes that she's a full-time artist with a full-time day job, too. In addition to the art studio, Sanders works for a local awards and engraving company doing graphic design, production, and marketing.

COURTESY TYLER MCQUEEN , COURTESY DAVE MACKANIC

DAVID MACKANIC

DAVID MACKANIC '15 WAS NAMED TO Forbes 2021 "30 under 30" in the category of energy.

The 27-year-old entrepreneur and innovator started his professional journey as a mechanical engineering major who also engaged in undergraduate research. He helped develop polymers and nanomaterials that work in high-performance batteries and learned how to change those properties to make them work even better.

Mackanic was motivated by the potential of technologies to do something important. "Once I got into engineering, I felt a sense of duty to use my technical skills to make an impact," said Mackanic.

He was drawn to Silicon Valley, applying to Stanford University to pursue his doctorate and capitalize on the innovative environment of the area.

Mackanic continued developing new technology for batteries and found peers with experience in commercializing technologies, eventually launching Anthro Energy.

In 2020, Anthro was a semifinalist for the MIT Clean Energy Prize and won startup funds from several innovation groups. ■

FAMILY

1 "We started our marriage by jumping to 'Enter Sandman' as we entered our reception!" —Courtney Nolan Messick '10, Centreville, Virginia, who married Michael Messick, 8/3/19.

2 "We were thrilled to add a future Hokie to our family!" —Kathryn Slaughter-Mehfoud '13, Champaign, Illinois, who along with Collins Mehfoud '10 welcomed a daughter, Caroline Lillian, 11/15/20.

3 "We demonstrated how much chemistry we have with our own unique version of a unity ceremony during our wedding." —Brittney Worrell Owen '18, Poquoson, Virginia, who married Billy Owen '18, 12/20/19.

4 "Welcoming baby Olivia from behind a mask—a sign of the crazy times she was born into." —Kenneth Long '93, Chesterfield, Virginia, who welcomed a daughter, Olivia, 6/24/20.

5 "Big sister, Olivia, is proud to introduce her lil' brother, Benjamin, to Hokie Nation." —Laura King Schinkel '05, Colonial Heights, Virginia, who welcomed a son, Benjamin Thomas, 4/15/20.

SOLID AS A ROCK

VIRGINIA TECH'S MOST ENGAGED AND passionate alumni have been shaping the university for decades and serve as our community's foundation.

Now, that group has a new name: Cornerstone Alumni.

"This name is intended to focus and highlight those alumni who have hit their 50th reunion and beyond," said Vice President for Advancement Charlie Phlegar '78, M.S. '87. "These truly are the alumni that will be the cornerstone to our future and have been so important to Virginia Tech over the years."

Cornerstone Alumni are also poised for growth in the coming years as the class sizes become larger. More and more alumni will enter this elite group, which is also becoming more diverse.

Previously known as the Old Guard Society of Golden Alumni, the group of storied alumni was renamed to better reflect its purpose and significance.

The new name comes after seeking feedback from dozens of groups of alumni, including those who have celebrated their 50th reunion, alumni approaching that milestone, and even conversations with students and young alumni.

"Most folks know, the Old Guard was formed back in the late '60s to recognize senior alumni who had been 50 years out of school," said David Lowe '63, a Cornerstone Alumni Advisory Board member and Corps of Cadets alumnus.

Up until the 1960s, Lowe said, Virginia Tech was largely an all-male military school.

But that has changed, and Hokies celebrating their 50th reunion are changing too.

"When I graduated I think there were 150 women on campus. We were really not part of the student body. But that changed," said Prim Jones '62. "This group is going to be representative of the university now . . . and as the '70s classes become part of Cornerstone, it will change more and more."

Jones added that it's important to be part of the group of alumni who have been out of school for 50 years, not just a single class. She said she believes Cornerstone Alumni bring together all Hokies who share deep history and connection to the university.

Members of Virginia Tech's Corps of Cadets who graduated 50 or more years ago will still be referred to as the university's Old Guard in honor of their service. But now, Hokies with 50 or more years as alumni will be welcomed as Cornerstone Alumni, invited back for a reunion each spring, and offered other exclusive events during the year. This year's spring reunion will be held virtually May 19-21. Also, all Cornerstone Alumni will be recognized at Homecoming.

"I'm satisfied that there's a much stronger commitment and recognition by the leadership of the university of the value that senior alumni bring to this university. The numbers are getting bigger, and we're living longer and we're active—we want to stay involved," said Lowe. "In my own case, I'm not ready to sit in the rocking chair and watch the world go by. If I can contribute to the university, in meaningful ways, I'd like to do that." ■ *AM*

CORNERSTONE ALUMNI are sharing their memories from their time as students at Virginia Tech. Hear from them about special moments that will inspire Hokies of all generations.

