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FALL 2020 VOL. 43, NO. 1

# VIRGINIA TECH

FALL 2020

## SCIENTIFIC RELEVANCE

A window into the world-class  
medical research at Fralin  
Biomedical Research Institute at VTC

## WHAT DID YOU SAY?

Tips for communicating  
from behind a mask



VIRGINIA TECH magazine

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# WORK

THE FUTURE OF

HOW VIRGINIA TECH IS PREPARING THE LEADERS OF TOMORROW, TODAY



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# CONTENTS

## ADDITIONAL RESEARCH

Tina Wheeler, a graduate student studying translational biology, medicine, and health, works in the Lamouille Lab at the Fralin Biomedical Research Institute at VTC, which is led by principal investigator Samy Lamouille.

The Lamouille Lab, where scientists study the growth and spread of cancer, is just one of the research spaces benefitting from a newly constructed 139,000 square-foot building that opened earlier this year.

Read more about the new facility and the research taking place in Roanoke on p. 34.

## FEATURES

### 34 SCIENTIFIC RELEVANCE

The Fralin Biomedical Research Institute at VTC in Roanoke launched in 2010. A decade later, the facility, which has more than doubled in size, anticipates adding another 300 to 400 research faculty, staff, and students to investigate medical studies that range from brain health to obesity and infectious diseases, such as COVID-19.

### 40 THE FUTURE OF WORK

Since the university's founding in 1872, Virginia Tech has kept pace with changes in agriculture, engineering, aerospace, and many other career fields. Today, the university is positioned at the right place and right time with the right vision to play a critical role in the future, and advancing a more just, inclusive, and accessible environment for workers throughout the world.

## DEPARTMENTS

### 4 PRESIDENT'S MESSAGE

### 6 AROUND THE DRILLFIELD

- 18 Corps
- 19 Athletics
- 21 Question
- 23 What's In It?
- 24 How Tech Ticks

### 52 AROUND THE HOKIE NATION

- 52 Alumnus Profile: Ed Baine
- 57 Class Notes
- 66 Retro
- 68 Family

### 71 STILL LIFE

### 76 END NOTE

ON THE COVER: As a 21st century land-grant university, Virginia Tech is uniquely qualified to prepare students for careers in a dramatically changing world. Cover art by: Andy Potts. Located in Roanoke, Virginia, the Fralin Biomedical Research Institute at VTC supports medical research and developments with the goal of improving health and saving lives.

CLAYTON METZ







SETTING AN EXAMPLE: Virginia Tech President Tim Sands adheres to the Centers for Disease Control mask guidelines to slow the spread of COVID-19.

## PRESIDENT'S MESSAGE

# CHANGING DIRECTION

Just a few short months ago, no one in higher education knew exactly what to expect as campuses across the country responded to the COVID-19 pandemic. Virginia Tech administrators, faculty, and staff planned exhaustively for a range of scenarios, worked hard to implement those plans, and were prepared to change direction as needed. Robust testing provided by our own research lab, contact tracing, and modification of instructional spaces made it possible to offer a hybrid residential experience while also protecting the most vulnerable.

Our strong and supportive university community stepped up to protect each other by wearing masks, maintaining distance, and avoiding indoor gatherings when masking and distancing weren't possible. As a result, Virginia Tech was able to weather an initial spike in cases and stay the course.

Now, we are looking forward to another semester with cautious optimism and will continue to apply our existing strategies in the spring. Courses may be fully online, hybrid, or fully in-person. Details and updates are available online at [ready.vt.edu](https://ready.vt.edu).

Thanks to that ever-present Hokie spirit and determination, Virginia Tech is meeting the challenges of these extraordinary times and making excellent progress toward our Beyond Boundaries vision for the future.

Undergraduate enrollment reached 30,000 this year, a few years ahead of schedule and in contrast to national trends. Underrepresented minority students now make up more than 19 percent of our entering class, compared to 13 percent five years ago. The

combined number of underrepresented and underserved students—including low-income, first-generation, and veteran students—makes up 39 percent of entering undergraduates, almost reaching our 2022 milestone of 40 percent.

Virginia Tech is educating the leaders who will drive the future. The students across our campuses today are preparing for careers with responsibilities that we can only imagine. We are committed to instruction that brings together advancing technologies and STEM education with cultural, human-based initiatives—always keeping our university motto, *Ut Prosim* (That I May Serve), at the center of our efforts.

Research and innovation at the university have never been stronger. Sponsored project awards were up 15 percent for the year ending in June, and expenditures were at an all-time high. Impressive as they are, these figures don't reflect the full impact of our research and engagement efforts, which are better characterized by the extraordinary public attention our problem-solving and community-engaged researchers, innovators, and Extension agents have earned during the pandemic.

Certainly the COVID-19 pandemic has given rise to challenges that were unexpected and unprecedented. We've had to do things differently and modify—temporarily—some of our most treasured experiences. Yet, by the measures that matter most, Virginia Tech is stronger than it has ever been.

Thank you, Hokies. Be committed. Be well. ■

*Tim Sands is Virginia Tech's 16th president.*

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# LETTERS

## TO THE EDITOR

### A ROCK-SOLID EDUCATION



I was saddened to learn about the death of Dr. Donald Bloss (p. 63 summer 2020). I transferred to Virginia Tech from a college with less-demanding requirements for geology majors. I should have already had a crystallography class, but hadn't. Dr. Bloss agreed to let me do an independent study class with him over the summer, so I could catch up to my fellow juniors. I was honored and grateful. I was shocked when I learned how esteemed he was in his field. I got a hint when I saw that he had written the textbook we were using, which included a mineral named blossite. Yep, THAT Bloss.

*Wendy Hart Nielson Beckman '80  
Cincinnati, Ohio*

### LIFE-CHANGING MOMENTS

Congrats for your excellent communication improvements! It is a pleasure to stay informed with ALL the methods in use.

There are many highlights from my time at VPI that I could share. My time in the Corps of Cadets, A Squadron, Class of '64, had a profound effect on my life and career. After a lifetime of experience, I think I finally understand the complete impact of attending VPI as a cadet. Another standout moment was meeting my future wife at Homecoming in 1963. We have been married now for 53 years.

Keep up the good work!

*Ray Allen '64  
Springfield, Virginia*

## FROM THE EDITOR

### CORRECTION

*Joseph Michael Coppola '85, of White Plains, New York, was erroneously included in the In Memoriam listing in the summer edition.*

### CONTACT US

Virginia Tech Magazine welcomes stories about the many ways that our readers make an impact in communities across the globe through their research, careers, and service. Send your ideas to [vtmag@vt.edu](mailto:vtmag@vt.edu).





# AROUND THE DRILLFIELD

- 18 Corps
- 19 Athletics
- 21 Question
- 23 What's In It?
- 24 How Tech Ticks

## NEWS

### MARCHING TO A DIFFERENT FORECAST

**THE MARCHING VIRGINIANS HAVE AN ADVANTAGE THAT FEW** marching bands can match: their very own weather forecaster.

Ben Sheppard, a senior majoring in meteorology in the College of Natural Resources and Environment's Department of Geography, has been providing detailed weather forecasts for the Virginia Tech marching band since his freshman year.

"As a first-year trumpeter and a meteorology major, all of my friends in the trumpet section would joke that it was my fault when the weather was bad," said Sheppard, who has played the trumpet since fourth grade. "So I started using what I was learning in class to write up humorous weather reports for the section and sending them out. My friends were excited to read them and very supportive of what I was doing. By my junior year, the band directors were asking me if I could send my reports to them to help their planning."

Sheppard's initiative led to him being designated as the first-ever "Official Forecaster" of the Marching Virginians this year, a leadership position that recognizes his contributions to the band.

With band participants taking extra steps to meet health guidelines to prevent the spread of COVID-19, having accurate weather forecasts has taken on a greater significance. Since the Marching Virginians are required to practice outdoors, it is important for band leaders to know what weather is on the horizon. ■

**SUNNY WITH A CHANCE OF TRUMPET:** Ben Sheppard, center, and the Marching Virginians follow health and safety protocols while practicing. For videos of Ben Sheppard and the Marching Virginians, go to [vtmag.vt.edu](https://vtmag.vt.edu).





## DANIEL SUI APPOINTED VICE PRESIDENT FOR RESEARCH AND INNOVATION

**DANIEL SUI, AN INTERNATIONALLY** renowned researcher in the area of GIS-based spatial analysis and modeling for urban, environmental, and public health applications, has been appointed Virginia Tech's vice president for research and innovation, effective Nov. 1.

"Following a nationwide search, I am delighted that Dr. Sui has joined the Virginia Tech team to lead our research enterprise," said Executive Vice President and Provost Cyril Clarke.

A distinguished professor of geography, Sui served as the vice chancellor for research and innovation at the University of Arkansas.

Sui succeeds G. Don Taylor, Virginia Tech's executive vice provost, who served in an interim capacity. Sui will be responsible for supporting and growing the university's research portfolio, which includes

extramural funding. He will also chair two boards for Virginia Tech-affiliated corporations.

Sui has been published in more than 230 scholarly publications and has delivered approximately 70 keynote speeches and guest lectures over the past five years.

Sui had served as the division director of Social and Economic Sciences for the National Science Foundation. He had also served as chair of the Department of Geography at the Ohio State University and was the assistant vice president for research at Texas A&M University from 2004-09.

He earned a Bachelor of Science in geography and a Master of Science in remote sensing and geographic information systems from Peking University in Beijing, China. Sui received his doctorate in geography from the University of Georgia. ■

## VIRGINIA TECH HISTORIANS UNCOVER THE FACTS ABOUT MASKS



**MORE THAN 100 YEARS AGO,** during the 1918 flu pandemic, health officials urged Americans to protect their country by wearing masks. Flash forward to 2020 and COVID-19. Health experts are again encouraging face coverings to protect against a dangerous virus.

Three Virginia Tech researchers started the Flu Mask Project to study the use of masks in 1918 as a way to understand how people experience a pandemic and how masks fit into a broader public health response. They also are evaluating the scientific evidence of the effectiveness of masks and lessons learned for future mask use, such as during COVID-19.

"Although a century divides these two epidemics, mask hesitancy and outright refusal unite them," said Ariel Ludwig, a member of the research team who earned her Ph.D. in science and technology studies at Virginia Tech.

The team includes Jessica Brabble, a master's student, and E. Thomas Ewing, a professor of history. ■

## MEDICAL STUDENTS CREATE CLUB WITH FOCUS ON MEDICAL DESIGN

**THREE STUDENTS AT THE VIRGINIA** Tech Carilion School of Medicine have created a medical design club that merges medicine and innovation.

Second-year students Luma Abunimer, Katie Hardin, and Tommy To said the focus of the organization is to support the engineering and design ideas of medical students and physicians so that they can innovate and improve medical technology, systems, and procedures.

"We felt that if we could provide medical students with the platform and skills to creatively address the many needs in the field of medicine, especially now during the pandemic, we would all be even more dynamic physician thought leaders," Abunimer said.

The group's first project was a website that serves as a virtual repository for sharing computer-aided design files for 3D printing of materials for use with personal protective equipment (PPE). Creation of the website was driven by the COVID-19 pandemic and the PPE shortage it caused. ■



From left, Medical Design Club founders Luma Abunimer, Tommy To, and Katie Hardin.



**DOCTOR'S NOTE:** Deborah Birx (right), White House Coronavirus Response coordinator and world-renowned medical expert, visited Virginia Tech on Sept. 16 to discuss the university's management of COVID-19 with leaders, including President Tim Sands. ■

## BIRX PRAISES VIRGINIA TECH FOR COVID-19 TESTING, OPENING CAMPUS

**DURING A SEPT. 16 VISIT TO BLACKSBURG,** Deborah Birx, a world-renowned health official, physician, and White House ambassador, praised Virginia Tech's work to develop its own coronavirus testing site and open its campuses amid the global pandemic.

Birx, who is the U.S. special representative for global health diplomacy, discussed with administrators and students the ways that the university is managing COVID-19, and she offered insight and advice.

Virginia Tech's ability to perform its own coronavirus testing, led by Carla Finkelstein, associate professor and researcher at the Fralin Biomedical Research Institute at VTC, is extraordinary among institutions nationwide, Birx said. Only a handful of universities are doing their own COVID-19 testing, she said.

"It's really critical for the community," she said. "You really are in control of your own destiny because of how much testing you can do based on human personnel rather than the supply chain."

Birx said that Americans—including those on college campuses—can figure out how to be social and safe. For example, students who interact within the same small group of friends, also called pods, should be able to dine together safely.

During her visits, she said she concluded that the universities that have been the most successful in managing COVID-19 on campus worked hard during the summer to develop a plan for the fall semester.

"I think that's why you're in a good place, because you really laid a strong foundation," Birx said to Virginia Tech leaders. ■





WASTE NOT: Virginia Tech researchers Amy Pruden and Peter Vikesland collect samples of wastewater across campus to test for the presence of COVID-19.

## RESEARCHERS BEGIN TESTING CAMPUS WASTEWATER FOR COVID-19

A TEAM OF VIRGINIA TECH RESEARCHERS is testing wastewater at 15 campus sites for the presence of the novel coronavirus (SARS-CoV-2), enabling the university to more rapidly identify and respond to positive tests.

The advance allows the university to monitor clusters of campus buildings on a daily basis, testing for the presence of the virus in fecal matter. If the testing shows positive results, the university can then conduct targeted testing among individuals in those buildings to zero in on possible infections. The idea is to more proactively identify virus clusters, even when individuals may be asymptomatic.

The team—led by Peter Vikesland, professor of civil and environmental engineering—includes Civil and Environmental Engineering Professor Amy Pruden and

Ph.D. candidate Ayella Maile-Moskowitz. Virginia Tech’s Office of the Vice President for Research and Innovation and the Department of Civil and Environmental Engineering invested \$200,000 to expand the project to 15 sampling sites on the Blacksburg campus. Most of the sites focus on clusters of residence halls.

“As we saw researchers around the world testing their wastewater for COVID, we thought it would be interesting to see if we could, too, since we already examine wastewater for pathogens and viruses in our lab,” Maile-Moskowitz said. “As it became clear that the pandemic was not going anywhere, we saw it as an opportunity to help the university in determining where outbreaks might be occurring around campus, especially as an early warning system.”

## MOBILE AUTISM CLINIC RECOGNIZED

THE VIRGINIA TECH AUTISM CLINIC & Center for Autism Research and their Mobile Autism Clinic received national recognition as an “exemplary program” by the Association of Public and Land-grant Universities.

Virginia Tech is one of four universities to receive the designation. The recognition is part of the W.K. Kellogg Foundation Engagement Scholarship Awards program.

Angela Scarpa, a psychology professor in the College of Science, launched the mobile clinic in 2018. Through the use of a modified recreational vehicle, the mobile clinic provides clinical care, support, and therapy sessions for families and children.

Although COVID-19 has forced the mobile clinic to be parked temporarily, Scarpa and her team, along with the Department of Psychology’s clinical science program, have moved in-person therapy, diagnosis, and care to an online format using HIPAA-compliant Zoom software.



ON THE MOVE: Virginia Tech’s Mobile Autism Clinic serves Bland, Carroll, Grayson, Smyth, and Wythe counties, as well as the City of Galax.

DJ, VT NEWS

## DESIGN TEAM PLACES SECOND

AS THE RATE OF AIR TRAVEL increases around the globe, so does congestion of major commercial airports, resulting in delays, not enough flights to meet demand, and passengers needing to fly to smaller satellite airports. These recurring problems will worsen in years to come.

After a year-long effort to design a high-capacity, short-range transport aircraft, a Virginia Tech capstone design team brought home second-place honors in the 2020 Undergraduate Aircraft Design Competition sponsored by the American Institute of Aeronautics and Astronautics.

“Our team performed exceptionally well and submitted a quality proposal, even when the bar kept moving,” said co-faculty advisor Pradeep Raj. “They each handled the sudden change in modality due to the global pandemic very professionally.”

The team, known as Over the Pond, is composed of eight aerospace and ocean engineering students from Virginia Tech and two students from Hamburg University of Applied Sciences in Hamburg, Germany.

Almost 40 university teams from across the country competed in the virtual competition that included an intense design review of their written report. The undergraduate aircraft design competition offers an opportunity for students to participate in a simulated real-world problem and allows students to gain experience and receive useful and constructive feedback from technical experts.

JEFF GREENOUGH FOR VIRGINIA TECH



BOUNDLESS GENEROSITY: Co-chairs Morgan Blackwood Patel, Horacio Valeiras, and Lynne Doughtie at the Oct. 11, 2019, launch of Boundless Impact: The Campaign for Virginia Tech.

## RECORD GIVING TO VIRGINIA TECH

VIRGINIA TECH SUPPORTERS STEPPED forward like never before in a year that saw the university launch its most ambitious fundraising campaign ever, but also experience unprecedented disruption due to the COVID-19 pandemic.

More than \$185.4 million in new gifts and commitments were made during the 2019-20 fiscal year, which ended June 30. The previous record was \$181.9 million in 2018-19.

The university received nearly \$172.7 million in cash through donations during the past fiscal year, topping the previous record of \$134.4 million in cash in 2017-18.

Despite the pandemic’s impact on the economy during the latter third of the fiscal year, the total number of Virginia Tech donors increased by more than 14 percent, to 41,524.

In October 2019, the university announced Boundless Impact: The Campaign for Virginia Tech, with a goal to raise \$1.5 billion and engage 100,000 Hokies by 2027. The campaign’s fundraising progress was \$657.2 million as of June 30.

An increase in the number of alumni who gave was even more pronounced—up nearly 22 percent to 27,775. As a result, the university’s alumni giving percentage, a key factor in many college rankings, increased from 13 percent to 15 percent.

“COVID-19 changed how we were able to connect as Hokies by keeping us apart, physically. But it did not keep our alumni and friends from showing their support for Virginia Tech,” said Charlie Phlegar, vice president for advancement. “We are extremely grateful to all of them.”





**INNOVATIVE COHORT:** Lance Collins, Innovation Campus vice president and executive director, arrived at the campus, along with the first class of students.

## INNOVATION CAMPUS LAUNCHES INAUGURAL CLASS, WELCOMES NEW LEADER

**THE VIRGINIA TECH INNOVATION** Campus reached several milestones this semester with the arrival of Vice President and Executive Director Lance Collins and the launch of its inaugural class of students. It also announced an advisory board of 10 global business and industry leaders.

Collins started at Virginia Tech just a few days before the first Innovation Campus class—79 students pursuing master’s degrees in computer science and computer engineering—began the fall semester.

“These students will help build the foundation of the Innovation Campus as we expand programs and develop a new curriculum,” Collins said. “I look forward to working with them to create a new type of graduate program with a strong emphasis on engagement with companies and federal agencies.”

The first Innovation Campus cohort includes 26 students enrolled in Virginia Tech’s new Master of Engineering in computer science program—the first degree designed specifically for the Innovation Campus. The other three Innovation Campus degree programs are the Master of Science in computer science, Master of Science in computer engineering, and Master of Engineering in computer engineering.

Innovation Campus classes are online this semester because of the pandemic, and faculty offices and course instruction for students will be in Virginia Tech’s existing location in Falls Church while the new campus is being built in Alexandria.

The university expects to break ground on the campus’ first academic building in 2021 and welcome students, faculty, and staff in fall 2024. ■

## THE SOUND OF PLANTS DANCING



**IMAGINE PUTTING ON A PAIR OF** headphones and being able to determine the health of plants across the globe based purely on what you hear. You’d be able to make remote adjustments to soil, water, or fertilizer.

Bingyu Zhao, associate professor in the College of Agriculture and Life Sciences’ School of Plant and Environmental Sciences, leads a team studying the microscopic movements and sounds plants grown in a hydroponic environment make based on the nutrients they have—or lack—from water.

The work could impact the global food source by increasing the sheer number of food-producing farms in challenging growing locations, such as urban environments.

Plants move during the day and, as they grow, create their own movement patterns. That dance creates a sound that changes based on sun, soil quality, and nutrients. In a collaboration with Ivica Ico Bukvic, an associate professor in the School of Performing Arts, this movement is captured using high-resolution cameras. ■

EW, VT NEWS



**TACKLING COVID-19:** Mark Begonia, director of testing for the Virginia Tech Helmet Lab, tests a football helmet fitted with a double visor.

## CUSTOM FACE SHIELDS AIM TO PROTECT FOOTBALL PLAYERS FROM COVID-19

**THIS FOOTBALL SEASON, THE HOKIES** are wearing custom face shields designed to protect them from COVID-19 that were created by the same Virginia Tech research team that rates helmets for safety.

The team includes Stefan Duma, the Harry Wyatt Professor of Engineering and the founding director of the Virginia Tech Helmet Lab; Mike Goforth, the associate athletics director for sports medicine; and Mark Rogers, the chief medical officer for Virginia Tech Athletics.

With only a couple months before football practice was set to begin in August, the team worked its way through multiple designs, putting in long hours and weekends to compress months of work into weeks. Football players came in every day to test out prototypes.

Ultimately, the design that met their criteria of efficacy, wearability, and ease of production was a deceptively simple solution: a shield pieced together from two visors. The upper half is a commercially available visor; in fact, many players already wear one for eye protection. A second visor, turned upside down and trimmed to fit the helmet, sits directly below the first one and covers the lower half of the face.

The research team was particularly interested in droplets smaller than 300 nanometers, the standard that’s used to certify the N95 masks used by frontline workers. The dual-visor shield blocked more than 99 percent of them. Meanwhile, impact tests in the helmet lab verified that the visors could withstand the forces that regularly pummel players’ helmets on the field.

As football players wear the visors, they are offering feedback that the researchers are using to fine-tune the design.

Duma hopes work on the face shield can have an impact far beyond the Virginia Tech gridiron. He has already shared the design with the NFL and the ACC and is considering how to help make visors for players at other schools. ■

**EXTRA, EXTRA!**  
READ ALL ABOUT IT.  
For additional details, images, and videos related to the stories featured in Drillfield, go to [vtmag.vt.edu](http://vtmag.vt.edu).

RM





# THE MARKET OF VIRGINIA TECH.

## GIFT FROM ALUMNI HEMA AND MEHUL SANGHANI MAKES INNOVATIVE NEW PROGRAM POSSIBLE



VIRGINIA GROWN: A generous gift from Hema and Mehul Sanghani made possible The Market of Virginia Tech.

WHEN HEMA AND MEHUL SANGHANI learned how many Virginia Tech students were struggling to have enough healthy and nutritious meals, they felt compelled to act.

Supported by a \$1.5 million donation by the alumni couple, the university in September launched an innovative program to enhance food access for today's Hokies. This initiative, called The Market of Virginia Tech, provides up to 75 students at a time with enough fresh ingredients for seven days of meals each week.

"I spent my first two years of college hungry," one student recently wrote while sharing feedback on what a difference the program has made for her. "The mental toll of chronic hunger is that you gain a sort of existential cynicism towards life. You could be doing everything you possibly could, and you'd still feel miserable inside and out. I am so appreciative of the fact that someone noticed this largely invisible issue and cared enough to help."

Many people may assume college students are better off than the popula-

tion at large. But students are actually far more likely to be food insecure than the general public. The Sanghanis were inspired to give, in part, by a Virginia Tech study released last year that showed 29 percent of undergraduates and 35 percent of graduate students having low or very low food security.

"Food insecurity often hides in the shadows," Hema Sanghani said. "The university's research on food insecurity opened our eyes to an issue that is often overlooked or unknown: food insecurity exists on college campuses nationwide, including Virginia Tech."

The Sanghanis live in Vienna, Virginia, and both grew up close to the university they would attend. Hema Sanghani, from Lynchburg, is a member of the Class of 1999 and earned her bachelor's in finance. Mehul Sanghani is a native of Blacksburg and a member of the Class of 1998 who earned separate bachelor's degrees in industrial and systems engineering and in psychology.

"One of the greatest feelings in the world is knowing that we—as individuals—could make a difference on such an impactful and pervasive issue for students," Mehul Sanghani said. "Food insecurity on college campuses is an issue made even more pronounced by the pandemic. We were compelled to do our part and proposed a partnership with our alma mater on a meaningful solution. We're elated to partner with Virginia Tech to make our vision for The Market a reality and serve our fellow Hokies." ■

### HOW TO HELP

To join in and support Hokie students who face food insecurity, please visit [give.vt.edu/themarket](https://give.vt.edu/themarket).

RY, CHUCK KENNEDY

# NEWS REEL

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](https://video.vt.edu).



### RETHINKING TEACHING DURING A PANDEMIC

Christopher Pritchett, foundation program chair at the School of Architecture + Design, has found it refreshing to be pushed out of his comfort zone, as the pandemic has forced him to rethink how he teaches.



### ASSOCIATE PROFESSOR DEVELOPS NEW COVID-19 KEY DESIGN

Ryan Pieper, associate professor at the Washington-Alexandria Architecture Center, created a contactless way to open doors and touch other common objects to prevent the spread of the coronavirus in public spaces.



### BLACKSBURG DELIVERS PARTNERSHIP BRINGS LOCAL DINING OPTIONS TO CAMPUS

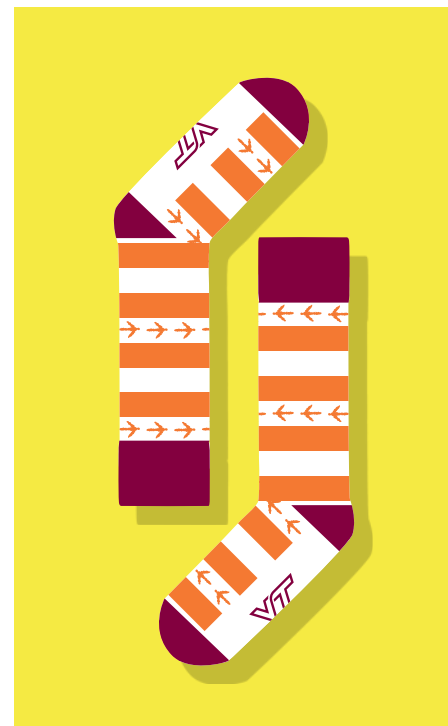
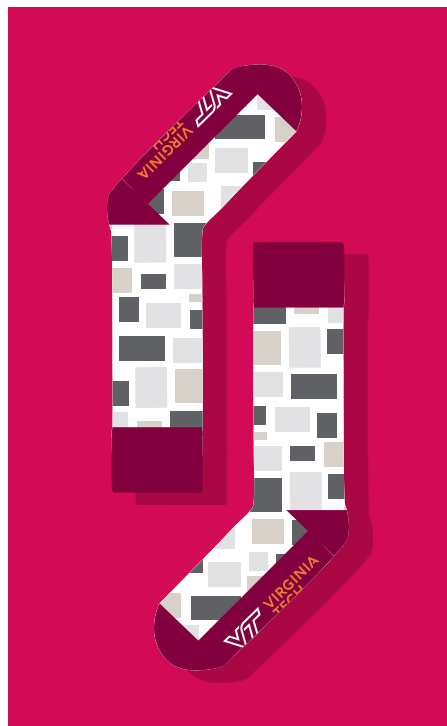
With Blacksburg Delivers—a partnership between the town of Blacksburg, local businesses, and Virginia Tech—faculty, staff, and students can order food from local restaurants for campus delivery.



### INTRO TO DANCE TECHNIQUES CLASS TAKES DANCE OUTSIDE

Rachel Rugh, adjunct instructor, adapted to COVID-19 by taking her students into the open air.





## SOCK IT TO ME!

**MAROON AND WHITE LINES** CRISS-cross over an orange background on new, limited-edition Hokie socks.

The design, titled “Sunrise on the Drillfield,” was created by senior fashion merchandising and design student Jiale Man. It was chosen by the Hokie community as the winner of a three-way vote to determine which design would be made into limited-edition Hokie footwear.

“I wanted to use the school colors to create something that is really representative of Virginia Tech,” Man said about the inspiration for her design. “Plaid is a pattern that a wide audience can appreciate, and you can wear it in a variety of different settings.”

It was Man’s interest in costumes and fashion, combined with her talent as an artist,

that led her to Virginia Tech’s Department of Apparel, Housing, and Resource Management. “I’ve always been interested in costumes and character design, and I love the idea of being able to see the things I draw become real,” she said.

Originally from Qingdao, a coastal city in China’s Shandong province, Man said Virginia Tech provides an ideal college experience for her. “The campus is beautiful,” she said. “The weather in Blacksburg is actually quite similar to the weather in Qingdao, which helped me feel comfortable and at home here when I arrived.”

Now in her senior year, Man hopes to go on to graduate school to continue honing her craft and developing new ideas. “Working on my portfolio helped me realize that costume design is really a per-

fect match for my interests and my abilities,” she said. “Someday, I would love to be doing costume design for the theater.”

Socks bearing Man’s winning design are currently in production and are expected to be ready in early December. In honor of Giving Tuesday, these limited-edition socks will be available only for a short time as a reward for Virginia Tech supporters who make a gift to the university between Nov. 30 and Dec. 2.

“I hope these socks create a sense of warmth and passion,” said Man, anticipating seeing her design brought to life. “I hope they transmit the Hokie Spirit and a sense of pride in being part of Virginia Tech.” ■ BS

**SOCKS**  
**ARE BACK!**  
November 30 - December 2



“Sunrise on the Drillfield”  
by Jiale Man, design student

### LIMITED TIME ONLY!

As comfortable as they are stylish, these student-designed socks are great for any occasion and make the perfect gift for the enthusiastic Hokie in your life.



Want to get some  
of these special  
**HOKIE  
SOCKS?**

In honor of  
Giving Tuesday,  
we’ll send a pair to  
anyone who makes  
a gift of \$10 or more  
between November 30  
and December 2!

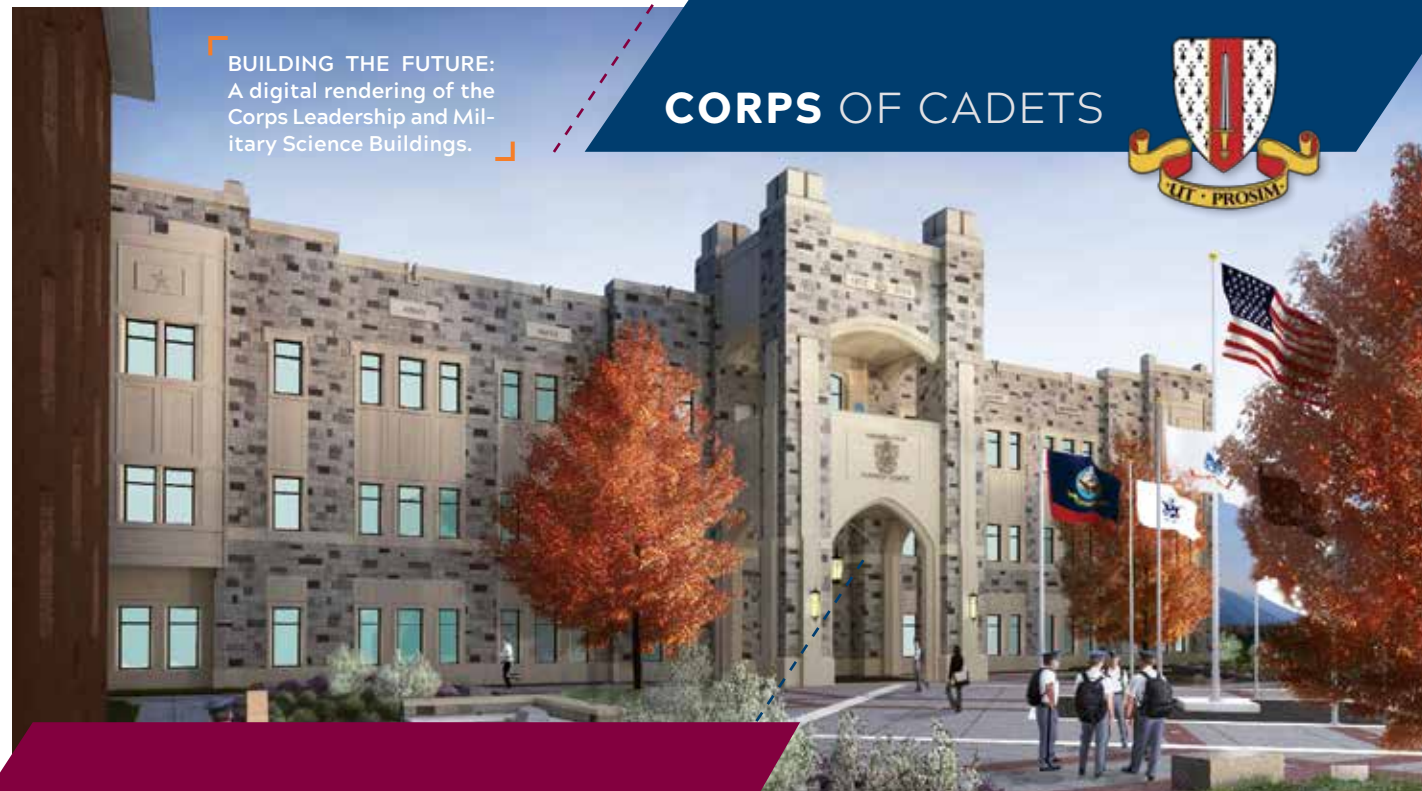


[give.vt.edu/socksvt](https://give.vt.edu/socksvt)



BUILDING THE FUTURE:  
A digital rendering of the  
Corps Leadership and Military  
Science Buildings.

## CORPS OF CADETS



# NEW FOUNDATIONS

**THIS FALL, THE 374 MEMBERS OF THE** cadet Class of 2024 learned the teamwork and attention to detail essential to being part of the Virginia Tech Corps of Cadets.

During the spring semester, these first-year cadets will prepare to take on the responsibilities of being upperclass cadets and develop the grit needed to be leaders of character in their chosen careers in the military, business, and government sectors, and in their communities.

These cadets are the reason that work on a new corps residence hall and the Corps Leadership and Military Science Building couldn't come at a better time, according to Maj. Gen. Randal Fullhart, commandant of cadets. With a total enrollment of 1,182, the corps continues on a path to grow to 1,400 cadets in the next five years.

"Completing the reimagining of the Upper Quad demonstrates the tangible commitment of the university to the growth and evolution of the Corps of Cadets," Fullhart said.

The new residence hall will be the third home for cadets. Pearson Hall East opened in 2015, and Pearson Hall West (formerly New Cadet Hall) followed in 2017. The new building will house about 300 cadets and continue the attention to detail evident both inside and outside the two current residence halls. For example, medallions on the building's exterior will represent corps organizations, such as Skipper Crew, the Gregory Guard, the Color Guard, and more.

The residence hall will be next door to the Corps Leadership and Military Sci-

ence Building, which will bring together corps and ROTC programs now dispersed across several buildings. It will also be a hub for the university's Integrated Security Education and Research Center, a new facility designed to blend science, technology, policy, and ethics across homeland security, national security, and cybersecurity domains.

Planning and design work are underway on both buildings. ■

**Alumni can leave their marks on the Corps Leadership and Military Science Building with a brick plaque.**

**Learn more at [vtcc.vt.edu/bricks](https://vtcc.vt.edu/bricks).**

*Shay Barnhart is the Corps of Cadets' communications director.*

COURTESY OF CLARK NEXSEN

## YOU CAN'T KEEP A HOKIE FAN DOWN

**ADAM WARD AND ALLEN BOWMAN** rarely missed a Hokie football game.

As elementary school students, the Roanoke area natives attended games with their families. Their intense fandom grew during their days as Virginia Tech students, apartment mates, and then as alumni following their 2011 graduation.

In August 2015, Ward, a videographer for WDBJ7 in Roanoke, and reporter Alison Parker were killed by a former co-worker during a live television broadcast at Smith Mountain Lake. Their deaths made national news.

But when the Hokies kicked off the 2020 football season on Sept. 26, Ward and Bowman were once again side-by-side in the West Stands, thanks to the Lane Stadium Fan Cutout program.

"I love the idea of them being together," said Katie Bowman '12, the wife of Allen Bowman, who purchased the cutouts. "Anything to keep Adam's memory alive. His family and friends have worked so hard to do that since his death. We miss him so much."

The program, which allows fans to have a life-size photo of themselves or others

placed in a stadium seat, was just one of the ways Virginia Tech Athletics helped keep traditions alive and students, fans, and alumni engaged during the pandemic-shortened season.

Football typically pulses as the heartbeat of the Hokie Nation, bringing tens of thousands of fans together. But the 2020 season opened with Lane Stadium limited to no more than 1,000 spectators to help fight the spread of COVID-19.

About 1,000 cutouts, all crafted from a weatherproof PVC plastic material, occupied seats when Virginia Tech notched a 45-24 victory over North Carolina State in the home opener. The images featured adults, babies, and pets, with a few celebrities sprinkled in, such as alumna Hoda Kotb and members of the band Metallica.

Orders came from across the country and around the world, according to Grant Duncan, assistant athletics director for annual fundraising at the university.

"We knew our fans would love it," Duncan said. "There are Hokies everywhere. It's an opportunity for someone to be in Lane [Stadium] who might have been in Lane [in the past] or has never been able to visit Lane because of where they live."

Prior to the game, hundreds of Hokies from around the globe chimed in during a virtual roll call and viewed the Hokies' Walk Through on Facebook Live, while more than 9,000 used one or more of the features available on the Hokie Sports mobile app between 7 and 8 p.m.

The Highty-Tighties and Color Guard performed the national anthem and "Tech Triumph" via video recordings. Skipper was fired at the end of each quarter and for every Hokie score. The Marching Virginians, Virginia Tech Spirit Squads, and the HokieBird live-streamed performances.