To learn more about Cornerstone Alumni and register for this year's reunion, visit **alumni.vt.edu/cornerstone.**

CORNERSTONE VIRGINIA TECH ALUMNI

Trent Davis and Derek with the portrait of Moose

PARENTS, PAINTINGS, AND PUPS

VT, I SPY

If you love Virginia Tech and enjoy playing games, try your hand at VT, I Spy. Tammy Hinkle, a Tech parent and artist, has hidden four VTs in a painting of Moose. Just turn to page 68 and start searching. Need a little help? Visit vtmag.vt.edu for the answers.

IN A PRIVATE FACEBOOK GROUP, Virginia Tech parents gather to share stories and seek advice. In true Hokie spirit, they offer support, celebrate successes, and reach out in times of distress. The volunteer-run group is not an official platform of the university, but organizers work in tandem with Virginia Tech to ensure that the space supports the accurate, respectful exchange of information.

And of course, the 20,000-plus members also engage in lighthearted, fun activities, such as VT, I Spy.

VT, I Spy is the brainchild of Tammy Cartonia Hinkle, of Glen Allen, Virginia. Tammy, an artist whose work includes large murals, joined the parent group while her son, Benjamin '19, was a student. Her husband, Chris Hinkle, earned a master's from the university in 1997.

In 2018, Tammy was invited to help paint a sea life mural in a children's hospital in Virginia. Another artist involved in the project chose the color scheme, settling on hues of blue and orange, the colors of Virginia Tech rival UVA. In response, Tammy hid a VT in the tail of one of the sea creatures, sharing her rebuttal via a photo post on the parents' social media page. The post was so popular that Tammy began hiding VTs in more of her paintings, which she would later put online for parents to find.

"It's all about giving back, finding ways to bring joy to other people," said Hinkle.

Hinkle now focuses her energies on canvas creations. She paints a variety of subjects, including animals. Hinkle admits that memorializing pets for her clients is a sort of a passion. So, when she learned of the death of Virginia Tech's beloved therapy dog, Moose, Hinkle reached out to Trent Davis, counselor and coordinator of Virginia Tech's Animal Assisted Therapy at Cook Counseling Center, offering to gift a portrait in recognition of Moose's "pawsitive" contributions.

"I was touched by Tammy's offer to paint Moose," said Davis. "She kept in touch throughout the process. For me, it was like watching a photographic negative while it was developing. She really gets the relationship that humans have with dogs, and she wanted every aspect of Moose's picture to be right."

Davis describes Moose as the epitome of what it means to be a Hokie, serving with the gifts that you have, whatever they may be. "We are all special, and we all have the capacity to change this world. *Ut Prosim* is about relationships, and Moose helped our students understand that," he said.

Born and raised at Guiding Eyes for the Blind in Yorktown Heights, New York, Moose paused his formal guide-dog training when he was diagnosed with a minor kidney issue. The timing of his dismissal coincided with Davis' search for a new therapy dog in Blacksburg.

Davis said Moose's unmerited love and ability to be "present" was a great asset to Cook Counseling Center's mission to serve a student population, many of whom are facing stress and change at a time in life when mental health issues often first arise. Moose's "pawsitive" vibes made discussing hard topics easier and led to clients missing fewer appointments. Davis believes Moose's presence both on campus and on social media channels also helped tear down the stigmas often associated with mental health.

During his seven years at Virginia Tech, Moose aided in more than 7,500 counseling sessions and more than 500 outreach events, becoming one of the university's most beloved celebrities.

Moose's service and accomplishments reached beyond the university into the surrounding community, including work at the monthly "Paws to Read" program at the public library in Blacksburg. He was honored in 2019 with the Virginia Veterinary Medical Association's Animal Hero Award and was recently recognized with a proclamation of appreciation from the veterinary college in honor of his support to veterinary students.

Today, the therapy dog pack at Virginia Tech includes three members: Derek, Carson, and Wagner.

Moose, who had been diagnosed with cancer in the spring, died on Dec. 2, 2020.

Hinkle's portrait of Moose arrived in Blacksburg in early February. The painting, pictured at left and on the next page, is also the latest edition of VT, I Spy. (Hinkle has hidden four VTs in the painting. Find the answers at vtmag.vt.edu.)

The original hangs prominently on a wall in the home that Moose shared with Davis. "She really captured his eyes," he said. "His soul was in his eyes." ■ *ES*

CHRISTINA FRANUSICH

A "PAWSITIVE" OPPORTUNITY

According to Trent Davis, Moose was one of those beings that just keeps giving.

"Moose was exactly the right dog, at exactly the right time, in exactly the right place," said Davis. "His legacy is simple. By being himself, he made a real difference. He lived the way we encourage our students to live: Be true to yourself; the rest will come."

According to Davis, Moose's presence made counseling cool, breaking down barriers between students and counselors. To continue that work, Davis has worked to establish a special endowment in Moose's memory.

Funds raised will provide programmatic support for the Animal Assisted Therapy program at Virginia Tech.

Make a gift at:
give.vt.edu/drmooselegacy

STILL LIFE

GOOD BOY: "Portrait of Moose," was painted and donated by Tammy Cartonia Hinkle, memoriesinpaint.com. See story on page 66.