Fans were also connected to Lane Stadium through Virginia Tech's Virtual Sellout campaign, which offered the opportunity to purchase a virtual seat, receive a variety of commemorative items, and the chance to win a VIP experience during the 2021 football season. Like the cutouts, all proceeds from the season-long effort support Virginia Tech student-athletes and help mitigate the budget deficit expected to result from COVID-19. ■ *JKB/TW*

**FAN-TASTIC:** (below) Allen Bowman and Adam Ward (front row from left) were featured in cutouts in Lane Stadium.







## IN THE HOT ZONE

“SO, ESPECIALLY WHEN THINGS SUCKED, AND WE WERE LOSING ONE PATIENT AFTER ANOTHER, I’M JUST REMINDED BY IT OF WHY I’M DOING THIS. IT REMINDS ME OF WHY I’M HERE AND THAT I HAVE THE SUPPORT OF VIRGINIA TECH AS A WHOLE BECAUSE THAT [UT PROSIM] IS WHAT WE GO BY.”

Cameron Buck

**CAMERON BUCK WAS ABLE TO BREAK** his nail-biting habit this summer.

But while learning to embrace the precaution of not bringing his hands to his face, the Virginia Tech senior added a more painful practice to his routine.

“I was just not used to putting people in body bags, but it’s become more habitual just because of how bad this all is,” said Buck from a hotel room in McAllen, Texas, where he spent a month volunteering to help COVID-19 patients in a hospital ICU.

While on the frontline of the global pandemic, Buck, a systems biology major in the College of Science, focused on the university motto. He even wore a scrub cap adorned with the “flying VT” every day.

“So, especially when things sucked, and we were losing one patient after another, I’m just reminded by it of why I’m doing this,” Buck said. “It reminds me of why I’m here and that I have the support of Virginia Tech as a whole because that [Ut Prosim] is what we go by.”

No stranger to volunteering, Buck earned his EMT certificate during his senior year of high school in Richmond, Virginia. He joined the Blacksburg Volunteer Rescue Squad in 2018 and also volunteers back home with the Forest View Volunteer Rescue Squad.

Buck said his father, Jason Buck, an emergency room nurse, inspired his volunteerism and his plan to attend medical school. Buck also credited his dad with motivating the decision to travel to Texas. Jason Buck had volunteered with COVID patients in New York and was heading to Texas.

“I really didn’t know what to expect, honestly,” Buck said. “I don’t think anybody truly understands how crazy this virus is until you see patients go from sitting up and talking to you with a mild cough and a little difficulty speaking to being fully ventilated and sedated the next day.”

Hurricane Hanna’s July 25 landfall added to the challenge. Buck worked more than 22 hours that day.

“I just remember [once the shift ended] my hotel’s power was out, and I was eating a Pop-Tart almost in tears because I was so tired,” Buck said.

Still, the physical toll was far from the most difficult part of the experience.

“I think the hardest part of this whole thing is seeing somebody’s wife or husband have to talk to them on Facetime minutes before they pass away,” Buck said. “That hurts, but it makes me try my hardest as a health care provider to make sure I see my patients as not just patients. They’re not just a bed number—they’re human beings that have people who love and care for them, just like you and me.” ■ TW

COURTESY CAMERON BUCK

ONE HUNDRED YEARS LATER

## WHAT HAVE WE LEARNED?



**ONE HUNDRED YEARS AGO, U.S.** women gained a political voice—they were granted the right to vote.

The Aug. 18, 1920, ratification of the 19th Amendment was a historic achievement that followed a more-than-70-year fight by women’s suffrage activists. These women, dubbed suffragettes, went to great lengths to secure the right to vote, from picketing in front of the White House to lobbying in political settings where females were prohibited. Many of the activists were arrested.

Marian Mollin, an associate professor of history at Virginia Tech, studies U.S. women’s history and social and political movements. She offered her thoughts on the anniversary of the 19th Amendment and its significance for American society then and now.

**Did the 19th Amendment guarantee that all women could vote?**

**Mollin:** The amendment applied to all women who were American citizens. In practice, that meant that women of different races and classes had different access to the vote, access that mirrored that held by men of their same social location and status.

White middle-class women could easily access the ballot just like their husbands, fathers, brothers, and sons. Women of color, however, faced numerous barriers.

Black women in northern states were generally able to put their suffrage rights into practice. But those in the south, like their Black male counterparts, found it almost impossible to enter the voting booth due to discriminatory Jim Crow laws intended

to disenfranchise people of color. Some of these laws also effectively disenfranchised poor southern white women and men.

**How did the ratification of the 19th Amendment change U.S. society as a whole?**

**Mollin:** The 19th Amendment did more than just admit women into the voting booth. By the early 1900s, women had already been moving into the public sphere, into the world of business, commerce, education, and labor. Politics remained what I call a “no-women’s-land.”

Politics, because it was limited to men, was a place that men used to define their masculinity. So what did that mean when women could be political, too? It was a very clear statement that the entirety of the public sphere was now open to women; it was not just a male space anymore. And it meant that women could now be treated as full citizens, with all of the rights that citizenship entails.

**What can we learn today from this historic movement?**

**Mollin:** One of the main lessons is about making a commitment to the long haul. We live in a time where we want immediate gratification. It’s hard to think that you’re pushing for something now, and it could be 70 years before there is even a partial solution. ■ JKB

NATIONAL ARCHIVES



LOGY

ol·o·gy  
äləjē

a subject  
of study

# COVID CRUSHERS

WITH FACES CONCEALED, EYES shielded, and hands gloved, the students squirted a fragrant gel on strangers passing by in downtown Blacksburg.

A year ago, this act might have resembled a scene from a science-fiction movie or felt like an offbeat prank, but in 2020, the sanitizing is a welcomed act of service.

"We've had a great response from the community," said Fernanda Gutierrez, a second-year graduate student in the Virginia-Maryland College of Veterinary Medicine's public health program. "When they see we're giving out hand sanitizer and distributing masks, they're really happy."

Gutierrez is one of a handful of Virginia Tech students who routinely spend their Friday evenings distributing personal protective equipment and related medical information to help fight the COVID-19 pandemic. Embracing the name "COVID Crushers," the students run a booth at the intersection of College Avenue and Draper Road, where they also model wearing the recommended safety gear and host a COVID-19-related trivia contest complete with prizes.

Gutierrez and fellow Master of Public Health student Teace Markwalter coordinate the weekly event, which was initiated by a request from Blacksburg Chief of Police, Anthony Wilson. Another student in the program, Laura Lang, serves as the group's outreach coordinator.

"It's just sort of a grassroots effort that they took the ball and ran with, and it's doing such a great service for our community," Wilson said. "They're making connections with people that we would probably never be able to reach."

Sharing wellness information and public service are key components of the Virginia-Maryland College of Veterinary Medicine's public health program, according to Laura Hungerford, head of the Department of Public Health Sciences.

"Our students, faculty, and staff are always out working with the health district and communities. It's just that we always kind of did it under the radar," Hungerford said. "We don't usually think to stop and share our public health stories, but COVID has made everyone interested in how we can work together to stop disease spread."

The global pandemic has increased awareness of the important role the students play in educating the public.

"Until you actually do something like contact tracing or showing people how to protect themselves from COVID, it can seem overwhelming," Hungerford said. "From talking to people on the street, our students really understand, for example, why people don't wear masks and can ultimately better communicate in ways that might change that behavior." ■ TW

WHAT'S

IN IT?

William Ducker

# SURFACE SHIELD

A VIRGINIA TECH PROFESSOR HAS found a solution to the rapid spread of the coronavirus on common surfaces.

In March, William Ducker, a chemical engineering professor, developed a surface coating that, when painted on common objects, inactivates SARS-CoV-2, the virus that causes COVID-19.

Since April, Ducker has been working with Leo Poon, a professor and researcher at the University of Hong Kong's School of Public Health, to test the film's success at inactivating the virus. Their research was published in July in ACS Applied Materials & Interfaces, a scientific journal for chemists, engineers, biologists, and physicists.

The results of the tests have been outstanding, Ducker said. When the coating is painted on glass or stainless steel, the amount of virus is reduced by 99.9 percent in 20 to 30 minutes, compared to the uncoated sample. The half life of the virus is about 3 to 4 minutes on the coating. Ducker's expectation is that his team can inactivate the virus in minutes.

The coating consists of two main ingredients:

- Cuprous oxide, which is used as a pesticide and has proven to be effective against two other viruses.

- Commercial polyurethane, which is hard-wearing and easy to apply.

Results show that the coating does not peel off after being slashed with a razor blade. Tests also show that it retains its ability to inactivate the virus after multiple rounds of being exposed to SARS-CoV-2 and then disinfection or after being submerged in water for a week.

"The idea is when the droplets land on a solid object, the virus within the droplets will be inactivated," said Ducker, whose research already focused on making films that kill bacteria. "We have to use our chemical knowledge and experience of

other viruses to guess what would kill it [SARS-CoV-2]."

Ducker hopes to attract funding in order to mass-produce the film while also working on other coatings to inactivate the virus.

To be sure, the film does not replace other safety measures that people should take to slow the spread of the coronavirus, such as handwashing, physical distancing, and wearing a mask.

Even so, "people won't have to worry as much about touching objects," Ducker said. "It will be both practical and reduce fear." ■ JKB

FILM-MAKER: Graduate assistant Saeed Behzadinasab works with a team that is developing a substance to neutralize the SARS-CoV-2 virus on surfaces.






HOW TECH TICKS

TESTING 1, 2, 3

“IT AMAZES ME; IT IS A TRUE TEAM EFFORT. OUR UNIVERSITY DECIDED TO INVEST INTELLECTUAL AND FINANCIAL RESOURCES TO DO SOMETHING FOR OUR COMMUNITY. I AM PROUD THAT WE WERE ONE OF ONLY A HANDFUL TO DO THAT.”

Carla Finkelstein, scientific director of the Virginia Tech Molecular Diagnostics Laboratory at the Fralin Biomedical Research Institute at VTC

 **VIRAL RESPONSE**  
For videos, links to the most up-to-date COVID 19 information, and further details about the university's response to the pandemic, visit [vtmag.vt.edu](http://vtmag.vt.edu).

**INSTRUCTORS ACROSS CAMPUS** employ various types of examinations to assess progress and ensure that each member of their class successfully grasps course content. But with the fall 2020 semester, testing took on a whole new meaning at Virginia Tech.

In preparation for the return of faculty, staff, and students to campus during the pandemic, the university developed a comprehensive testing, tracing, and case management plan as part of its broader effort to mitigate the spread of COVID-19.

In March 2020, with hospitals challenged by shortages of critical resources to provide care for COVID-19 patients and diagnostic labs overwhelmed with patient samples, a campus-wide group of Virginia Tech faculty researchers, post-doctoral fellows, lab technicians, stu-

dents, and administrators developed a way to provide testing for the region and for the Virginia Tech community.

By April, Virginia Tech biomedical researchers customized their own method to detect the SARS-CoV-2 virus, which causes COVID-19, in samples provided by health providers in coordination with the Virginia Department of Health.

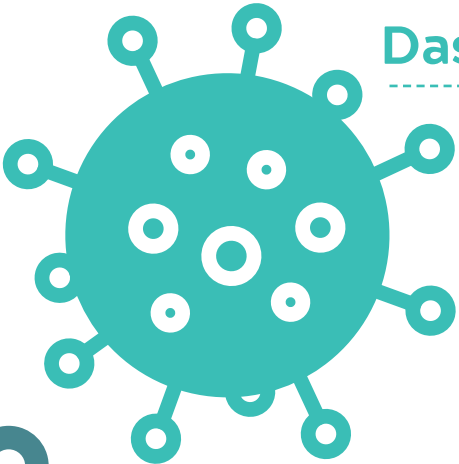
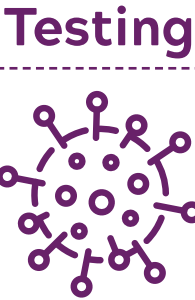
Using a redesigned version of a real-time, quantitative polymerase chain reaction (RT-qPCR) protocol, Virginia Tech made improvements to search for not just a single genetic sequence of the virus, which could compromise the quality of reporting results, but for three unique gene sequences in the virus. In that way, the test was more accurate and functional with custom-designed chemicals and reagents, avoiding many of the supply problems that thwarted early testing in the nation. ■ TW

ISTOCK, CLAYTON METZ

**Current surveillance testing** is regular testing of four categories:

- high-contact employees and students.
- ongoing student population testing.
- student-athlete testing.
- prevalence testing.

**Prevalence testing** is random testing of a population of people who are assumed to be non-symptomatic in order to compare the number of people who have the virus with the total number of people tested.



**Dashboard**

The COVID-19 online dashboard, which can be found at [ready.vt.edu](http://ready.vt.edu), was launched to share the reports of COVID test results administered by Schiffert Health Center.

It is updated Monday through Friday.

It monitors:

- availability of on-campus quarantine and isolation space.
- positivity rates, the total number of cases, and the number of tests performed.
- available hospital capacity.



- Process**
1. Testing kits are assembled by Virginia Tech's Molecular Diagnostics Laboratory team.
  2. The kits which contain a collection tube with media and a nasal swab, or for collection of saliva samples, a saliva collection tube, are coded and de-identified before they are transported to the Health
  3. The samples are then returned to the Molecular Diagnostics Lab for analysis.
  4. Test results are usually reported back within 24 to 48 hours.

**Lab**

The Virginia Tech Schiffert Health Center Molecular Diagnostics Laboratory began analyzing COVID-19 test samples on April 20, working through an application for a U.S. Food and Drug Administration-issued Emergency Use Authorization.

The testing lab is located at the Fralin Biomedical Research Institute at VTC.

It can analyze up to 1,000 individual samples per day, and can process up to 1,600 when using an approved sample pooling method.

**DID YOU KNOW?**

Between Aug. 3 and Oct. 21, 2020, Virginia Tech processed 24,843 tests of students and employees. These tests revealed 1,345 positives.

ISTOCK



# GLOBAL PERSPECTIVES

“

**I WOULD TELL PEOPLE, DON'T BE IN SUCH A RUSH TO LEAVE YOUR FAMILY.** I GUESS I REALLY DIDN'T REALIZE HOW MUCH TIME I'D SPENT AWAY FROM THEM, AND I FEEL LIKE PEOPLE SHOULD CHERISH THAT TIME TOGETHER.”

Mikun Adewole

THE TIME IS 10 P.M. IN KAZAKHSTAN, and Kabyl Oxikbayev's classes are just starting for the day.

For the next seven hours, the senior civil engineering major will listen to live lectures, participate in meetings, and even catch up with friends in Blacksburg. His days end at 5 a.m.

“My philosophy is that I am up during business hours,” said Oxikbayev, who in May left Blacksburg for his home country in Central Asia, which is in a time zone that is 10 hours ahead of the U.S.

Oxikbayev isn't the only Hokie who has taken on a completely new schedule this semester. Other students who returned to their home countries are taking courses from different time zones and pulling all-nighters to remain enrolled as active students. Some, like Mikun Adewole, experienced this reality when the pandemic began last spring.

Hokies around the world are striving to make the best of a challenging year.

## MIKUN ADEWOLE: A SEMESTER DISRUPTED

Mikun Adewole was staying with family members in Maryland when he learned the university was extending spring break as a result of the COVID-19 pandemic. Fearing travel to Nigeria, where his immediate family lives, would soon become difficult, his mother quickly arranged for him to fly home to Lagos, the country's largest city.

“The day after I got back [to Nigeria], the airport closed, and it's still closed,” said the junior chemical engineering student.

In the months that followed, Adewole found himself navigating his online courses, as well as adjusting to a five-hour time difference.

Adewole, who did secure safe transport back to the U.S. this summer, says it is a relief to be back in Blacksburg, but he also is grateful for the time he had in Nigeria.

“I would tell people, don't be in such a rush to leave your family,” he said. “I guess I really didn't realize how much time I'd spent away from them, and I feel like people should cherish that time together.”



## KABYL OXIKBAYEV: LEADING ACROSS THE WORLD

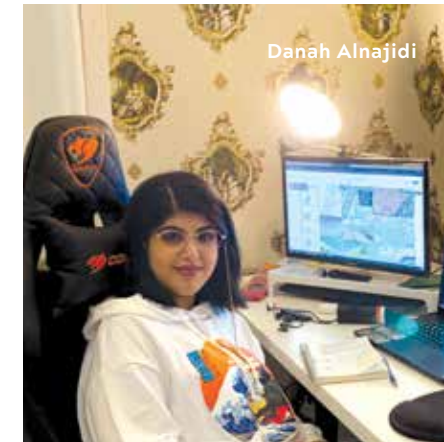
Not only is Kabyl Oxikbayev juggling his senior year of classes, he also is leading an international student organization virtually. In June, Oxikbayev became president of the Council of International Student Organizations, a group that represents and advocates for international students at Virginia Tech.

Generally, Oxikbayev meets with the council's 10-member board every two weeks, and many join virtually from other countries, including China, India, and the U.S.

“Even though it's been a challenge, it does give me a certain level of experience and valuable insight that I feel like I would not have gotten had everything been the same or normal,” said Oxikbayev.

Oxikbayev is on a completely opposite schedule than his parents. He goes to bed when they wake up in the mornings. They eat dinner together before his classes begin.

“Staying up late at night to not only do assignments but to be mentally and physically present for a lecture, it's a bit of a struggle,” he said. “But I'm just thinking of it in a way that in 10 years I'll be looking back, and, hopefully, I'll be laughing about it.”



## DANAH AND NAJD ALNAJIDI: CREATIVITY FLOURISHES AT NIGHT

Sisters Danah and Najd Alnajidi didn't want to leave Northern Virginia to return home to Saudi Arabia last spring. But when the coronavirus pandemic began, their family was worried for their safety.

The sisters are graduate students studying architecture at the Washington-Alexandria Architecture Center, a Virginia Tech campus in Alexandria, Virginia.

“It was the most stressful thing,” said Najd Alnajidi, explaining that they had to pack up their Alexandria apartment, move their belongings to storage, and leave their two cats with a friend.

Once they arrived in Saudi Arabia, they had to quarantine for 14 days in a city that was on lockdown. No one could leave their houses except to go to the grocery store.

All along, the sisters knew that it would be impossible for them to return to the U.S. for their fall semester, because no air travel was allowed. They were determined not to fall behind in their classes.

“I would have to take a whole semester off,” said Najd, who is in her second year of the architecture program.



The sisters retrofitted a study and living area in their home and convinced their family to upgrade the house's WiFi so that they could better access their classes online.

Their classes begin at 8:30 p.m. and end by 5 a.m. They sleep during the day, waking up in time for dinner and other activities with their family.

Danah Alnajidi, who is in her first year of the architecture program, said she's looking forward to having a daytime class schedule once they are able to return to the U.S.

“I don't mind being on Zoom classes, but I would rather be in Alexandria,” said Danah.

Another challenge this semester for Najd is not being able to take some of the hands-on classes. She said she also misses being able to print large architectural drawings.

Luckily, both sisters have enjoyed staying up late in the past and that has worked in their favor with their new class schedule.

“We get so invested in ideas that we don't want to go to sleep,” said Najd. “We know that once we sleep, the next day that idea won't be there.” ■ TW/JKB





# ON THE WILD SIDE

ANY HOKIE WHO HAS SPENT TIME ON the Blacksburg campus has experienced its wildlife in some way: a songbird's dawn reveille, a squirrel dashing across the Drillfield, Otter Sandman fishing in the Duck Pond, or even the occasional appearance of a black bear.

Animal species have become more prevalent on and near campus, both because they're adapting to an increasingly urbanized landscape and because of efforts to restore places like Stroubles Creek downstream from the Duck Pond and Plantation Road. Virginia regulators found that stretch of Stroubles to be impaired by pollution in 2002, prompting student and faculty efforts through the American Fisheries Society to restore a wildlife-friendly riparian corridor around the creek by tree-planting and fencing out livestock.

"The stretch had been grazed by sheep down to the waters edge," said Dean Staf-fuer, professor in the College of Natural Resources and Environment and associate department head for undergraduate

affairs. "Now it's a nice riparian strip—the result of student actions on campus."

Kevin Hamed, assistant professor in the Department of Fish and Wildlife Conservation, has conducted wildlife surveys along the creek, as well as recording online classes at the site after the pandemic forced faculty to shift to remote instruction during the spring 2020 semester.

Stroubles Creek is accessible by an extension from the Huckleberry Trail and has become a hotspot for birders and wildlife watchers. ■ MA



## Wildlife Hotspots

### Duck Pond

Pond between Southgate Drive and Virginia-Maryland College of Veterinary Medicine

Forested area between the Grove and Duck Pond

Center Woods (forested area on southwestern side of Huckleberry Trail between campus and Prices Fork exits)

Green area around War Memorial Gymnasium



## ANIMAL ATTRACTION

For more photos and information about campus wildlife, visit [vtmag.vt.edu](http://vtmag.vt.edu).

KRIS TIMNEY, IVAN MOROZOV

182

Number of bird species observed at the Duck Pond.



DM

## Mammals

mink  
river otter  
muskrat  
short-tailed shrew (the only venomous mammal)  
cottontail rabbit  
white-footed mouse  
deer mouse  
deer

## Birds

red-winged blackbird  
song sparrow  
white eyed vireo  
northern oriole  
blue jay  
gold finch  
robin  
woodpecker (various)  
kingfisher  
great blue heron  
green heron  
great egret  
coopers hawk  
red-tailed hawk  
barn owl



123

Number of bird species observed along Stroubles Creek.

## Fish

mountain red-bellied dace  
marginated madtom  
river chub  
creek chub  
white sucker  
sculpin  
bluegill  
largemouth bass

## Reptiles

turtle (various)  
garter snake  
water snake

## Amphibians

American toad  
long-tailed salamander  
two-lined salamander  
red-backed salamander  
bullfrog  
spring peeper





# “WHAT DID YOU SAY?”

TIPS FOR COMMUNICATING WITH MASKS ON

“

Speak louder, shout if you have to—that’s how Kristin Rice has been communicating with others, particularly while outdoors with half of her face covered by a mask.

“In a crowded area, you are shouting to be heard, to be as loud as possible while social distancing,” said the Virginia Tech freshman, who plays the alto saxophone with the Marching Virginians. “It’s a struggle.”

Along with other band members, Rice cut a hole in her mask in order to play her instrument.

Meanwhile, Michael Dashiell, a Virginia Tech sophomore, has figured out a trick to prevent his glasses from fogging up while he’s wearing a face mask. He pushes his glasses further down on his nose, so that they rest on top of his mask.

Face coverings now are a part of our daily apparel. Just like people put on clothes every day before venturing out in public, masks are a part of the recommended dress code to slow the spread of COVID-19. Throughout the commonwealth and across Virginia Tech’s campuses, face coverings are required indoors and outdoors when physical distancing isn’t possible.

But with only the eyes and forehead visible behind a face covering, communication can be tricky.

“It [communicating] requires a lot more consciousness of our bodies and our eyes when we are out in public wearing a mask,” said Patty Raun, a professor in the School of Performing Arts at Virginia Tech and director of the Center for Communicat-

**“WE HAVE TO SLOW DOWN OUR SPEECH. WE HAVE TO ARTICULATE MORE CLEARLY AND USE MORE PITCH VARIETY. I HAVE TO REMEMBER THAT THEY CAN’T SEE THAT REALLY EFFECTIVE PART OF MY FACE. I HAVE TO LET MYSELF EXAGGERATE.”**

Patty Raun,  
a professor in the School of Performing Arts

ing Science. “We need to overcompensate for the most expressive part of the face.”

For example, on a recent trip to a local restaurant to pick up a to-go food order, Raun said she found herself exaggerating her signals with the staff. She spoke slowly and pointed to items on the menu, all while her eyebrows were rising up and down.

That’s because her mask covered her nose and mouth, forcing her to figure out how to give her order without using her typical facial expressions.

“We have to slow down our speech. We have to articulate more clearly and use more pitch variety,” said Raun. “I have to remember that they can’t see that really effective part of my face. I have to let myself exaggerate.”



Patty Raun



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Aside from speaking, nonverbal body language is just as important in communicating with others, and movement of the torso is key, said Greg Justice, an associate professor in the School of Performing Arts at Virginia Tech. That includes everything from posture to orientation of the body.

After all, 50 percent of effective communication happens through body language and nonverbal methods, he said. Meanwhile, 40 percent of communication is vocal, and only about 10 percent happens with words.

“We can lie like crazy with our face, but we can’t lie with our torso,” Justice said.

Another challenge is showing genuine friendliness behind a mask. Raun said she wants people in public to know that she is smiling at them, even though they can’t see her mouth. Looking at someone’s eyes and their forehead can give clues as to whether they are smiling or frowning, she said. To show anger, the eyes typically are lowered or pinched together.

But the skin around the eyes moves when someone is genuinely smiling. Look for crow’s feet at the corner of people’s eyes or squinting to see a smile, she said.

“Joy is very clear in the eyes,” said Raun, explaining that she uses eye and mind exercises for students in her acting classes. “You can see so much from that little two inches.”



She said she particularly likes the masks that have a smile printed on them.

Making eye contact is especially critical while wearing a face covering, as well as changing the tone and pitch of one’s voice to convey a message, said Robin Panneton, an associate professor of psychology at Virginia Tech. Her research focuses on infants’ and toddlers’ attention to and perceptions of language.

“We might need to be more mindful of how important the body is in how we convey our enthusiasm and our skepticism,” Panneton said.

But masks aren’t the only obstacle affecting our current communications with co-workers, family, and friends.

There’s another challenge created by the pandemic—communicating behind screens. This applies to Zoom and other web platforms that people now use regularly for office meetings, group events, and even social gatherings in order to maintain physical distance.

For onscreen communication, people should remember that the camera is their friend, said Justice.

For instance, when talking with others online, we often want to look at the people on the screen, rather than directly at the camera. But Justice advises people to look at the camera, which is typically located at the top of the display; otherwise, they appear to be looking down at the others on the screen.

“The speaker must behave like that glass is actually the person(s) they are talking to,” said Justice, who suggests attaching a sticky note just above the camera that states “Look here” in order to train the eyes.

To be sure, communicating with others well right now takes more effort, intense attention, and some creativity, Raun said, calling it a “paradox of the times.”

“When we are on Zoom or video communication, our nonverbals are limited to head and shoulders,” she said. “We’ve got one kind of limitation through part of our day, then we go out in public and we have the opposite problem.”

Even more so in public, “we need to be very intentional about remembering that there is a human being behind that mask, that there’s a person with a lot of life things going on,” Raun said. ■ JKB



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## HOW TO COMMUNICATE BEST BEHIND A FACE MASK:

- ENUNCIATE YOUR WORDS.
- SPEAK LOUDER.
- USE HAND SIGNALS.
- EXAGGERATE.
- BE AWARE OF BODY LANGUAGE.
- MAKE EYE CONTACT.
- STUDY THE EYES.
- CHANGE THE PITCH OF YOUR VOICE.



# SCIENTIFIC RELEVANCE

BY MATT CHITTUM

WITH THE COVID-19 PANDEMIC BEARING DOWN, CRUCIAL CAPACITY TO TEST FOR THE VIRUS WAS IN SHORT SUPPLY.

RESEARCH SCIENTISTS AT THE FRALIN BIOMEDICAL RESEARCH INSTITUTE AT VTC AND COLLEAGUES ON THE BLACKSBURG VIRGINIA TECH CAMPUS PIVOTED FROM THEIR USUAL SCIENCE TO EMBRACE AN EMERGENT NEW ROLE.

WORKING THROUGH THE OFFICE OF THE VICE PRESIDENT FOR HEALTH SCIENCES AND TECHNOLOGY, VIRGINIA TECH EARNED RAPID APPROVAL FROM STATE AND FEDERAL GOVERNMENTS TO ANALYZE COVID-19 TESTING SAMPLES AND, IN A MATTER OF WEEKS, LAUNCHED LABORATORIES THAT DRAMATICALLY EXPANDED THIS IMPORTANT RESOURCE IN SOUTHWEST VIRGINIA. THE WAIT TIME FOR VIRGINIA DEPARTMENT OF HEALTH TEST RESULTS IN THE REGION PLUMMETED FROM A WEEK TO AS LITTLE AS A DAY OR TWO.

“THERE IS NOT ANOTHER PLACE IN SOUTHWEST VIRGINIA THAT HAS THE TECHNOLOGICAL SOPHISTICATION, INSTRUMENTATION, AND SCIENTIFIC EXPERTISE TO RUN THESE TESTS. I DON’T KNOW WHERE ELSE IT WOULD HAVE HAPPENED,” SAID MICHAEL FRIEDLANDER, EXECUTIVE DIRECTOR OF THE FRALIN BIOMEDICAL RESEARCH INSTITUTE AND VIRGINIA TECH’S VICE PRESIDENT FOR HEALTH SCIENCES AND TECHNOLOGY.

TEN YEARS AGO, IT COULDN’T HAVE HAPPENED.

The ability to respond rapidly to a national and community crisis reflects, in part, the university’s decision in 2008, in partnership with Carilion Clinic, to add to its biomedical research infrastructure, embodied over the past decade by the Fralin Biomedical Research Institute.

The institute launched in 2010 with its first faculty member and executive director—Friedlander—and \$2 million in extramural research funding from the National Institutes of Health. Today, 33 research team leaders with the support of more than 300 students and staff conduct research with \$135 million in active grant awards.

Over the summer, the first of what will eventually be an additional 20 to 25 teams of researchers moved into a new 139,000-square-foot building on the Virginia Tech Carilion Health Sciences and Technology campus in Roanoke, more than doubling the institute’s space and adding what will be another 300 to 400 research faculty, staff, and students.

They’ll investigate new frontiers in biomaterials/body-device interfaces, brain health and disorders, cancer therapeutics, cardiovascular science, obesity and metabolism, and immunity and infectious diseases, including the novel coronavirus.

Investigators will use a highly secure Biosafety Level 3 lab to gauge the effects of COVID-19 on multiple bodily processes, including cardiovascular function. The Virginia-Maryland College of Veterinary Medicine’s Animal Cancer Care and Research Center and the College of Science’s Center for Biostatistics and Health Data Science are also located in the new research institute addition and will contribute to the overall interdisciplinary research enterprise.

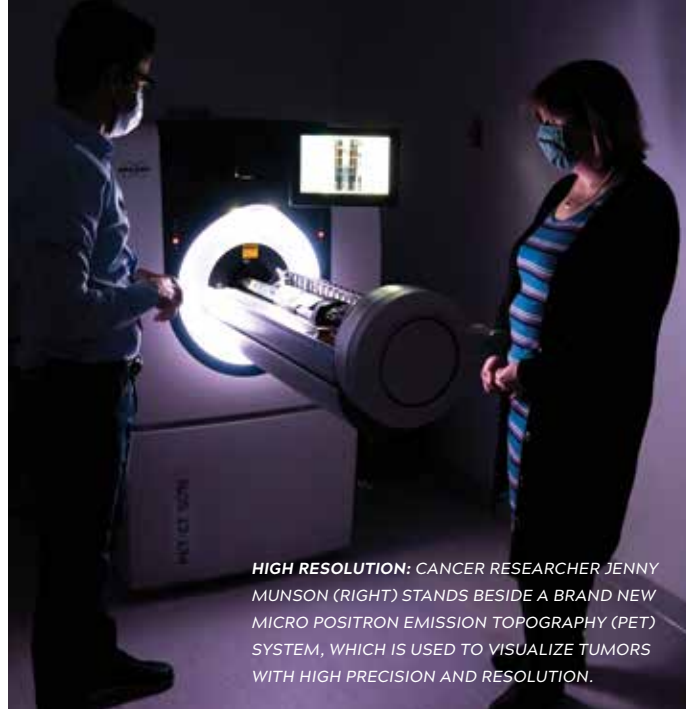
Given the achievements of the first decade, the next may be even more dramatic.

“THERE IS NOT ANOTHER PLACE IN SOUTHWEST VIRGINIA THAT HAS THE TECHNOLOGICAL SOPHISTICATION, INSTRUMENTATION, AND SCIENTIFIC EXPERTISE TO RUN THESE TESTS. I DON’T KNOW WHERE ELSE IT WOULD HAVE HAPPENED.

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**MICHAEL FRIEDLANDER,**  
EXECUTIVE DIRECTOR OF THE FRALIN  
BIOMEDICAL RESEARCH INSTITUTE AND  
VIRGINIA TECH’S VICE PRESIDENT FOR  
HEALTH SCIENCES AND TECHNOLOGY





**HIGH RESOLUTION:** CANCER RESEARCHER JENNY MUNSON (RIGHT) STANDS BESIDE A BRAND NEW MICRO POSITRON EMISSION TOPOGRAPHY (PET) SYSTEM, WHICH IS USED TO VISUALIZE TUMORS WITH HIGH PRECISION AND RESOLUTION.

## SETTING STANDARDS FOR WORLDWIDE SCIENCE

The Fralin Biomedical Research Institute's job is to create new knowledge. Its scientists have tallied over 700 publications, accrued 35 patents, and are behind numerous important discoveries.

In a neurosurgical suite at Wake Forest University Medical Center, surgeons implanted tiny electronic leads into the brain of a Parkinson's patient, who was awake during the procedure, to implant a deep brain stimulator.

Led by Read Montague, the Virginia Tech Carilion Vernon Mountcastle Research Professor, a group of scientists adapted equipment to be inserted surgically into willing patients' brains and developed a high-speed scanning procedure to identify serotonin fluctuations while the waking patients played a risk-and-reward game.

The researchers were the first in the world to take such measurements directly in humans, and they documented the first clear evidence that serotonin helps people contend emotionally when events don't go as they expect.

Research at the Fralin Biomedical Research Institute is supported mostly through federal grants, 90 percent of which come from the National Institutes of Health. Industry partners also support the institute, inspired in part by the institute's modern and innovative approach to translational research, innovation, and entrepreneurship.

For example, state-of-the-art imaging equipment manufacturer Bruker selected the institute to partner in using its newest technology that allows for unprecedented high-resolution visualization of structures and biological processes inside the living brain and heart. Also, pharmaceutical company Indivior chose the institute to collaborate on a large-scale follow-up study aimed at developing long-term treatment management of people trying to recover from opioid addiction.

And the institute's full potential is still being realized.

"There's not a full understanding yet of just how impactful the Fralin Biomedical Research Institute can be," said Heywood Fralin, who with his wife, Cynthia, and the trustees of the Horace G. Fralin Charitable Trust, donated \$50 million to the institute in 2018. "There's nothing that's going to help the community and the citizens more than this."

The institute is more than fulfilling its promise of scientific relevance and economic power, and it's poised to reach beyond the region and the state. Children's National Hospital in Washington, D.C., sought out the institute as a key founding partner for its new innovation campus, where the institute will begin expanding Virginia Tech's research operations in pediatric brain cancer treatments next summer.

Sharon Landesman Ramey and her husband, Craig Ramey, both research professors and distinguished research scholars, were among the first scientists to join the institute. They were on the brink of retiring when they answered Friedlander's call. The institute's initial focus on the brain and nervous system rapidly and organically broadened into study of the heart, cancer, neuromotor disabilities, addiction, and other areas.

With a relatively modest initial investment compared to larger institutes, Fralin Biomedical Research Institute has over-achieved.

"We're just a bunch of hard-charging people who love our work," Landesman Ramey said. "That's who we are in the research world. In less than a decade, we made it to the national and international scenes."

"We're really setting standards for worldwide science," Friedlander said.

The power of the institute is its people—from pioneering faculty research team leaders to dedicated staff and talented students, he stressed.

Scientists at the Fralin Biomedical Research Institute are leaders in using new ways to study a human's brain during tasks to learn more about the neural activity that underpins actions and decisions, including after brain injuries and when such disorders as major depression or neurodegeneration occur.

Investigators are changing views of damage to the heart from heart attack, arrhythmia, and viral infection and developing new insights and approaches for heart-healing.

The institute is home to a world-leading program for rehabilitation of the brains of children who had strokes as infants. The institute's Neuromotor Research Clinic develops new approaches to pediatric rehabilitation for children affected by stroke, cerebral palsy, and brain injury and shares them with other clinicians.

"It's a bit intimidating to think that people come halfway across the world for us to help them here in Roanoke," said Stephanie DeLuca, director of the clinic. "But it is truly one of the biggest honors of my career that people put their trust and the trust for their children's development in us and let us be a part of that."

"The science at Fralin Biomedical Research Institute has become an area of celebration and pride and recognition for the university," Friedlander said. "But it's also a magnet that draws in other academics—faculty, students, and staff—to participate in collaborative research."

In 2019, institute investigators formed the new campus-wide Virginia Tech Cancer Research Alliance with colleagues in Blacksburg, a cohort of more than 25 research teams seeking new ways to prevent, quickly diagnose, and treat brain, breast, colon, lung, liver, and bone cancers in humans and animals.

The institute, along with the Virginia Tech Carilion School of Medicine, was born of a partnership between Virginia Tech and Carilion Clinic, when the university sought to increase its research capacity and the health care system desired an academic association that would help attract more world-class physicians to the region, enhance its level of care, and train future physicians to serve citizens of the commonwealth.

Its most dramatic impact in Roanoke has been primarily economic.

"In 10 years, the community narrative in Roanoke has changed from an old railroad town to an active outdoor community with a strong innovation space," said Beth Doughty, executive director of the Roanoke Regional Economic Development Partnership.

The institute anchors the city's Innovation Corridor, an economic development initiative where start-up businesses that spin out of institute research take root and grow the local economy. Investigators at the institute have already developed five new start-ups, three of which are currently carrying forward innovative ways to diagnose and prevent alcohol addiction, treat aggressive forms of brain and breast cancer, and prevent cardiac injury after a heart attack.