IN MEMORIAM

Listing includes notices shared with the university from May 1, 2020, through Aug. 31, 2020.

'41

James "Jack" T. Stephens, Henrico, Va., 5/13/20.

'42

Rush E. Choate, Gainesville, Fla., 7/23/20.

'44

O. Watts Gills, Roanoke, Va., 6/29/20.

John Stuart Prince, Emporia, Va., 5/19/20.

Stanley "S.H." Howard Scher, Henrico, Va., 7/9/20.

'45

Fred Randolph Chapman, Woodland Park, Colo., 6/10/20.

Robert Asbury Cox Jr., Richmond, Va., 4/9/20.

'46

Marshall Lee Bailey, Charlotte Court House, Va., 7/1/20.

William J. Ball, Tappahannock, Va., 9/23/19.

Edward S. Smith III, Palm Beach Gardens, Fla., 7/29/20.

C. Thomas Tate Sr., Blacksburg, Va., 7/30/20.

William Kerr Warriner, Herndon, Va., 7/26/20.

'47

Stanley J. Marcus, Montvale, N.J., 8/5/20.

Mary Williams Smith, Harrisonburg, Va., 6/25/20.

Peter A. Tokarz, Richmond, Va., 8/20/20.

'48

Walter F. Green III, Harrisonburg, Va., 4/28/20.

'49

Jack M. Hill, Williamsburg, Va., 8/8/20.

H. Leon Hodges, Chesapeake, Va., 6/5/20.

Thomas Patterson Inge, Blackstone, Va., 5/25/20.

Thomas Lewis Jennings, Midlothian, Va., 9/10/19.

'50

Richard L. Bidwell, Richmond, Va., 5/9/20.

Kenneth Edwin Clevenger, Blacksburg, Va., 7/27/20.

Jerome A. Mallon, San Luis Obispo, Calif., 7/20/20.

John Ashby Nicholas, Laurel, Md., 4/22/20.

Malcolm O. Perkins, Mechanicsville, Va., 7/23/20.

William C. Phillips, Johnson City, Tenn., 2/19/03.

'51

Wendell Holmes Beverly, Derwood, Md., 12/27/19.

Ernest J. Hopkins, Glasgow, Va., 6/30/20.

Robert Douglas Hughes III, Pfafftown, N.C., 2/19/17.

Percival Ashby Lewis Jr., Manassas, Va., 5/3/20.

Richard C. Loyd, Lynchburg, Va., 7/13/20.

Carroll "Mac" E. Mahaney, Pembroke, Va., 6/4/20.

Robert William Moyer, Titusville, Fla., 7/8/20.

Ned L. Sours, Richmond, Va., 6/19/20.

Richard Diem Webster, Ocean View, Del., 7/27/20.

Ernest P. Wellford, Richmond, Va., 4/14/20.

'52

Martin H. Alman, Aventura, Fla., 6/1/20.

George D. Greer, Blairsville, Ga., 5/13/20.

A. Lee Hall, Mooresville, N.C., 7/18/20.

Ann Worischek Harman, Flint Hill, Va., 5/1/20.

Jane Read Jacob, Juno Beach, Fla., 6/25/20.

Edward B. Scruggs, Roanoke, Va., 5/22/20.

William Emerson Shackelford, Columbus, Mont., 4/27/20.

'54

Alvin Q. Croy, Blacksburg, Va., 6/21/20.

Rector A. Engleman Jr., Lexington, Va., 8/28/20.

Billy R. Price, Kimball, W.Va., 5/1/20.

'55

Thamo C. Cruise, Seymour, Tenn., 7/25/20.

Willis A. Evans, Tampa, Fla., 7/15/20.

Johnny C. Fender, San Angelo, Texas, 7/26/20.

Hal Gibboney Prillaman, Aledo, Texas, 6/11/20.

Robert J. Taylor, Gaithersburg, Md., 7/29/20.

Frank S. Tulloss Jr., Fredericksburg, Va., 8/4/20.

'56

Jack Phillip Brown, Greensboro, N.C., 7/22/20.

Pien "P.C." Chien Huang, Baltimore, Md., 8/3/20.

William J. Monta, Newport News, Va., 7/24/20.

Richard H. Price, Pembroke, Va., 6/3/20.

Thomas C. Richards, San Antonio, Texas, 8/9/20.

'57

Willie R. Gilman, Glen Allen, Va., 4/28/20.

Leonard P. Harris, Hagerstown, Md., 6/18/20.

Jack L. Horne, Orangeburg, S.C., 5/27/20.

Edward Tilley Jones III, Richmond, Va., 6/13/20.

Frederick William Louis, Gainesville, Va., 4/29/20.

Pierson Scott Morrill Sr., Scottsville, Va., 7/2/20.

'58

Bruce Conway Clough, Haymarket, Va., 5/12/20.