"It really is kind of a paradigm shift," said Roanoke City Manager Bob Cowell. "The Fralin Biomedical Research Institute, right alongside Carilion Clinic, really is setting the new foundation for this community's economic future."

The institute is only gaining momentum and building critical mass, Doughty said. "The opening of the new building is perhaps as significant as the original creation of the research institute."

"The Fralin Biomedical Research Institute is far more powerful than the railroad would ever be," Fralin said. "This has far more potential. It ought to be one of the priorities of major philanthropists in the area."



**HANDLE WITH CARE:** A LABORATORY TECHNICIAN PERFORMS COVID-19 SAMPLE ANALYSIS IN THE VIRGINIA TECH MOLECULAR DIAGNOSTICS LABORATORY, LOCATED AT THE FRALIN BIOMEDICAL RESEARCH INSTITUTE.



## CHILDREN'S NATIONAL RESEARCH & INNOVATION CAMPUS

"The Fralin Biomedical Research Institute at VTC has been transformational for the region, the university, and our communities," said Virginia Tech President Tim Sands. "In addition to the significant economic impact and groundbreaking research, the research institute is addressing key societal issues, such as childhood development, addiction, and community health. The rapid transition to COVID-19 testing demonstrates the university's capacity to address issues of immediate concern."

"Ten years ago, the partnership between Carilion Clinic and Virginia Tech offered a lot of promise," said Nancy Howell Agee, president and CEO of Carilion Clinic. "The hard work and commitment of many have left an indelible mark on the region and the scientific and health care communities. The original promise of a decade ago has turned into concrete outcomes that go far beyond economics and bricks and mortar. The institute's success has exceeded what I could have imagined 10 years ago, and I can't wait to see what the future will bring."

In 2021, the Fralin Biomedical Research Institute will expand beyond Virginia, into Washington, D.C., when it opens a 12,000-square-foot research facility on the Children's National Research & Innovation Campus on the site of the former Walter Reed Army Hospital.

Leaders at Children's National Hospital knew Friedlander, the institute, and Virginia Tech's reputation, and sought the university out as a founding partner for their new project, in part because of shared interest in brain tumor research.

Children's National is a top 10 children's hospital in the U.S., as ranked by U.S. News & World Report. Its neonatal program is ranked first in the country and its neurology and neurosurgery services ranked third.

"It really felt like a dream team," said Kurt Newman, president and CEO of Children's National Hospital. "For a hospital like ours, there's nothing like having a first-class research university as a partner. You never quite know where the breakthrough is going to come from or where the smart graduate student, really enthusiastic undergrad, or medical student is going to have the big idea. Having access to that pipeline of intellectual talent, it's just priceless."

The Fralin Biomedical Research Institute will join a campus already home to JLABS @ Washington, D.C., a collaboration between Children's National and Johnson & Johnson LLC.

"How can you miss with a world-class children's hospital, a world-class university, and a location in Washington, D.C., with access to the National Institutes of Health, the Food and Drug Administration, and all of the other government research pieces?" Newman asked. "We may even be thinking too small."

"The partnership with Children's National is another great nexus for us," Friedlander said, explaining the institute is readying itself with the right people, rich facilities, and strong partnerships to accelerate into the next decade. ■

CHILDREN'S NATIONAL RESEARCH & INNOVATION BUILDING (PHASE TWO)

CHILDREN'S NATIONAL RESEARCH & INNOVATION BUILDING (PHASE ONE: OPENING DEC. 2020)

FUTURE HOME OF THE VIRGINIA TECH RESEARCH LABORATORIES

ELKUS MANFREDI / ARCHITECTS

# WORLD-CLASS RESEARCH

In a decade, the Fralin Biomedical Research Institute has expanded from a single researcher with a few million dollars in grant funding to 33 research teams performing groundbreaking research across a wide range of areas. For a full list of the research institute's primary faculty members, please visit [fbri.vtc.vt.edu](http://fbri.vtc.vt.edu). Here are some highlights of recent research and discoveries by primary investigators and their teams at the institute:



WARREN BICKEL'S team identified brain processes as therapeutic targets for changing a person's behavior from seeking unhealthy, short-term gratification to more-deliberate planning for the future. This work gives hope to those addicted to opiates, alcohol, tobacco, and smoking. Bickel's team is extending this approach to other health behaviors, including those that lead to diabetes and obesity.



ROBERT GOURDIE'S interest in heart development and repair led him to discover new molecular therapies and delivery approaches to aid and accelerate wound healing and tissue repair in scarring, diabetic ulcers, and heart repair after a heart attack. He's moved his work from bench science to starting multiple companies that translate his discoveries to the clinic to heal patients.



SHARON SWANGER is fascinated with how receptors located on individual nerve cells in the brain contribute to the behavior of large-scale circuits formed to produce perception, integration of information, and behavior. Her work focuses on how changes in these molecules can cause circuits to undergo abnormal patterns of activity, leading to such disorders as epilepsy.



JAMES SMYTH, initially trained in molecular virology, now uses those tools to study connections between heart muscle cells and how heart disease affects them. He is also taking on the problem of how viral infections, such as COVID-19, attack the heart and blood vessels.



MICHAEL FOX has tracked the developing brain's guidepost signals for more than a decade. Recently, he and his team made major discoveries illuminating molecular cues that help create functional circuits in the fetal brain. Fox's work shines new light on the assembly of these connections, and also on how disruption of these processes may be implicated in neuropsychiatric and developmental disorders.



STEPHANIE ROBEL seeks to understand how brain injuries can lead to seizures. Her recent work has shown the first direct cellular evidence for how the glial cells in the brain create hyperexcitable networks that can trigger seizures subsequent to a traumatic brain injury.



SAMY LAMOUILLE is developing new therapeutics to treat brain, breast, colon, and other cancers. His work is aimed at the cells that rekindle abnormal cell growth and proliferation after tumors are removed. Lamouille's research is the basis of a new company that has received support from the National Institutes of Health through the small business technology transfer program.

CLAYTON METZ



# WORK

THE FUTURE OF

HOW VIRGINIA TECH IS PREPARING THE LEADERS OF TOMORROW, TODAY

WRITTEN BY MASON ADAMS | ART BY ANDY POTTS

VIRGINIA TECH'S SERVICE MISSION AND TECHNICAL EXPERTISE HAVE EVER PLACED IT ON THE FUTURE'S LEADING EDGE. HOKIES HAVE PLAYED KEY ROLES IN SHAPING THE WORLD AND THE WAY THAT WE WORK FOR NEARLY 150 YEARS. AND THEY WILL CONTINUE TO DO SO IN THE FUTURE.

THE UNIVERSITY'S 1872 CREATION ARRIVED ON THE TAIL END OF THE INDUSTRIAL REVOLUTION. VIRGINIA TECH'S FORMATIVE FIRST DECADES PLAYED OUT AMID MASSIVE SOCIETAL CHANGES THAT COMPLETELY DISRUPTED HOW PEOPLE CONSIDERED WORK. THE PROGRESSIVE MOVEMENT OF THE EARLY 1900S SHAPED AMERICA'S CONCEPTION OF JOBS AND GAVE WORKERS IMPORTANT NEW RIGHTS, EVEN WHILE TECHNOLOGICAL ADVANCES LED TO RAPID MECHANIZATION BY INDUSTRY. VIRGINIA TECH KEPT PACE, CONTRIBUTING TO LEAPS FORWARD IN AGRICULTURE, ENGINEERING, AEROSPACE, COMPUTER SCIENCE, AND MANY OTHER FIELDS.

NOW, IN 2020, THE CORONAVIRUS PANDEMIC HAS ACCELERATED THE DEVELOPMENT OF TELEWORK AND WORKPLACE SAFETY PRACTICES. AND VIRGINIA TECH IS POSITIONED AT THE RIGHT PLACE AND RIGHT TIME WITH THE RIGHT VISION TO PLAY A CRITICAL ROLE IN ADVANCING THE FUTURE OF WORK WHILE ALSO MAKING IT MORE JUST, INCLUSIVE, AND ACCESSIBLE FOR WORKERS THROUGHOUT THE WORLD.







## THE AGE OF AUTOMATION

Founded in 1872 on the cusp of the Industrial Revolution, the university's land-grant mission and technical expertise have kept it squarely placed at the forefront of science and technology—from robotics and automated farming to brain science and space flight.

Virginia Tech President Tim Sands' Beyond Boundaries vision was five years old when COVID-19 rocked the world. In retrospect, that half-decade turned out to be an essential period of preparation that uniquely positioned the university for a global leadership role just when the world needs it most. Virginia Tech has always endeavored to serve, and now it is responding—not just to the crisis of the moment, but to the lasting changes the pandemic will leave in its wake.

"Our strategies, preparation, and hard work make a difference and create real-time results for the commonwealth and the world," Sands said. "We face the same imperative that energized our predecessors throughout the university's history—the imperative to grow, evolve, and make the world a better place for everyone. Today, more than ever, Virginia Tech finds itself engaged and ready to honor our motto *Ut Prosim* (That I May Serve), with momentum, energy, and opportunity on our side."

The surge in automation that transformed the mass production of goods during the late 1800s and early 1900s only accelerated in the 21st century, disrupting and transforming almost every business sector around the world. The distillation of computing power transformed technology that once occupied entire buildings into smartphones that fit into pockets, and has profoundly changed not only how we work, but how we think.

Such innovations affect businesses and members of the workforce across national boundaries, social classes, political align-

ments, and industries. A 2019 report by McKinsey Global Institute, "The future of work in America," found that trends are accelerating inequalities, not just between workers but between geographic areas.

"Without bold, well-targeted interventions, automation could further concentrate growth and opportunity," the report concludes. "But these trends are not set in stone. It is possible to turn this period of technological change into an occasion to create more rewarding jobs and build better learning systems and career pathways."

## SHAPING THE FUTURE

Virginia Tech's motto, *Ut Prosim* (That I May Serve), demands that the university meet this moment, and indeed, it is growing to play a bolder role in the world, expanding programs that will support and direct the progression toward the future.

The university is building relationships with an array of public and private partners to wrestle complex problems, develop innovative solutions, and benefit people everywhere.

In Roanoke, the Fralin Biomedical Research Institute at VTC and Virginia Tech Carilion School of Medicine train leaders for the health care industry—a rapidly growing arena that McKinsey projects will continue to expand well into the future.

In the greater Washington, D.C., metro area, Virginia Tech is building on its existing facilities with the development of the Innovation Campus in Alexandria. Through this new initiative, the university will prepare tens of thousands of graduates for roles in computer science, engineering, and other fields whose needs are outstripping the currently available workforce.

But Virginia Tech isn't just training workers; it's developing tomorrow's leaders.

In Arlington, the university holds a leadership role in the Commonwealth Cyber Initiative, a partnership that brings together colleges and universities across Virginia. The initiative serves as a catalyst to advance technologies at the intersection of security, autonomy, and data—foundational elements that are necessary glue for the systems that are driving the future of work.

In the mid-1960s, Intel co-founder Gordon Moore noticed how rapidly computer science was developing. He posited what became known as Moore's Law: that the number of components on a circuit would double every year or two. The prediction largely has held up: computing power has rapidly increased while its size has simultaneously decreased. That evolution, which put powerful smartphones into the pockets of 81 percent of Americans, revolutionized how we integrate computers into our daily lives.

As a society, we're still sorting out exactly what this means for how we live.

## AN UNEXPECTED SHIFT

"Big technological advances don't initially improve productivity dramatically—firms operate the same way, using new technology," said Melinda Miller, assistant professor in the Department of Economics. "It's only once production can be reimaged that the great productivity improvements occur. A classic example is factories, which were initially vertically oriented to take advantage of a single power source, like water or steam, but then became horizontal with the advent of electricity, resulting in the typical assembly line set-up we're familiar with today."

The pandemic of 2020 unexpectedly introduced a steeper tilt toward remote work and new ways of delivering services, accelerating shifts that were already underway.

"While technological transformations and their effects on the future of work are inevitable, it looks like COVID-19 has already expedited the transition," said Navid Ghaffarzadegan, associate professor in the Grado Department of Industrial and Systems Engineering. "Many workplaces have changed substantially, limiting their physical capacities and letting people work remotely. We are moving from 'push' environments, where technologies were mainly advocated by technology developers, to 'pull' environments, where technology is demand-driven."

The pandemic's tilt to telework has made for a more fluid boundary between work and home life for many people, complicating efforts to find a satisfying balance. Charles Calderwood, assistant professor in the Department of Psychology, said that dynamic may persist beyond the pandemic, because organizations are realizing a cost savings from reduced office space, and individuals prefer to curtail time spent commuting. However, many employees in direct customer service settings, such as hospitals or restaurants, have not seen significant changes in their workplaces, even as they face a greater risk of exposure to the virus.

"These potentially diverging paths for employees working in different types of jobs have a strong potential to magnify disparities and inequities in work-life balance, which already tend to favor higher-salary and higher-status workers," Calderwood said. "We also need to be sharply concerned about occupational health disparities that may set in or be magnified for employees who are at greater risk for serious illness from COVID-19. Many employees are struggling to balance working at home while their children are learning virtually, often with little guidance or support from organizations in how to balance these demands."





“One of the greatest concerns of a lot of the high-tech companies in construction is that they don’t have enough people trained to implement these sensors. And it costs money to send workers to companies to be trained.”

**ABIOLA AKANMU**  
ASSISTANT PROFESSOR OF PRACTICE IN THE  
MYERS-LAWSON SCHOOL OF CONSTRUCTION

## BUILDING A BETTER WORKPLACE

Many Virginia Tech researchers are developing new technologies for fields where on-demand knowledge is vital for efficiency and safety.

Abiola Akanmu and Tanyel Bulbul both work with digital modeling in the Myers-Lawson School of Construction, though in different ways.

Construction sites increasingly use sensors that can track the location of supplies and equipment, monitor the flow of people and materials, and analyze the physical movements of individual workers to facilitate improved ergonomics. Akanmu, an assistant professor, uses that data to create teachable virtual construction scenarios that engage students’ hands and minds through augmented reality and holograms. And her work can be adapted for use in the private sector, allowing companies to better and more efficiently train their workers while providing a safer environment.

“One of the greatest concerns of a lot of the high-tech companies in construction is that they don’t have enough people trained to implement these sensors,” Akanmu said. “And it costs money to send workers to companies to be trained.”

Bulbul, an associate professor, uses sensors to model, design, and monitor replicas of buildings in ways that allow developers to plan, maintain, and evolve structures to optimize efficiency.

“Construction never ends,” Bulbul said. “There’s always construction on hospitals, in airports. For these kinds of structures and infrastructure projects, you need a model, or what we now call a digital twin. You start with design and keep adding information, and the physical building and digital twin eventually can interact. They can exchange information and be used to update each other.”

Akanmu and Bulbul are bringing this necessary approach to their research and teaching, balancing a deep knowledge in their respective fields with collaborators who possess different backgrounds, expertise, and skills.

Smart construction requires a team-based approach. The challenge facing companies is how to approach a changing industry that requires specialized knowledge not just in building, but in computer science, design, and other fields that vary by projects.

Virginia Tech doesn’t teach to specific technology, but instead equips students with the skills to adjust, adapt to, and ultimately direct technological changes in an ever-changing world.

“We’re not training workers for construction; we’re training managers and leaders of construction projects and construction processes,” said Brian Kleiner, the Bogle Professor of Engineering and director of the Myers-Lawson School of Construction. “What they manage will be some combination of technology and people. We try to instill that in them and at the same time expose them to the principles behind the trends driving the future, knowing that specific technologies may change. As a result, they graduate as leaders.”

In some cases, leadership may involve deciding where automation is needed—but also where it is not.

“We put people first—how technology and automation can support the human endeavor and not the other way around,” Kleiner said. “We need to be really careful that we’re serving people in societies. It’s a different philosophical approach compared to tech-based universities that are driving technological development for its own sake.”

“We’re not training workers for construction; we’re training managers and leaders of construction projects and construction processes. What they manage will be some combination of technology and people.”

**BRIAN KLEINER**  
THE BOGLE PROFESSOR OF ENGINEERING AND  
DIRECTOR OF THE MYERS-LAWSON SCHOOL  
OF CONSTRUCTION







“We’re finding more and better ways to engage with companies and move new discoveries made at Virginia Tech into the marketplace. That process extends their benefit to more people in the world and helps fulfill an imperative of our service ethic and mission as a land-grant university.”

**BRANDY SALMON**  
ASSOCIATE VICE PRESIDENT FOR INNOVATION  
AND PARTNERSHIPS

## THE FUTURE OF HEALTH CARE

For an example of how *Ut Prosim* (That I May Serve) undergirds Virginia Tech’s approach to the future, consider how an array of colleges, institutes, and programs all are working to improve the design of medical facilities.

Industrial design faculty in the School of Architecture + Design are partnering with faculty in the Fralin Biomedical Research Institute and Virginia Tech Carilion School of Medicine on projects ranging from working with wounded veterans to address their unmet health care needs to partnering with the health care industry to redesign hospital treatment rooms in ways that offer more-efficient tools for doctors while improving the patient experience. Since the pandemic, that effort has increasingly grown to include telemedicine advances as well.

The Institute for Creativity, Arts, and Technology (ICAT) partnered with Steelcase, a workspace design company, and built a team that included members from the Fralin Biomedical Research Institute, College of Architecture and Urban Studies,

and College of Engineering to reimagine the hospital workspaces. The team interviewed and observed real-life emergency procedures and workflows in multiple Carilion Clinic hospitals to get better information to clinicians and doctors when and where they need it.

The ICAT team drew inspiration from unexpected places:

- Technology used by rideshare apps, which allows clinicians to see the arrival time of location of ambulances and EMTs.
- Way-finding Bluetooth technology that allows clinicians to see what’s happening throughout the unit, even when they’re not physically present.
- Cockpit-style monitors that show each patient’s vital signs and a camera feed from the hospital room, as well as specialized displays outside each room that allow clinicians to view important information from the hallway.

Because of Virginia Tech’s close partnership with Carilion Clinic, its researchers are grounded in the day-to-day reality of what works and what doesn’t in a real-world setting.

“We worked closely with Steelcase to look at what are the workflows and how can workflows change as we provide more technology to the environment,” said Tom Martin, ICAT’s deputy executive director and a professor of electrical and computer engineering. “We want to provide more situational awareness for the team—who’s in the room, who needs to be in the room. Particularly in emergency situations, rooms can get very crowded, and it’s hard to figure out who should be in the room and who shouldn’t.”

The team’s work is a critical first step that will inform the design of products that will be used in hospitals but may also be applied to other areas of work.

The university supports the flow of research and ideas into the public and private spheres through Virginia Tech’s LINK + LICENSE + LAUNCH, a one-stop shop for companies and entrepreneurs that builds partnerships; actively engages with the market; and makes connections for alumni, corporate partners, and federal and state partners. LINK supports strategic partnerships across the university, and now, efforts associated with the Innovation Campus. Last year, LICENSE supported 20 new intellectual property licenses, six tech startups, and 148 invention disclosures from the Tech community. It supported

applications for more than 70 patents and three new varieties of plants, with more than 50 patents awarded. LAUNCH initiated a new Proof-of-Concept grant program to provide much needed funding to technologies with potential for real-world application.

The team targets the kinds of high-demand fields where Virginia Tech thrives, such as autonomy, digital technology, cybersecurity, satellite technologies, transportation, biomedicine, devices and robotics, and agriculture. Not coincidentally, those fields show up in McKinsey’s future of work report as high-growth sectors in coming decades.

“We’re finding more and better ways to engage with companies and move new discoveries made at Virginia Tech into the marketplace,” said Associate Vice President for Innovation and Partnerships Brandy Salmon. “That process extends their benefit to more people in the world and helps fulfill an imperative of our service ethic and mission as a land-grant university.”





## LIFELONG LEARNING IN AN EVER-CHANGING WORLD

The graduates of today—especially those whose experience has been disrupted by the coronavirus pandemic—will become tomorrow's leaders. That may sound cliché, but as Moore's Law drives us toward even faster technological advancement, it's a truth that's foundational to Virginia Tech's mission.

The university's model of experiential learning offers students a competitive advantage, combining disciplinary depth with opportunities to build leadership, teamwork, communication, critical thinking, problem-solving, and other key skills.

The qualities required for career successes in the economy of today, much less tomorrow, are rapidly changing. That's why Virginia Tech approaches education not just from an undergraduate or even graduate perspective, but with the understanding that its students and alumni will embrace a lifetime of learning as they adapt to new situations and environments.

Lifelong learning is a fundamental part of the university's mission and history.

Its Cooperative Extension agents provide training for Virginians at locations throughout the commonwealth.

Outreach and International Affairs (OIA) offers job retraining and workforce development through continuing and professional education, including Virginia Tech Bootcamps—live, online courses that address the tech industry's increasing skills gap. Targeting early-career or experienced professionals, the new part-time, 26-week bootcamps teach skills that qualify participants for high-paying, in-demand coding and cybersecurity jobs in the greater Washington, D.C., metro area and beyond.

"The growth of high-paying, in-demand jobs can be realized only if workers are able to receive the necessary education and skills," said Shelly Jobst, director of OIA's continuing and professional education. "Continuous learning is key to making that happen. Sharing this sort of professional education is fundamental to our land-grant mission to respond to the greatest needs across the commonwealth, including improving educational attainment and preparing a highly trained workforce."



### FORWARD THINKING

For more information about lifelong learning and Virginia Tech's efforts to educate the leaders of the future, visit [vtmag.vt.edu](http://vtmag.vt.edu).

## A COMMITMENT TO INNOVATION

Virginia Tech continues to innovate. In January 2019, the Calhoun Center for Higher Education Innovation at Virginia Tech launched a multiyear project designed to explore the connections between adaptation and inclusiveness in learning. The project dives into how the entire educational system, including K-12, can better prepare tomorrow's learners to succeed throughout their working lives. The center recently released a report marked by a full-fledged commitment to adaptive learning. Published by Virginia Tech Publishing, the report is just one step in the process toward shifting traditional educational practices into new, more innovative and effective directions, those involved say. The group is already engaged in a next step for the project: recruiting teams to put the report's recommendations into practice on as wide a scale as possible.

"We're all trying to predict a future job market that is increasingly unpredictable," said Daniel Kjellsson, managing director of the Future Talent Council, a global membership organization of talent leaders from the educational, corporate, and governmental sectors. "What we do understand, however, is that talent development will most likely happen throughout one's professional life—and looking at that timeline right now we see gaps."

Land-grant universities were developed to expand the number of higher education institutions preparing people with practical, technical skills as a response to the industrial revolution and changing social dynamics. While that mission has evolved, and broadened, it does mean that Virginia Tech has a special responsibility to adapt to society's changing needs, Thanassis Rikakis, executive director of the Calhoun Center said.

"Land-grants of the 21st century should be tackling these hard questions head on," said Rikakis. "That's why we were created. Increasing participation in the economy has always been part of the mission of land-grants. However, the economy and society have changed, the participation needs to be broader and more diversified than ever, and the ways to increase participation need to be adapted." ■

“We’ve created a global knowledge economy, but only a small percentage of the population is fully participating. Land-grants of the 21st century should be tackling these hard questions head on. That’s why we were created. We weren’t created to just keep on doing what we did in the 19th century or the 20th century.”

THANASSIS RIKAKIS  
EXECUTIVE DIRECTOR OF THE CALHOUN CENTER







Sylvester Johnson, Oct. 2019

*IN THIS MODERN AGE, TECHNOLOGY'S FUTURE MAY SEEM DARK AND APOCALYPTIC OR FANTASY-LIKE. TOMORROW SITS ON A PRECIPICE BETWEEN THE POTENTIAL POSSIBILITIES.*

*RATHER THAN WAITING TO SEE HOW THE FUTURE EVOLVES, VIRGINIA TECH IS PROMOTING A FUTURE IN WHICH EMERGING TECHNOLOGIES ARE IN SERVICE TO HUMANITY. THE UNIVERSITY IS TAKING HUMAN-CENTERED APPROACHES TO ADDRESS THE SOCIETAL IMPACT OF TECHNOLOGICAL INNOVATION.*

"Virginia Tech is uniquely positioned to lead in this new era," said Sylvester Johnson, assistant vice provost for the humanities. "Regionally, nationally, and globally, we are setting a new standard with Tech for Humanity, a university-wide initiative focused on the human-centered guidance of technology."

Under Johnson's leadership, Tech for Humanity focuses on ensuring a thriving future for humanity that emphasizes ethics, empathy, policy, equity, creativity, inclusion, diversity, and sustainability. Through the Center for Humanities, which Johnson also directs, cross-disciplinary collaborations enhance the university's efforts to create responsible technologists.

"These are people who care, commit to, or are involved with advancing human interests through technology," Johnson said.

Tech for Humanity scholars and the Center for Humanities encourage research in arts, human-centered social sciences, humanities, and technological fields. The center also partners

with the university's legislative liaisons and faculty members in the Department of Political Science and the Policy Strategic Growth Area to engage legislators in issues of public policy. It additionally educates corporate entities on matters of ethics and the impact of technology on humans.

Combining technology and society is not a new idea for Virginia Tech. Joseph Pitt, a philosophy professor, was an early leader of Virginia Tech programs focused on how technologies affect humanity.

"We started looking at science and its tools and saw its ramifications from sociological, philosophical, and political lenses," said Pitt. "So, we developed a program where students could decide which aspects to pursue."

That effort eventually led to the development of the Department of Science, Technology, and Society.

Rebecca Hester, an assistant professor in the department, is a Tech for Humanity scholar specializing in equity and social disparity in the human condition. Her research interests, which began with the study of immigration, now encompass the social, ethical, and political implications of scientific and technological advances in biotechnology, biomedicine, and public health.

"When it comes to technology, I start with a conversation about social values," Hester said. "We need to reflect on what it is we value and what we should make manifest in the world. That has to do with what it means to be human, who we are, what we value, and what we think we need. Then we can decide on the technology."

Hester cited her research on immigration: The immediate answer to problems that arise from immigration is not necessarily more surveillance technologies. Instead, the conversation should define the underlying cause, she said.

"There has never been a greater need for people to be at the table who understand the social, political, cultural, and economic implications of the technologies that society is promoting," said Hester. "We are shaping the next generation, who will use and create technologies—people who think not just ethically, but also politically and socially about the technologies and the science that they're doing."

Such initiatives are central to Virginia Tech's mission.

"We teach people," Johnson said, "and the structure of our coursework and curriculum needs to show that technology

is more than a science and engineering concern. It's a societal issue, a human issue. It encompasses the political, the economic, the cultural, the personal."

Johnson said the university prepares students to understand that technology has wide-ranging implications that involve everyone, not just scientists.

"To be future stakeholders, students must be informed and analytically astute," he said. "They must understand equality, social systems, power, and how the world works at an institutional level and what it means at a human level."

Through targeted programs, Virginia Tech is creating a new generation of responsible leaders who understand the importance of ensuring humanistic applications of technological advances.

Working directly with undergraduates through the Calhoun Discovery Program, a transdisciplinary program run by the Center for Higher Education Innovation that focuses attention on technical innovation and societal transformation, Johnson is optimistic about the future of technology and humanity.

"That program runs across 10 different majors, and we have corporate partners in private industry who contribute their time and capital," Johnson said.

Johnson added that a program that is diverse and includes underrepresented students is critical, because without gender, racial, ethnic, and income diversity, society will face recurring historical problems of inequity. "We need people with the perspectives, insight, and backgrounds to produce the outcomes that will benefit everyone in society," he said.

By investing in initiatives that focus on the human dimensions of innovation and by infusing technologies with insights from the humanities, Johnson said, Virginia Tech is showing its commitment to lead social institutions in addressing the big challenges that emerging technologies pose.

"Virginia Tech is preparing leaders for tomorrow, for a future not yet imagined," he said. "We shape leaders who know that technology must be judged ultimately not by its wow factor, but by whether it contributes to a society we want to live in, one that's for the greater good of all humanity." ■

*Leslie King is the marketing and communications manager for the College of Liberal Arts and Human Sciences.*



A full-page photograph of Ed Baine, a Black man, standing on a wooden staircase. He is wearing a dark navy blue suit jacket over a white button-down shirt. He is also wearing a red face mask with a white border and a repeating pattern of the letters 'VT'. He is looking directly at the camera with a slight smile. The background shows the interior of a building with wooden railings and a high ceiling.

## AROUND THE HOKIE NATION

57 Class Notes

66 Retro

68 Family

Ed Baine

### PLUGGED IN

AFTER GRADUATING FROM VIRGINIA TECH IN 1995 WITH a bachelor's degree in electrical engineering, Edward H. "Ed" Baine joined Dominion Energy as an associate engineer. During his tenure at the energy company, he has held numerous engineering, operational, and management positions

On Oct. 1, Baine became president of Dominion Energy Virginia.

A member of Virginia Tech's Board of Visitors, Baine is active in the energy industry as a member of the Southeastern Electric Exchange Board of Directors and the Association of Edison Illuminating Companies' Power Delivery Executive committees. He is a board member of the Dominion Energy Credit Union, ChamberRVA, Venture Richmond, CJW Medical Center, the Valentine, and MEGA Mentors.

In 2017, he received the Anthony R. James Legacy Award for Outstanding Community Service, which was presented during the Career Communication Group's Black Engineer of the Year Award STEM and Community Service Conference. He also received the Metropolitan Business League Oliver Singleton Humanitarian Award. In 2018, Baine received one of seven Influential Black Alumni Awards during Virginia Tech's Black Alumni Reunion.

Baine lives in Chesterfield, Virginia, with his wife, Kim. The couple has four sons. Two, Kyle and Jalen, are current Virginia Tech students in the College of Engineering.





ON BOARD: Ed Baine, a member of the Virginia Tech Board of Visitors, participated in an information session in August, which was held in the Latham Ballroom at the Inn at Virginia Tech to accommodate physical distancing.

“

**MY EXPERIENCES AT VT AS A STUDENT HELPED TO BUILD MY CONFIDENCE AND DEVELOP A VARIETY OF SKILLS. I LEARNED THAT EVEN THOUGH I GREW UP IN A RURAL COMMUNITY, I COULD COMPETE WITH ANYONE IF GIVEN SIMILAR OPPORTUNITIES. THAT’S THE POWER OF A LAND-GRANT UNIVERSITY THAT SERVES ALL VIRGINIANS.”**

Ed Baine ’95

### **Why did you choose Virginia Tech for your undergraduate studies?**

I decided in my senior year in high school that I wanted to be an electrical engineer. Virginia Tech is known for its great engineering program. I ultimately chose VT over other schools because I was given a full scholarship and a computer.

### **How did your experiences at Virginia Tech as a student, and later as an active alumnus, shape the trajectory of your life?**

My experiences at VT as a student helped to build my confidence and develop a variety of skills. I learned that even though I grew up in a rural community, I could compete with anyone if given similar opportunities. That’s the power of a land-grant university that serves all Virginians. In addition, Hokie Nation is real. There are so many Hokies that have helped me along the way personally and professionally, and I try to do the same as my way of giving back to the university and fellow Hokies. Lastly, my education and development at VT helped create a foundation that I stand on today in my current role. I am very proud to be a Hokie and very thankful for my opportunity to attend and now to serve the university.

### **What initially led you to Dominion Energy, and what about the organization has encouraged you to stay for 25-plus years?**

I was initially attracted to Dominion Energy (formerly Virginia Power) because family and friends told me that it was a very stable company that would provide a long career opportunity if you worked hard. In addition, my fiancé was still in Virginia so I wanted to stay in the state.

There are many things that have kept me at Dominion Energy. The first one is a sense of purpose. I wake up every day knowing that we provide an essential service to our customers and that they are depending on us so that they can run their businesses and take care of their personal needs. Fortunately, I have been able to contribute to that purpose in many different roles. The second is our core values. I come from a family where you were taught strong values at an early age. I believe in our core values at Dominion Energy, and we live them every day. Lastly, I have stayed for my colleagues. We have great people at Dominion Energy, and I enjoy working with them and want to do all I can to help make them successful in all that they do.

### **Can you describe your perspective on the challenges facing Dominion and how that influences your leadership goals? How has COVID-19 further complicated such challenges?**

There is rapid change in the energy industry that presents many challenges and opportunities. As we move to more distributed energy resources, such as solar and battery storage, the grid must evolve and there is the need for new technologies to be developed as well.

We know that our customers want a cleaner energy future, and we have a goal as a company to get to net zero on carbon emissions by 2050. In addition, we want to help our customers to achieve their goals around carbon reduction as well.

We are building solar across the commonwealth. We just brought our first two offshore wind turbines on line and have battery storage projects underway. We have also launched several electrification efforts internally and for our customers. At the end of the day, we want to be the trusted energy solutions provider for our customers and meet their changing needs at all times.

COVID-19 has presented many challenges, but our team has been resilient, and we have been able to meet the needs of our customers during these difficult times. I am very proud and grateful for the efforts of our colleagues this year.

### **You are the first Black person to head a Dominion business unit according to a recent news story in the Richmond Free Press. Please share your thoughts as you step into this role. Have recent current events and the resulting civil rights activism affected your perspective?**

I am very honored and humbled by the opportunity to be president for our Dominion Energy Virginia segment. There have been so many that have helped me along the way and continue to do so. In particular, there were many sacrifices by my family, and I am driven to make them proud in all that I do. I hope that my journey from the tobacco fields in Lunenburg County to this role will encourage others to not limit their dreams and aspirations.

The recent events have reminded me that I have been put in a position that I can have a voice and need to make sure that I do so more often than I may have done in the past. In addition, it is a reminder that there is still much work to do across this nation to ensure that all people are respected, valued, and appreciated, and I have a role to play in that effort.

### **As you think about the talent that has to be recruited and retained in order to run a successful business, what is higher education doing well, and where can it improve? In what ways is Virginia Tech doing well, and how can it improve?**

I believe that higher education is still a great place for students to find personal and professional growth and gain meaningful preparation for their future careers. I believe that the COVID-19 pandemic has created a burning platform for higher education to evaluate its current model and determine what may need to change to serve future students over the next 5–10 years. I also think that higher ed can be a little more nimble in supporting the changing skillset needs for businesses.

I believe that VT does a lot of things well. It starts with the leadership making good decisions to run a successful university. I also believe that focusing on transdisciplinary and experiential learning are very important, because those skills are what we need from a business perspective. I also believe that having the ability to change curriculum in a more timely manner to support business needs is also important.

As I think about the future, there are several things that VT needs to consider. We need to think about what we have learned

from the COVID-19 response that we need to take forward even when the pandemic is over. We also need to consider how we could serve students and communities beyond our campus life.

I think there is an opportunity to deliver programs and training beyond what we have contemplated in the traditional sense. We also need to figure out how to attract and retain the brightest students and faculty to the university and continue our focus on diversity. I believe that will require more financial support from alumni for scholarships and other programs.

### **Describe the principles that govern your life, professionally and personally.**

It starts with the Bible verse Luke 12:48: “To whom much is given, much is expected/required.” No matter who you are, you need to consider yourself a work in progress. Always have the courage to make the right decision. I believe that you need to be humble, fair, honest, accountable, and yourself. You also need to have a purpose and balance. I also tell my sons when all else fails, do your best and have fun.

### **When you’re away from the office, what are you most passionate about? What are your hobbies?**

I am most passionate about my family. I try to make sure that I spend time with them. I like sports. This is the first time in 15 years that I haven’t coached youth football. I like to hunt, fish, travel, and spend time with family and friends. ■





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YOU ALWAYS THINK OF A PULITZER PRIZE AS BEING OUT OF REACH AND OUT OF TOUCH. **THIS SHOWS ME THAT IT'S NOT. IF I CAN GET INVOLVED WITH A PROJECT LIKE THIS, THEN IT'S WITHIN ME TO DO IT MYSELF.**”

James Brooks

# A NEWS NICHE AND A PULITZER

**JAMES BROOKS '06 REMEMBERS THE** January day that he boarded a plane from Florida to Alaska to take a job as a copy-editor at the Fairbanks Daily News-Miner.

It was 60 degrees and sunny when he left Florida that day. When he arrived in Fairbanks at midnight, it was a freezing 40 degrees below zero.

But Brooks didn't let the chilly weather stop him from soaking up all that Alaska would offer—including winning a Pulitzer Prize 12 years later.

Brooks was a member of a team of reporters and editors at the Anchorage Daily News that received the Pulitzer Prize for Public Service in May for a yearlong series called “Lawless,” a partnership with Pro-Publica, a nonprofit newsroom that produces investigative journalism. The series featured an eye-opening investigation into the criminal justice system's failures in communities across Alaska. The work exposed extremely high rates of sexual assault and domestic violence and uncovered some rural communities with no local law enforcement.

Kyle Hopkins was lead reporter for the series, and Brooks, who covers the state government from Juneau, Alaska's capital, contributed with the government angle.

Brooks said it has been a life highlight for him to have a supporting role in the

“Lawless” team, which earned the newspaper's third Pulitzer Prize.

“You always think of a Pulitzer Prize as being out of reach and out of touch,” he said. “This shows me that it's not. If I can get involved with a project like this, then it's within me to do it myself.”

At Virginia Tech, Brooks double majored in history and English. He also was a copyeditor for the Collegiate Times and served as that newspaper's editor-in-chief one summer.

“What always struck me about working with James was how deeply invested he was not just in the mechanics of putting out the paper, but also in the big-picture issues that affected the journalism profession,” said Kelly Furnas, former editorial advisor for the Collegiate Times. “He was always interested in the ‘why’ as much as the ‘how.’ I remember long conversations in my office about complex ethical issues that challenged not only him as a student, but me as an advisor.”