Raymond Oliver England Sr., E. Greenwich, R.I., 7/18/20.

Lester Harris Hollans, Mountain Brook, Ala., 6/6/20.

Dennis R. Looney, Roanoke, Va., 5/30/20.

William Maynard Riddle Sr., Myrtle Beach, S.C., 11/1/19.

Dean T. Mook, Blacksburg, Va., 6/19/20.

Paul Henry Steagall Jr., Harrisonburg, Va., 6/6/20.

'59

Dorothy Lee Bailey, Grundy, Va., 8/3/20.

Daniel H. Barrett, Manassas, Va., 6/2/20.

Donald A. Bowers, Ashburn, Va., 4/28/20.

Gary J. Golgowski, Ormond Beach, Fla., 3/20/20.

David William Gregory Jr., Virginia Beach, Va., 8/14/20.

Homer Hall, Ararat, Va., 11/20/19.

Vernon R. Jackson, Virginia Beach, Va., 5/29/20.

Frank Herman Hubbard Jr., Winston Salem, N.C., 6/26/20.

Kenneth W. Washburn, Athens, Ga., 6/30/20.

'60

Thomas R. Burdette III, Atlantic Beach, Fla., 4/10/20.

Joseph P. Cofer Jr., Chattanooga, Tenn., 5/25/20.

Archer W. Cook Jr., Spartanburg, S.C., 7/12/20.

Donald Vance Dalton, Tucson, Ariz., 7/28/20.

James W. Hammond, Kingwood, Texas, 6/5/20.

Leonard "Jack" Jackson Hite, Clarksville, Va., 8/23/20.

William Ramsey Mahler, Fredericksburg, Va., 5/2/20.

Andrew R. Mitchell, Marietta, Ga., 4/20/20.

William Harry Pletta, Seneca, S.C., 8/6/20.

John Barringer Spangler, Blacksburg, Va., 4/21/20.

Robert Louis Walker, Cary, N.C., 7/23/20.

'61

Theodore A. Fritz, Santa Fe, N.M., 5/1/20.

Stanley Herbert Hicks, Chesapeake, Va., 6/7/20.

Jess Thomas Lester Jr., Hayes, Va., 6/9/20.

James Blount Loftin III, Franklin, Va., 7/14/20.

George Kirkland Priggen, Penhook, Va., 7/27/20.

'62

Dale English Caldwell, Greensboro, N.C., 7/6/20.

Curtis Elwood Cook, Stuarts Draft, Va., 5/18/20.

Grover Cullen Jennings, Marion, Va., 6/8/20.

Richard Albert Johnson, Clinton, Iowa, 6/15/20.

Charles Richard Manning Jr., Raleigh, N.C., 8/5/19.

James Lamar Milner, Sheridan, Wyo., 6/10/20.

Russell Elwood Still, Danville, Va., 7/19/20.

'63

Arthur Frederick Clark, Nottingham, N.H., 7/26/20.

David Bruce Claudepierre, Simpsonville, S.C., 5/5/20.

Dwayne Harold Fink, Tempe, Ariz., 6/25/20.

Frederic Cowan Garber, Lancaster, Pa., 7/29/20.

Price Joseph Giampocaro, St. Petersburg, Fla., 5/28/20.

John McClellan Houston, Midlothian, Va., 5/30/20.

Jack Gilmer Kaylor, Wytheville, Va., 8/9/20.

Gerald Eugene Lawton, Blacksburg, Va., 6/30/20.

Sidney Otis Nash Jr., Evans, Ga., 7/27/20.

Michael Todd Nero, Norfolk, Va., 8/10/20.

Donald Walker Rhinehart, Bethesda, Md., 6/29/20.

Walter Crawford Rogers, Boydton, Va., 11/4/03.

'64

John W. Altizer, Cottonwood, Ariz., 5/11/20.

W. Blaker Bolling, Huntington, W.Va., 5/10/20.

Lester "Chuck" Burie Carroll Jr., Winchester, Va., 6/12/20.

Shao-Kang Kenneth Pai, Issaquah, Wash., 5/25/20.

Morris Serwitz, Atlanta, Ga., 8/5/20.

George "Dale" Daland Webb III, Locust Grove, Va., 4/30/20.

Charles Monroe Whittington III, Suffolk, Va., 7/20/20.

'65

John David Dearing, Newport News, Va., 8/11/20.

Walter Lemuel Heard Jr., Social Circle, Ga., 9/19/19.

John Wen-Hsing Huang, Shrewsbury, Pa., 6/10/20.

Francis Rodman Porter III, Concord, N.C., 6/25/20.

John Malcolm Rogers, Georgetown, S.C., 6/19/20.

Lowell Hubert Terry, Forest, Va., 6/20/20.

'66

T. Hardy Dunnington, Bowling Green, Va., 4/28/20.

Harry Morris Ivey, Southport, N.C., 9/25/19.

Thelbert Samuel Shields, Sterling, Va., 6/27/20.