Brooks, who also worked in Virginia Tech's sports information department, said he decided to pursue a journalism career because he loved telling stories.

“I love being able to learn more about a topic and being able to explain it to folks and tell them something about the world they didn't realize,” he said. ■ *JKB*

COURTESY JAMES BROOKS

## 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](mailto:classnotes@vt.edu); or submit the news online at [vtmag.vt.edu/submit-classnote.php](http://vtmag.vt.edu/submit-classnote.php), where photos may also be uploaded for consideration. For assistance, call 540-231-6285.

— '60 —

**CAREER Peter R. Kurzahls**, Fountain Valley, Calif., is president of the Orange County chapter of Sigma Xi.

— '63 —

**CAREER Robert F. Sawallesh**, Valrico, Fla., is director of Operation Helping Hand.

— '68 —

**CAREER Rodney D. Barfield**, Verona, Va., published a historical novel, “Tempest On The Outer Banks.”

— '75 —

**CAREER John A. Bartelloni**, Fairfax, Va., earned a B.A. in English with a concentration in nonfiction writing from George Mason University.

**Kimberlee J. Benart**, Lake Mary, Fla., was a medalist in The Florida Authors and Publishers Association's 2020 President's Book Awards for “The Venturous Tales,” which was written under the pen name, Isabella Berdyna Zysk. Benart's epic fantasy, “Windflower Saga,” and her romance collection, “The Flowers of Pen-ruddock,” were awarded medals in previous years under the pen names Aleksandra Layland and Ronnda Eileen Henry.

— '76 —

**CAREER Gaver M. Nichols**, Alexandria, Va., has earned nine design awards from the American Institute of Building Design.

COURTESY PAUL LAUGHTON

— '77 —

**CAREER Richard K. Perkins**, Richmond, Va., is the director of architecture for Raymond Engineering.

— '78 —

**CAREER Steven L. Spurlock**, Washington, D.C., was appointed to the 2020 American Institute of Architects College of Fellows jury and has been selected to receive the 2020 AIA/DC Centennial Medal, the chapter's highest honor.

— '79 —

**CAREER Christine Salkin Davis**, Concord, N.C., co-edited a book, “The Personal is Political: Body Politics in a Trump World.”

— '82 —

**CAREER John R. Craynon**, Morgantown, W.Va., is a teaching assistant professor in the Department of Mining Engineering, Statler College of Engineering and Mineral Resources at West Virginia University.

— '83 —

**CAREER Joseph P. Parr**, Tampa, Fla., designed a horticulture exhibit focused on the darker side of nature, which was set in a garden based on classic scary movie themes.

— '84 —

**CAREER William J. Read**, North Dighton, Mass., was appointed dean of business at Bentley University.



Paul Laughton

### SCREEN TIME

Not everyone can say they were hired by Steve Jobs and Steve Wozniak. But Paul Laughton '67 can.

In April 1978, Laughton was hired to design the file manager, a BASIC interface, and tools for Apple II DOS (disc operating system, the first disc drive) version 3.1 from his home office.

The Apple II was a game-changing computer. Laughton, who previously worked as a programmer for Johns Hopkins University and IBM, would later author Atari Basic before becoming director of software development at Logitech.

Laughton retired in 2000 and in August 2018, returned to Virginia Tech, presenting highlights from his career to a packed house inside Goodwin Hall. He sported a bright yellow 3-D printed bow tie that he made himself. This fall, Laughton was inducted into the Virginia Tech College of Science Hall of Distinction. For more, visit [science.vt.edu](http://science.vt.edu).



**Vernon R. “Randall” Tinsley**, Summerfield, N.C., earned top ranking in the 2020 Chambers USA: America’s Leading Lawyers for Business in the area of the environment.

’86

**CAREER Karen Geisinger Connors**, Orlando, Fla., has been selected as the president of the Central Florida Chapter of the Gary Sinise Foundation.

**Gaynell “Gigi” Miller Kuck**, Springfield, Va., has retired from Freddie Mac following more than 27 years of service.

’88

**CAREER Joseph E. Popp**, Reston, Va., is the laboratory design leader in the science and technology practice at the Washington Studio of the architecture firm Perkins and Will.

’92

**CAREER Charles A. Conway**, Midlothian, Va., was named director of labor relations for Altria Client Services.

’93

**CAREER Christopher J. Leahy**, Corning, N.Y., published a book, “President without a Party: The Life of John Tyler.”

**Andrew J. Talmadge**, Crozet, Va., graduated from the U.S. Army War College at Carlisle, Pa., with a master’s degree in strategic studies.

’94

**CAREER Quan “Quang-Tri” Myles Boatman**, Fredericksburg, Va., was appointed to a two-year term with the Small Business Commission by Virginia Gov. Ralph Northam.

’95

**CAREER Alfred O. Taylor Jr.**, Arlington, Va., who received the Path Makers Leadership Award at the University of the District of Columbia’s 2020 Founders Day Ceremony, published his second book, “What an Amazing Journey: To God Be the Glory.”

**John F. Woodall**, Greer, S.C., was recognized with the 2020 GE Gas Power Edison Pioneer Award for his influential work in gas turbine conceptual design.

’97

**CAREER Sally Jewell Allain**, Cabin John, Md., was selected as head of JLABS at the Washington, D.C., Johnson & Johnson Innovation site, which will be located on the new Children’s National Research & Innovation Campus and is scheduled to open later this year. She was also recognized in BioBuzz’s “People in the BioHealth Capital Region You Should Know in 2020.”

**Christopher J. Forstner**, Ellicott City, Md., was named Lawyer of the Year by The Best Lawyers in America.

**WEDDING Christine Andrews McEntee**, Boca Raton, Fla., and James McEntee III, 03/21/20.

’98

**CAREER Michael D. Ayers**, Maplewood, N.J., published a book, “One Last Song: Conversations About Life, Death, And Music.”

**Steven V. Coxon**, Ballwin, Mo., received the 2020 Laura Joyner Award from the Mensa Foundation at Maryville University in St. Louis, Mo.

**Mark R. Himes**, Carlisle, Pa., will assume command of the U.S. Army Corps of Engineers, Omaha District.

’99

**CAREER Daniel J. Palmer**, Roanoke, Va., wrote a book, “Bethlehem’s Redeemer: Seeing Jesus in Ruth.”

’00

**CAREER Marcelo R. Barbosa**, Fullshear, Texas, was named vice president of finance at U.S. Silica.

’02

**CAREER Stede J. Barnes**, Chester, Va., is the director of business development for GuernseyTingle of Williamsburg, Va.

**Emily E. Martin**, Quincy, Mass., is the New England sales manager at Enovation Brands, an Italian wine and spirits importer.

’03

**CAREER Rebecca C. Obeng**, Atlanta, Ga., was named to the 2020 American Society for Clinical Pathology’s 40 Under 40 list.

# SAVE THE DATES

## JOIN US ONLINE

All Hokies are eager to be together again in-person so we can celebrate our special community.

But because of the risk large gatherings pose, our alumni events have gone virtual. Now, Hokies from around the world can gather together without leaving their homes.

The university is closely monitoring the effects of COVID-19, and we are looking forward to when we’re together again. Right now, we are exploring what Virginia Tech events on campus and in your communities would look like and when they could resume.

We will communicate with you regularly about our future plans and upcoming virtual events.

For more information, visit [alumni.vt.edu/events](https://alumni.vt.edu/events).

’05

**BIRTHS Seth W. Pesek**, Charlotte, N.C., a son, 4/30/19.

’06

**CAREER Manish Verma**, Frisco, Texas, was selected to be covered in the “Pathways” section of the IEE Industry Applications Society Magazine.

’07

**CAREER Michael Timothy M. Creasy**, Williamsburg, Va., is vice president and stockholder at GuernseyTingle.

**Alison P. Tugwell**, Springfield, Va., launched a book, “Word Awakening,” on Amazon.

**Jacqueline K. Unger**, Wilmette, Ill., has been elevated to counsel in Piliero Mazza’s government contract group.

**BIRTHS Meredith E. Vallee**, North Hampton, N.H., a daughter, 7/17/20.

’08

**BIRTHS Charles B. Meagher and Kelly Amanda Meagher**, Manasquan, N.J., a son, 8/21/20.

**Megan R. Thomas and Charles “Tyler” Bray** ’09, Westminster, Md., a son, 8/23/20.

’09

**WEDDING Kevin H. McLaughlin**, Baltimore, Md., and Megan Thomas 9/20/19.

’10

**CAREER Jeffrey D. Morelli**, Rockaway, N.J., co-founder and vice president of technology delivery at Inspiren, received a 2020 “Gold Stevie” Award from the American Business Awards in the category of Product Developer of the Year.

**Kristina M. Mueller**, Columbia, Md., is a quantitative analytics manager with Fannie Mae in Washington, D.C.

’11

**BIRTHS Michael J. Encinas**, Midlothian, Va., a daughter, 5/15/20.

’12

**BIRTHS Matt Matthew C. Arnold Jr. and Janice Ryerse Arnold** ’15, Blacksburg, Va., a son, 6/16/20.

**Andrew Robert Berlin and Sarah Hale Berlin** ’13, Midlothian, Va., a daughter, 2/07/20.

’13

**CAREER Ali Reedy Olinger**, Haymarket, Va., was recognized as one of the Department of the Navy’s emergent engineers, receiving the 2020 Dr. Delores M. Etter Top Scientists and Engineers of the Year Award.

**BIRTHS Douglas A. Lindsey**, Webster, Texas, a son, 4/07/20.

’14

**CAREER Steven E. Mach**, Albany, N.Y., was recognized in the 2021 edition of Best Lawyers in America.

’15

**CAREER Ursula R. Gerson**, Falls Church, Va., was recognized in the Institute of Real Estate Management’s 30 Under 30 award program, which acknowledges the next generation of real estate management leaders.

**WEDDING Colin Michael Deely and Lindsay Stewart Deely**, Arlington, Va., 8/22/20.

’18

**CAREER Emily K. Greear**, Bristol, Va., is a petroleum pricing analyst with Flying J. She earned a master’s in agricultural and resources economics from the University of Tennessee in 2020.

## 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](https://alumni.vt.edu/careers)



Ellie Muraca

## DARE TO ASK

Growing up, Ellie Muraca ’18 was always asking questions. Her passion for starting conversations grew when she enrolled as an undergraduate in the urban affairs and planning program.

Now, through a podcast startup, Building the Beloved, Muraca questions what it means to belong or exist in the world of equitable community planning and design. Through the podcast, Muraca interviews people from all walks of life and features discussions with nonprofit organizations and community project leaders. Her first interview subject was Virgil Wood, a renowned church leader, educator, and civil rights activist who served alongside Martin Luther King, Jr.

“The term ‘Beloved Community’ refers to a way of life that’s based on pure, unconditional love for humankind,” said Muraca.

COVID-19 has put a hold on some of Muraca’s plans, but she looks forward to adding to the collection of podcasts as the lifting of restrictions allows.

COURTESY ELLIE MURACA

## 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](https://alumni.vt.edu/contact).

You can also email your updates to [alumnidata@vt.edu](mailto:alumnidata@vt.edu). Make sure you include your full name and class year in the email.









# CHAPTER AWARDS 2019-20

## OUTSTANDING CHAPTER AWARD

### GOLD

Atlanta  
Baltimore  
Central Florida  
Charleston  
Charlotte  
Cincinnati  
Dallas/Fort Worth  
D.C. Metro Area  
Denver  
First State  
Jacksonville  
Nashville  
NC Triad  
Palmetto  
Peninsula  
Richmond  
Roanoke Valley  
Tidewater

### SILVER

Alleghany Highlands  
Central Pennsylvania  
Central Virginia  
Charlottesville  
Chicago  
Columbia  
Fauquier  
Fredericksburg  
Houston  
Minnesota  
New England  
Orange County  
Philadelphia  
San Antonio  
SE Michigan  
Williamsburg

### BRONZE

Greenville/Southampton  
New Jersey  
New River Valley  
Pittsburgh  
Shenandoah  
Tideneck  
Triangle  
Vandalia

## SUPERLATIVE AWARDS

### OUTSTANDING CHAPTER OFFICER

Rochelle Ko Gray '09  
D.C. Metro Area Chapter

### OUTSTANDING CHAPTER VOLUNTEER

Linda Allen '74  
NC Triad Chapter

### RISING STAR VOLUNTEER

Mary Sage Earley '18  
First State Chapter

### RISING STAR CHAPTER

Greenville/Southampton Chapter

### RISING STAR CHAPTER

Peninsula Chapter

### BROADENING ALUMNI ENGAGEMENT AWARD

Cincinnati Chapter, Trip to National  
Underground Railroad Freedom Center

### OUTSTANDING CHAPTER EVENT

New Jersey Chapter, Virtual Student  
Send-Off

### INNOVATION AWARD

Atlanta Chapter, Zoom Speaker Event  
with Justin Graves

### OUTSTANDING COMMUNITY SERVICE

D.C. Metro Area Chapter, Carpenter's  
Shelter

### OUTSTANDING CHAPTER MARKETING

Peninsula Chapter



# COMMENCING TO SUCCEED

EACH FALL AND SPRING, A NEW group of Hokies moves their tassels, stepping away from life as students into new roles as alumni of Virginia Tech. Although graduation may feel like the culmination of a year of lasts, the ceremony is really a beginning.

That's why Hokies use the term commencement. The word commencement reflects the meaning of the Latin "inceptio," a beginning. Commencement was the name given to the initiation ceremony for scholars in medieval Europe. The very first college degrees certified that the bearer could instruct others in a particular academic discipline. As part of the graduation ritual, which usually included a feast given by the graduate as a thank you to professors and friends, the new scholar also delivered their first lecture as a legitimate teacher. Thus, they "commenced to teach."

And while some new Virginia Tech alums do go on to teach, each year our

graduates also pursue a broad scope of careers around the world in fields as diverse as the new alums themselves.

In this story and in future issues of Virginia Tech Magazine, you'll learn more about how Virginia Tech's young alumni—Hokies who have graduated in the previous 10 years—are "commencing" to succeed.

## ART ON WHEELS

BRIDGET OLSON made the most of her final semester as a Hokie, even when she had to return to her Charlottesville, Virginia, home to finish her classes online due to COVID-19.

"I basically get up, do art, go to bed," said Olson, a May 2020 Virginia Tech graduate and artist. "It all happens in my living room."

Her daily plan seemed pretty straightforward, but what she created was anything but simple. On June 24, Olson's mural,

"Octo Bus," won the sixth annual City Art Bus Competition in Charlottesville. The design will be featured on one of the city's buses for an entire year. Olson's art was selected from 78 applicants from around the world.

"I don't know how to bring words into the feelings that I had when I found out," said Olson. "It was amazing, uplifting, honoring, especially around the time of finals and graduation. It was the perfect icing to the cake."

For Olson, who still was working to complete her bachelor's degree in creative technologies at the time, the bus competition was far from the only thing on her plate. She was, and still is, creating new pieces for her Instagram page and online portfolio, but when the opportunity for the bus competition presented itself, Olson decided it was worth a shot.

"My mom sent it to me," Olson said. "I was like, 'I've got some time on the weekends. Why not? Might as well knock this out.'"



The inspiration for “Octo Bus” stemmed from Olson’s lifelong love of the ocean and its inhabitants. During a trip to Cozumel, Mexico, Olson came face to face with the creatures that had long inspired her. After her dad came up with the pun “Octo Bus,” Olson knew exactly what her submission would feature.

“It was amazing and terrifying seeing those animals that I’ve loved since I was a kid,” said Olson. “I have always liked drawing ocean animals and ocean life because I think they’re fun and kind of goofy looking. Everything and anything visual inspires me—nature, animals, wildlife, other mediums, other artists, video games.”

During the unprecedented spring 2020 semester, Olson designed a digital re-creation of a photo of two doctors from Tampa Bay General Hospital who were embracing in the midst of the pandemic. Her piece was featured in the Moss Arts Center’s Student Arts Spotlight, an online art exhibition.

Though Charlottesville residents might only see her 2D work, Olson’s skills extend beyond what she can put on a bus. Mainly working in digital space, Olson creates 3D models, animations, and, on occasion, a sketchbook drawing, just for fun. Art has been an installation in Olson’s life for as long as she can remember.



“I am learning disabled,” Olson said. “I can’t remember things well or read as well, so I naturally gravitated towards art. I was never a book kid or a do-puzzles-for fun kid. I was the consumer of visual images and games. My disability has guided me down the path of artwork.”

Olson hopes that “Octo Bus” is the beginning of a successful art career. She is currently interning at Serenity Forge, a video gaming company in Colorado.

Olson loves her work and encourages everyone to seek out the same love for art that she has found.

“When I’m not creating or producing some sort of work, whether it’s for myself or others, I tend to get bummed out,” Olson said. “I really need a constant flow of either taking in art or creating and producing in some form. Art

keeps me going, and I couldn’t imagine doing anything else with my life. I really encourage everyone out there, artist or not, to find their bus!”

## A LOCK ON HOTEL SAFETY

When **ERICA GRANT** came to Virginia Tech, she discovered a passion that she has turned into a business venture.



Grant ’16 became interested in security, particularly for women. She served as president of the university’s chapter of Help Save the Next Girl.

“I met so many people whose stories really moved me—stories of trauma, people not feeling safe, and various situations due to things that have happened in their lives,” said Grant, who majored in physics.

Now a graduate student at the University of Tennessee (UT), Grant formed Quantum Lock Technologies in 2019. In October, she was named as one of 10 finalists in the Collegiate Inventors Competition as a result of her work.

The idea for the business piqued when Grant realized how easy it was to hack into hotel keycards and break into a room. Quantum Lock reduces that risk by combining quantum technology, smartphones, and smart locks to secure hotel rooms.

The software can be used in an app or a keycard, as well as in communications operations. The tool allows a hotel’s front desk to monitor a room door and provide data about the efficiency and performance of hotel staff.

“I saw that there was a clear connection between quantum information and security, especially when it comes to the consumer,” said Grant. “We aren’t reinventing the lock, but we are creating the brains that make keys, locks, and connected machinery more secure.”

Grant launched the company after winning a \$5,000 grant from the Boyd Venture Challenge, a seed fund grant competition offered by the Anderson Center for Entrepreneurship & Innovation at UT.

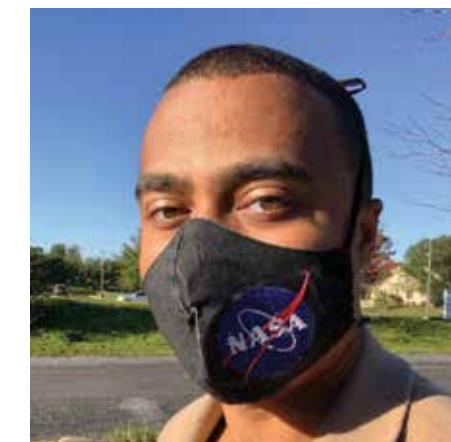
The patented technology has been accepted into the Innovation Crossroads accelerator program at Oak Ridge National Lab, where the company will receive product development funding to rigorously test its system before going to market.