Claude James Staylor III, Colorado Springs, Colo., 6/3/20.

Rile Edgar Thacker, Chambersburg, Pa., 6/26/20.

'67

Morris Arthur Bander, Carrollton, Va., 5/24/20.

Robert Edmund Garrison, Louisville, Ky., 6/20/20.

Sigmund Albert Schildcrout, Sullivans Island, S.C., 8/15/20.

Benny Lee Via, Eden, N.C., 7/18/20.

'68

Alan Randall Brown, Friendswood, Texas, 5/8/20.

Nasser Hadidi, Colfax, Wisc., 8/16/20.

Edward Alexander Herndon, Erwin, Tenn., 6/18/20.

Freddie Nelson Knott, Oxford, N.C., 5/14/20.

John "Jack" William MacKenzie, Fayetteville, Ark., 8/27/20.

Thomas Monroe Pearman III, Shawsville, Va., 8/1/20.

'69

Frank P. DiPerna Jr., Purcellville, Va., 6/26/20.

S. Stanley Prince, Chesterfield, Va., 6/24/20.

Ralph Mason Simpson, Millboro, Va., 5/28/20.

'70

Roland Joseph Hamel Jr., Surprise, Ariz., 6/19/20.

Louis H. Loudermilk, Clintonville, W.Va., 6/17/20.

Jenny G. McCormick McDowell, Apex, N.C., 10/28/19.

Glenn Edward Rose, Calabash, N.C., 5/6/20.

Dwayne John Westermann, Roanoke, Va., 6/4/20.

'71

Ronald Douglas Gibbs, Florence, S.C., 5/22/20.

Norris Earl Lewis, Christiansburg, Va., 5/10/20.

Michael R. Mills, Disputanta, Va., 7/27/20.

Boyd Morton Nichols, Saint Charles, Mo., 7/16/20.

Anita Lockhart Stacy, Grundy, Va., 8/16/20.

'72

Boyd Franklin Cauble, Charlotte, N.C., 6/26/20.

Ralph Edward Life, Hilliard, Ohio, 8/1/20.

Melvin Lee Parks Jr., Livingston, Texas, 8/2/20.

Charles William Tomlin, Hyattsville, Md., 7/26/20.

'73

Samuel A. Alexander, Exmore, Va., 6/11/20.

Charles Allen Campbell, Kingsport, Tenn., 6/18/20.

John Lawrence Gibbens, Thibodaux, La., 6/25/20.

David Lynn Lacey, Charlotte, N.C., 7/27/19.

Johanna DeCarli Mitchell, Olympia, Wash., 6/19/20.

Allen Thomas Ramsay, Ruther Glen, Va., 6/2/20.

George Lee Reaves Jr., Newport News, Va., 6/5/20.

'74

Bruce L. Byrd Jr., Houston, Texas, 6/11/20.

George Harrison Fisher III, Chicago, Ill., 4/8/14.

Rene Charles Fix, Mount Pleasant, S.C., 6/21/20.

Kathleen Karen Taylor, Los Alamos, N.M., 6/28/20.

April Mazzucco Wilhelm, Alexandria, Va., 7/17/20.

Michael William Yost, Lancaster, S.C., 5/25/20.

'75

Victor Ellis Baker, Suffolk, Va., 4/28/20.

Neil Edwin Bristow, Virginia Beach, Va., 6/14/20.

Charles Frederick Tacey, West Chester, Pa., 6/10/20.

Rebecca Alma Weeks, Floyd, Va., 6/13/20.

'76

Patrick Alan Morrison, Falls Church, Va., 5/11/20.

Steven William Nissley, Springfield, Va., 7/9/20.

Della Hypes Osborne, Tannersville, Va., 8/3/20.

Jean Lois Parker, Joliet, Ill., 7/16/20.

David Blaine Parrish, Roanoke, Va., 7/30/20.

Nathaniel Alan Spaulding, Forest, Va., 7/20/20.

Evelyn Hess Stiltner, Richmond, Ky., 6/4/20.

George Thomas Turman Jr., Charlottesville, Va., 8/1/20.

'77

Malcolm Dando Davis, Littleton, Colo., 7/19/20.

Philip Pryor Hunter, Greeneville, Tenn., 7/16/20.

Lucian Harold Peery, Tazewell, Va., 10/30/19.

Lindy Sharon Ryan Laughton, Plano, Texas, 7/23/19.

'78

Peter L McDonald, Little River, S.C., 6/10/20.

'79

Jerry Samuel Barnett, Mechanicsville, Va., 4/24/20.

Diane Huey D'Orazio, Kapaau, Hawaii, 5/28/20.

Dorothy Elizabeth Jones Hamrick, Buchanan, Va., 6/11/20.

Barbara Anne Kazazes, Greensboro, N.C., 5/23/20.

John Nunnally Laycock, Leesburg, Va., 10/26/19.

James Douglas Nixon Jr., Richmond, Va., 6/9/20.

Harold "Hal" Daingerfield Starke Jr., Wake Forest, N.C., 11/2/19.

Margaret Anne Miller Witt, Ashburn, Va., 4/30/20.

'80

Charles Samuel Foggin II, Naples, Fla., 5/21/20.

Judith Anderson Hickey, Kernersville, N.C., 5/26/20.

'81

Susan R. Dillow, Waynesboro, Va., 5/8/20.

Esther C. Myrick Holland, Hanover, Md., 6/19/19.

Dean Andrew Johnson, Warren, Pa., 4/30/20.

Shirley Virginia Stewart Winstead, Chesapeake, Va., 8/9/20.

'82

Matthew Joseph Albrittain, Falls Church, Va., 7/23/20.

Joseph William Bauernfeind, Vienna, Va., 11/15/19.

Dewey Edmond Deel Jr., Pounding Mill, Va., 7/7/20.

James Richard Eberle, Salem, N.Y., 8/7/20.

Clinton Vassett Turner, Richmond, Va., 5/15/20.

Thomas G. Wilson, Blacksburg, Va., 6/6/20.

'83

Donald Keith Osborne, Christiansburg, Va., 5/16/20.

Jerome Joseph Savitsky, Mount Vernon, Iowa, 5/28/20.

'84

Franklin Foster Smith, Sterling, Va., 7/12/20.

Raymond Dexter Thomas II, Vienna, Va., 7/27/20.

Nancy Jane Yaeger, Howell, N.J., 5/28/20.

'85

Elizabeth McIntosh Gunnufsen, Norfolk, Va., 7/7/20.

Joanne Miller Pearson, Blacksburg, Va., 5/15/20.

'86

J. Yost Conner Jr., Arlington, Va., 4/12/20.

Rod Goins II, Stone Mountain, Ga., 8/23/20.

Tony Willard Warren, Saltville, Va., 10/29/19.

'87

Susan Ruppel Bray, Charlotte, N.C., 7/1/20.

Barbara Ann Fisher Lusby, Pocomoke City, Md., 6/26/20.

Calvert Chapman McGregor Jr., Hillsborough, N.C., 5/12/20.

Georgine Marie Richardson Redmond, Fairfax, Va., 5/10/20.

Stephen Joseph Richichi, Norman, Okla., 7/26/20.

'88

Jamal Nader Dajani, Sterling, Va., 5/30/20.

Gregory Prentice Moody, Williamsburg, Va., 6/18/19.

Thomas Richard Sallade, Blacksburg, Va., 5/27/20.

'89

Cara Deane Everett, Bluff City, Tenn., 4/28/20.

David Benjamin Gieseman, Arlington, Va., 4/19/20.

Brian Plummer Smith, Fairfax, Va., 10/22/19.

'90

Christopher Mark Moore, Abingdon, Va., 6/13/19.

James Courtland Stewart, Christiansburg, Va., 8/15/20.

'92

Myriam Eliette Rony, Holly Springs, N.C., 7/29/20.

'93

Randy Scott Dixon, Abingdon, Va., 7/15/20.

Kelly Colleen McCarthy, Hector, N.Y., 5/11/20.

Lucille T. Nowell, Highland, Md., 6/14/20.

Myron V. Ricketts, Gainesville, Va., 4/27/20.

'94

Michael Stefan Habenschuss Jr., Charleston, W.Va., 5/17/20.

'95

James D. Butler II, Henrico, Va., 6/7/20.

Robert Thomas Lassinger, Fredericksburg, Va., 5/10/20.

Horton "Hoyt" Wray March, Norfolk, Va., 5/17/20.

Anne Long Morris, Springfield, Va., 7/10/20.

'96

Scott Michael Collier, Arvada, Colo., 6/8/20.

Garvis Rudolph Downey III, Richmond, Va., 7/19/20.

William Brett Harlow, Shenandoah, Va., 7/5/20.

'98

Linda H. Scruggs, Tuscaloosa, Ala., 6/23/19.

Gregory Todd Shuman, Spring Lake, Mich., 7/31/20.

'99

Steven C. York, Yarrawonga, Victoria, Australia, 6/28/20.

Virginia Marie Chenoweth, Richmond, Va., 10/22/19.

'00

Douglas Fowler Spencer, Durham, N.C., 5/20/20.

'01

Joseph Michael Kuznicki, Galveston, Texas, 6/17/20.

'02

Heidi Larson Nardone, New Haven, Conn., 7/7/20.

'03

Ryan Heger Keith, Washington, D.C., 5/10/20.

'04

Jennifer Ewell Jones, Rockville, Va., 6/3/20.

'05

Carol Elizabeth Swindell, Wirtz, Va., 6/13/20.

'06

Christopher Alan Engle, Oden, Mich., 4/20/20.

'08

Ian Donald MacLean-Blevins, Seattle, Wash., 6/19/20.

'10

Richard Lloyd Barrick, Fort Lauderdale, Fla., 7/11/20.

Philip Larry Loving, Richmond, Va., 5/8/20.

'11

Paige Nicole Messick, Midland, Va., 6/28/20.

'16

Sean Robert Bernard, Boonton, N.J., 5/29/20.

Taylor Gayle Foust, Danville, Va., 6/29/20.

Sharon Erica Grey Hornsby, Alexandria, Va., 6/13/20.

OBITUARIES

FACULTY/STAFF

Robert "Bob" Benoit, associate professor emeritus in the Department of Biological Sciences who served on the faculty for more than 40 years, died Nov. 18, 2020. Benoit was one of the founding members of the department's microbiology program. His gift for teaching and advising was recognized with numerous awards, including the Alumni Award for Excellence in Teaching and the William E. Wine Award. In 2002, he was named Virginia Professor of the Year.

Hampton Clay Gabler III, professor and chair of the undergraduate biomedical engineering program in biomedical engineering and mechanics in the College of Engineering, died on Jan. 11. Gabler was the Samuel Herrick Professor at Virginia Tech.

Chuck Hartman, who oversaw the Virginia Tech baseball program for nearly three decades, died Nov. 2, 2020.

Christine Elizabeth "Chris" Kaestle, a professor of human development and family science at Virginia Tech, died July 16, 2020.

Calvert T. Larsen, associate professor emeritus of large animal clinical sciences in the Virginia-Maryland College of Veterinary Medicine, died on Jan. 24.

Dean Mook, professor emeritus of biomedical engineering and mechanics at Virginia Tech, died June 19, 2020. Mook received two degrees in engineering mechanics from Virginia Tech—a bachelor's in 1954 and a master's in 1960. Mook joined the Virginia Tech engineering faculty in 1966. Upon retiring in 2003, Mook was the N. Waldo Harrison Professor of Engineering Science and Mechanics.

Lillian Haldeman "Peg" Moore, a University Distinguished Professor, died Nov. 21, 2020. Moore joined the university in 1966 as a professor of bacteriology in the College of Agriculture and Life Sciences. An authority in the field of anaerobic bacteriology and food microbiology and a pioneer in the field of microbiome research, she was instrumental in setting up the Anaerobe Lab.

Johann Norstedt, a longtime faculty member in the Department of English, died Oct. 28, 2020. Norstedt's Virginia Tech career began in 1972 and spanned four decades. He served as chair of the English department from 1997 until his retirement in 2002. In 1994, Norstedt was named Virginia Tech Alumni Advisor of the Year.

Steven Prince, professor of cinema studies, died Dec. 30, 2020. He published 16 books that examine film in its historical, aesthetic, social, and technological contexts; his 17th book, "Apocalypse Cinema," will appear posthumously.

OBITUARIES

FACULTY/STAFF (CONT. FROM P. 73)

James Sellers '75, MAED '78, Ed.D. '84, part-time assessment coordinator and clinical faculty member in educational leadership in the School of Education, died Aug. 28, 2020.

Kusum Singh, professor emerita of educational research and evaluation in the Virginia Tech School of Education, died on Feb. 22.

Neil Larry Shumsky, an associate professor emeritus in the Department of History, died Sept. 3, 2020. Shumsky began his Virginia Tech career in 1972 and retired in 2019 after more than 45 years of service.

Walter Werner Wierwille, professor emeritus in the Grado Department of Industrial and Systems Engineering, died Oct. 27, 2020. Wierwille was known for his research on driver-vehicle systems, in-vehicle driver workload evaluation, simulator and instrumented vehicle testing, impaired driver detection, and general applications of human factors research and engineering techniques to driver-vehicle systems.

Robert Carl Williges, professor emeritus in the Grado Department of Industrial and Systems Engineering, died July 11, 2020. Williges was a world-renowned scholar, teacher, and researcher in the field of human-computer interaction. He joined Virginia Tech in 1976 and was named to the Ralph H. Bogle Professorship of Industrial and Systems Engineering in 1996. Williges was the founder and director of the Human-Computer Interaction Laboratory.

NOTABLE ALUMNUS

George Truman "G.T." Ward died June 27, 2020, in Marshall, Virginia. Ward was an advocate for architecture studies at Virginia Tech, a devoted supporter of the university in a variety of roles, and a recipient of the university's highest honor, the William H. Ruffner Medal. He earned a bachelor's in building design in 1951 and a master's in architecture in 1952.

ADMINISTRATION

MICHAEL KIERNAN

Lay Nam Chang, the founding dean of the Virginia Tech College of Science and a professor and former department chair of physics, died Dec. 8, 2020.

Chang served as dean of the College of Science from 2003 to 2016. Under Chang's leadership, the college launched several new initiatives, including the Academy of Integrated Science and the School of Neuroscience. Chang was the last dean of the College of Arts and Sciences, serving from 2002 to 2003, when he guided the academic restructuring that resulted in two new colleges—the College of Science and the College of Liberal Arts and Human Sciences.

Chang joined the Virginia Tech Department of Physics faculty in 1978. In 1995, he became chair of the department, a position he held until 2002.

JOHN MCCORMICK

Richard E. Sorensen, former dean of the Pamplin College of Business, died December 29, 2020.

Joining Virginia Tech in 1982 as dean of its business school, Sorensen led Pamplin for 31 years before retiring in 2013. He was previously business dean at Appalachian State University.

Pamplin's growth in numbers, quality, stature, and resources, longtime faculty and others note, is due in no small measure to Sorensen's leadership and hard work. His pursuits in business and management education reached beyond campus boundaries and national borders, also.

Throughout his tenure at Virginia Tech, Sorensen taught the Introduction to Business course and established or grew innovative programs within the college, including international studies, the executive and professional MBA, and the Master of Information Technology. In addition, he advanced diversity initiatives, including in student recruitment and faculty hiring.

Elizabeth A. "Betsy" Flanagan, who served as Virginia Tech's vice president for development and university relations from 2000 to 2015 and oversaw the university's first billion-dollar fundraising campaign, died Feb. 16.

Flanagan was the first woman to head fundraising at the university, and she oversaw major growth in the university's fundraising operation. During her tenure, university relations launched the Invent the Future brand that helped highlight Virginia Tech as a major research institution.

Flanagan championed the inclusion of women on key volunteer boards and committees at the university. She launched an initiative called Women in Leadership and Philanthropy. An endowed lecture fund created by members of the initiative was renamed in Flanagan's honor because of her passion for people.

Flanagan was conferred the title of vice president emerita by the Virginia Tech Board of Visitors in 2016.

Frank Shushok Jr.

END NOTE

THE WORTHWHILE WORK OF WELL-BEING

ALL SET: Frank Shushok talks with participants in Virginia Tech's first wheelchair tennis clinic, which was held on Feb. 22, 2020, through a partnership between Rec Sports and the men's tennis team.

HAS IT BEEN DIFFICULT TO FIND anyone in your circles who feels like they are thriving these days? The pandemic is nearing its one-year anniversary and life has been filled with many hardships.

For students, the gap between their expectations and the reality of their college experiences has been heartbreaking. The national data on college students are revealing: 91 percent say they've experienced heightened stress and anxiety; 81 percent say they've felt disappointment or sadness; 80 percent say loneliness and isolation have been problems, and 48 percent say they've had serious financial setbacks. Yet it's been reinforced for me time and again that our students have uncanny determination and resilient spirits.

Still, it's tough out there, and empathy and care have tremendous shelf-life in our current landscape. In short, our gentle nudges can help keep each other on track. While Virginia Tech has invested heavily in deepening and expanding our mental health support services (as highlighted by our No. 1

CHRISTINA FRANUSICH

BE BOLDER: Rec Sports' new Venture Out Center, which officially opened Jan. 28, offers students the opportunity to develop their climbing skills via an indoor bouldering wall.

RACHEL DEBUSK

ranking by The Princeton Review), we are also doubling down on our efforts to embrace a related but much broader concept of well-being. With education and intention, all of us have tremendous influence over our well-being, and when we do this well, we take good care of ourselves and others around us.

What is well-being? It's the presence of positive emotion, a sense of satisfaction with life, a feeling of purpose, and an affirmative holistic evaluation of one's life. We endeavor to see well-being emphasized in every aspect of the Virginia Tech experience. To guide our interventions, we've adopted a broad understanding of well-being as outlined and thoroughly researched by our partners at the Gallup Organization. These include:

- Career well-being (liking what you do every day).
- Social well-being (having strong relationships and love in your life).
- Financial well-being (effectively managing your economic life).
- Physical well-being (having good health and enough energy to get things done).
- Community well-being (a sense of engagement where you live).

The important point is that all of us can build a plan around the five essential elements of well-being and make meaningful progress toward building a foundation for a life of well-being. According to Gallup, 66 percent of people are doing well in one of these areas nationally, but just 7 percent are thriving in all five. The primary obstacle for well-being is ourselves, and that includes you and me. Let's join together in committing to building our own well-being and chart a course toward holistic health in 2021. Our world and our students are absolutely worth our best efforts. ■

Frank Shushok Jr. is the vice president for student affairs.

PICTURE OF HEALTH

Share your photos and tips for promoting well-being at vtmag@vt.edu.

WELL-BEING

In lieu of spring break, Virginia Tech scheduled five separate well-being days in the spring semester: Feb. 5, Feb. 25, March 17, April 6, and April 26.

As a part of these days off, Student Engagement and Campus Life Hokie Wellness, and Rec Sports partnered to ensure wellness opportunities are available for students. Based on the dimensions of well-being, each day will include options and tools to help students feel rested in the areas of mental, spiritual, emotional, social, sensory, creative, and physical well-being.

But well-being isn't just for students. Whether it's taking part in a wellness activity, exploring the outdoor offerings in your community, reading a book, or simply relaxing at home, all Hokies are strongly encouraged to set aside some time to relax and recharge.

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