In the future, Grant said she wants to expand the company into other areas, such as security in government agencies, manufacturing facilities, smart homes, hospitals, apartments, and vehicles.

“I really see Quantum Lock as a platform technology,” said Grant. “Even though we are starting with these larger systems, like hotels, corporations, and government security, I do see that the path will go toward lock boxes, cars, and smart homes. These are all areas that need security and will need it more and more.”

## HALF-NASA ENGINEER, HALF-YOUTUBE CHEF

What do delicious food, mechanical design engineering, and corporate advertisements have in common? Virginia Tech alumnus **VICTOR STEWART**.



Stewart graduated with a bachelor’s degree in engineering science and mechanics and a master’s degree in biomedical engineering in 2012 and 2013. He’s chosen pursuits as diverse as working for NASA to launching a cooking channel on YouTube.

At Virginia Tech, networking, communication, and interdisciplinary collaboration taught him “those softer skills” Stewart finds valuable now, including respect for others and the ability to delegate. Research made him more perseverant and attentive.

A mechanical design engineer at NASA, Stewart assists in generating design drawings that turn into actual products and functioning systems.

“I am really proud of my first project at NASA,” Stewart said. “I supported a radiation testing effort, which led to creating a product that actually went into space. It recorded data in space and helped us gain more understanding of radiation effects we experience during airline flights. It was amazing to be part of that.”

Other projects Stewart has supported include testing autonomous satellites and supporting spacecraft assessment and testing for successful launches.

This year, he began a cooking channel on YouTube, Chef Vic Cuisine, and he recently published his first cookbook.

As a child cooking with his father, Stewart remembers thinking the science of it was magical. He wondered how the same basic ingredients—flour, salt, sugar—could turn into different, unique food items.

“For me, [cooking is] science and creativity,” said Stewart. “Recipes follow steps and have measured ingredients, but the outcome is this flavorful and fun dish that I created. I wanted to be able to teach others how to cook, passing on my love of cooking through a simple, you-can-do-this-too type of instruction.”

Stewart is also a commercial model for several national corporations. ■

*Rosie Hutchison, an intern and a senior public relations major; Laura McWhinney, communications and marketing coordinator for the Department of Biomedical Engineering and Mechanics; and Haley Cummings '20, former intern, contributed to this story.*

COURTESY BRIDGET OLSON; COURTESY ERICA GRANT; COURTESY VICTOR STEWART





ETCHED INTO HISTORY: (above) On Veteran's Day 2017, a cadet stands in tribute at the Pylons. (right) More than a half-century after sacrificing his life in the ultimate act of service, Lt. Gary Lee Miller became the eighth Medal of Honor recipient whose name is etched onto the cenotaph.

# MEDAL OF HONOR

THE WAR MEMORIAL PYLONS ARE one of the most iconic spots on Virginia Tech's campus. The upper level contains Memorial Court with eight sculptured Indiana limestone pylons. The names of alumni who have died while in military service are carved on the pylons.

Centered at the back of Memorial Court is a marble cenotaph, which includes the names of alumni awarded the Medal of Honor.

Lt. Gary Lee Miller became the eighth Medal of Honor recipient whose name is etched onto the cenotaph.

On Feb. 16, 1969, Miller, a unit commander in the U.S. Army, died after smothering an enemy grenade to save the men he was leading in South Vietnam.

A former resident of Covington, Virginia, Miller's connection to Virginia Tech wasn't immediately realized because he never attended the university in Blacksburg, but went to Clifton Forge-Covington Community College when it was designated as a branch of Virginia Tech. Protocol for inclusion on the cenotaph requires the Medal of Honor recipient to be an alumnus, whether or not they graduated.

The connection between Miller and Virginia Tech was well known to Charlie Wood '70, of Richmond, Virginia.

Wood first began to inquire about adding Miller's name in 2005. In 2018, he was able to connect with Miller's younger brother, Michael Miller '75.

Michael Miller said he was proud that his brother would now be remembered at the War Memorial alongside other Hokies who have laid down their lives in the service of the country.

For more details about Gary Lee Miller, visit [vtmag.vt.edu](http://vtmag.vt.edu). ■ TW

SHAY BARNHART, RY



Chris Quillen

Shawn Crawford

Megan Repass Ellis



RAIN IS ESSENTIAL FOR GROWING food and many other functions critical to survival, but downpours can also erode our living spaces and create countless problems.

Three Hokies with degrees from three Virginia Tech colleges are teaming up to reinvent how we manage water flow.

Shawn Crawford '11, '13, who graduated with a bachelor's degree in wood science and forest products and a master's degree in forestry, returned home in 2014 to work as national sales manager for Rainwater Management Solutions. The Salem-based business, founded 20 years ago by Crawford's father, David Crawford, began by making rain barrels to collect and conserve rainwater. Through the vision of

the father-and-son team, the company continued to grow, designing more complex systems and creating opportunities for resolving further water-related challenges.

In 2017, the Crawfords hired Chris Quillen '98 as business development manager and added Megan Repass Ellis '16 as inside sales manager. Quillen and Ellis joined a growing team that, through research and development, advanced the company's services to encompass not only rainwater harvesting but graywater reuse and stormwater management.

"Megan has an environmental science background and can read water quality analyses and understand what they're saying," Crawford said.

"Once you make the step to become a bigger business, you need things that address human resources, marketing, and your website. Those were things Chris brought," Crawford continued. Quillen, whose degree is in marketing management, originally joined the company as investor. He later took a position as a full-time employee and was instrumental in helping organize the overall business.

Together, the Hokie trio helped reinvent Rainwater Management Solutions' approach to business by focusing on "just in

time" production, a philosophy borrowed from Toyota.

Rather than carrying multiple products from different companies, Rainwater Management Solutions focused on standardized set-ups that provided solutions for its customers.

The systems sold by Rainwater Management Solutions make more efficient use of water, saving money for clients while also helping them to meet stormwater ordinances and reduce nonpoint pollution.

"The value that we add is for a company or business or even homeowners is to cut down on municipal water use," said Quillen. "They're using a more natural source of water coming from the sky instead of bringing it in from the local municipality. That helps stormwater control, because if you're collecting water from a roof, it's not running off."

Rainwater Management Solutions contributed to water management at the Fralin Biomedical Research Institute at VTC—a smaller project than, say, its systems at the Virginia Capitol in Richmond, Virginia, or Allianz Field in St. Paul, Minnesota—but one that inspires pride in the Hokies. ■ MA



# FAMILY

**1** “Even Lane, our pup who is named after Lane Stadium, of course, is excited to share the news of our newest addition. Go Hokies!” —Rachel Fieweger Moran ’11, who along with Sean Moran ’11 welcomed a daughter, Audrey Wood, 3/12/20.

**2** “Celebrating the birth of a future Hokie!” —Meredith Vallee ’10, North Hampton, New Hampshire, who welcomed a daughter, Caroline Bonnie Blue Smith, 7/17/20.

**3** “Our wedding was a beautiful celebration for two Hokies!” —Lindsay Stewart Deely ’15, Arlington, Virginia, who married Colin Deely ’15, 8/22/20.

**4** “Introducing a new Hokie. Weighing in at 7lbs. and 2.8 oz, 20 in. long, she is a perfect addition.” —Michael Encinas ’11, Midlothian, Virginia, who welcomed a daughter, Rylie, 5/15/20.



RACHEL MORAN



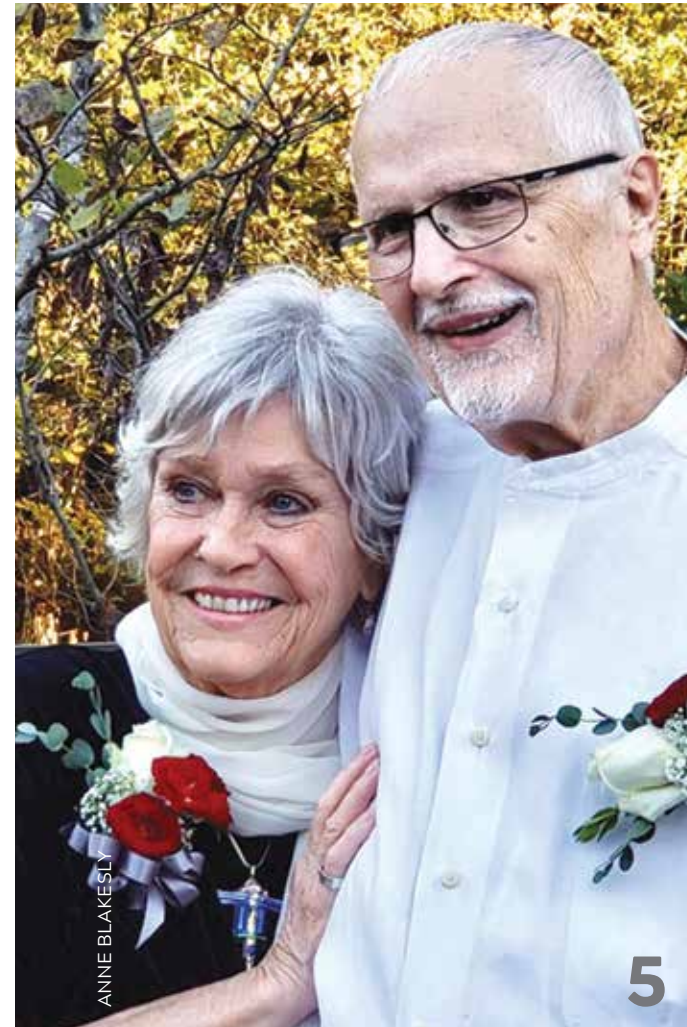
MEREDITH VALLEE



AMANDA GILLEY



MICHAEL ENCINAS



ANNE BLAKESLY



SARAH BERLIN



LORI CONKLIN, KPC AND CO. PHOTOGRAPHY



SETH W. PESEK

**5** “Our love story is a tale of college sweethearts who were reunited.” —Donald E. Womeldorph Jr. ’62, Ph.D. ’66, Lantana, Texas, who married Anne Blakesly, 11/9/19.

**6** “Her favorite bedtime lullaby? Every Hokie’s favorite song, ‘Tech Triumph!’” —Sarah Berlin ’13, Midlothian, Virginia, who, along with Andrew Berlin ’12, welcomed a daughter, Haley Susan, 2/7/20.

**7** “On Nov. 11, I married my Virginia Tech and Corps of Cadets sweetheart.” —Jocelyn Lamb Zimmerman ’17, North Bethesda, Maryland, who married Eric Zimmerman ’16, 11/2/19.

**8** “Future Hokie, Class of 2041!” —Seth W. Pesek ’05, Charlotte, North Carolina, who welcomed a son, Winston Lewis, 4/30/19.



# Be committed. Be well.

HAVE A HEALTHY  
and HAPPY WINTER!



Wear  
your  
mask.

Watch  
your  
distance.

Wash  
your  
hands.

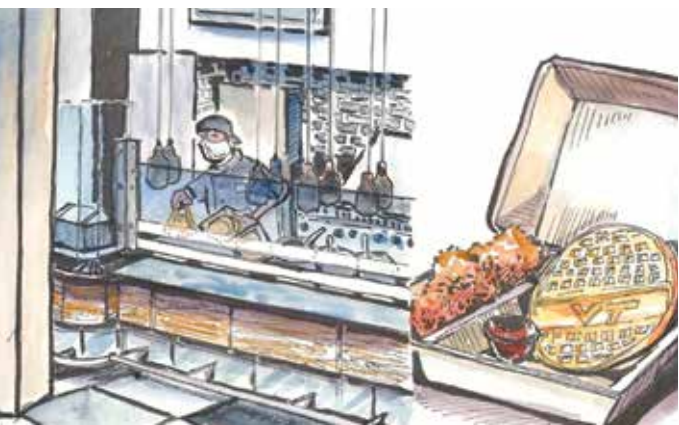


KINDA SKETCHY: Steven White has long been a little sketchy.

"I remember as a kid getting lost in sketching," said White '92, who has worked as a designer at Virginia Tech for more than a dozen years. "I just get lost in it. It's kind of a meditation thing."

In August, White took on a University Relations assignment to document life around campus. The project, "Semi-frequent, Mostly Sketchy Doodles at the Very Bottom of the Email," or "Doodles" for short, is featured in the daily email from Virginia Tech News.

Learn more about the artist and view additional doodles at [vtmag.vt.edu](http://vtmag.vt.edu).





# IN MEMORIAM

*Listing includes notices shared with the university from Jan. 16, 2020, through April 30, 2020.*

—'42—

**George W. Habel Jr.**, Henrico, Va., 3/16/2020.

—'43—

**Edward Benton Hale**, Blacksburg, Va., 4/24/2020.

**Peyton Leftwich Morgan Jr.**, Knoxville, Tenn., 1/27/2020.

**Virginia Peters Wilson**, S. Yarmouth, Mass., 2/1/2020.

—'44—

**Lamar “Chap” C. Toomer**, Houston, Texas, 3/17/2020.

—'45—

**Stanley Goldsmith**, Kennewick, Wash., 2/15/2020.

**Harriet Goode Reubush**, Raleigh, N.C., 4/7/2020.

**A. Nelson Sills**, Houston, Del., 1/24/2020.

**Robert J. White**, Kingsport, Tenn., 3/26/2020.

—'47—

**Joseph E. Isaac Jr.**, Lexington, Ky., 2/5/2020.

**Calvin Tompkins Lucy Jr.**, Midlothian, Va., 4/24/2020.

—'48—

**Martha Bishop Heiskell**, Blacksburg, Va., 3/31/2020.

**Philip Ivan Karp**, Bradenton, Fla., 1/15/2020.

—'49—

**William N. Goodson**, Milton, Ala., 12/22/2019.

**Paul F. Lumbye**, Broad Run, Va., 3/21/2020.

**Augustine Warner Robins Sr.**, Yorktown, Va., 3/22/2020.

**Frank H. Sawyer**, Wilmington, Del., 2/29/2020.

—'50—

**Richard K. Culbertson**, Blacksburg, Va., 1/24/2020.

**William Cardwell Hager**, Christiansburg, Va., 2/6/2020.

**George W. Hill**, Baton Rouge, La., 1/25/2020.

**Robert Ward Johnson**, Midlothian, Va., 3/16/2020.

**E. Harley Kline**, Manassas, Va., 7/20/2015.

**George William Layman**, Bristol, Tenn., 1/5/2020.

**Wilbur Hamilton Showalter**, Earlsville, Va., 4/1/2020.

**Jack A. Thalhimer**, Springfield, Va., 4/8/2020.

—'51—

**Melvin Warren Bryant**, Barhamsville, Va., 1/19/2020.

**William W. Ford Jr.**, Charlotte, N.C., 4/2/2020.

**John Frances Hamer**, Jacksonville, Fla., 2/12/2020.

**Bobby E. Stultz**, Madison, N.J., 3/22/2020.

**Fred G. Sutherland**, Sandston, Va., 4/23/2020.

**John C. Thompson Jr.**, Davidson, N.C., 4/14/2020.

**David Fallen Varner**, Newport News, Va., 3/25/2020.

—'52—

**John Edgar Awalt**, Rochester, Minn., 3/20/2020.

**Andrew J. Given Jr.**, Virginia Beach, Va., 1/20/2020.

**Howard O. Harrison Jr.**, Troutville, Va., 2/5/2020.

**Edward Lawrence Olson Jr.**, Columbia, N.C., 1/24/2020.

**Claude F. Yelton**, Pulaski, Va., 2/28/2020.

—'53—

**Floyd W. Hough Jr.**, Hagerstown, Md., 1/17/2020.

**Robert Lee Hundley**, Mechanicsville, Va., 2/20/2020.

**Chuck D. Hutton**, Charlotte, N.C., 4/7/2020.

—'54—

**John “J.D.” D. Barbour**, Bluefield, Va., 3/5/2020.

**Floyd V. Bennett**, Sugar Land, Texas, 3/19/2020.

**James T. Blankenship**, Valencia, Calif., 1/24/2020.

**James H. Burkholder**, Lynchburg, Va., 2/10/2020.

**Mary Ann Jones Hall**, Midlothian, Va., 1/10/2020.

—'55—

**Thomas J. Blair III**, Charleston, W.Va., 3/13/2020.

**Harry McDonald Francis Jr.**, Chapel Hill, N.C., 1/29/2020.

**Thomas B. French**, Dubuque, Iowa, 3/23/2020.

**Arden Nelson Huff**, Dugspur, Va., 2/10/2020.

**Hubert “H.H.” Hamilton Jewell Jr.**, Culpeper, Va., 4/10/2020.

**Harold P. Remines**, Abingdon, Va., 2/4/2020.

—'56—

**Herbert Ray Alcorn Sr.**, Blacksburg, Va., 1/25/2020.

**Michael O. Efird**, Lawrenceville, Ga., 1/29/2020.

**William Gabriel III**, Missoula, Mont., 4/7/2020.

**John D. Lambert**, Richmond, Va., 1/16/2020.

—'57—

**L. Dale Higginbotham**, Amherst, Va., 3/25/2020.

**Randolph Cutchin Hodges**, Andrews, S.C., 3/26/2020.

**Robert H. Pusey**, Christiansburg, Va., 4/4/2020.

**John B. Tenney Jr.**, Williamson, N.Y., 2/17/2020.

—'58—

**John C. Holladay Jr.**, Norfolk, Va., 2/9/2020.

**E. Towson Moore**, Durham, N.C., 1/21/2020.

**Andrew L. Nester**, Floyd, Va., 2/1/2020.

**Andrew Thomas Roth Jr.**, Springfield, Va., 2/15/2020.

**Joseph William Tackett**, Kokomo, Ind., 3/7/2020.

**Garland Ray Williams**, Lynchburg, Va., 1/27/2020.

—'59—

**Charles “C.B.” Boyd Foster Jr.**, Alexandria, Va., 1/18/2020.

**Roger Glen Furgurson**, Williamsburg, Va., 2/20/2020.

**John Lynwood Mouring Jr.**, Gloucester Point, Va., 3/10/2020.

**Janet Cobb Newcomb**, Haymarket, Va., 3/19/2020.

—'60—

**Phillip Edmund Barnard Sr.**, Amelia Court House, Va., 1/21/2020.

**Charles W. Elgin Jr.**, Christiansburg, Va., 2/23/2020.

**Joseph Carl Pratt Jr.**, Martinsville, Va., 3/14/2020.

**Shirley Farrier Copenhaver Strother**, Blacksburg, Va., 4/3/2020.

**James Montgomery Wright**, Knoxville, Tenn., 4/22/2020.

—'61—

**Frederick W. Dulaney Jr.**, Roanoke, Va., 2/5/2020.

**Raymond Joseph Klotz Jr.**, Mechanicsville, Va., 2/1/2020.

**Alwyn Dale Mottesheard**, Moseley, Va., 4/2/2020.

**Curtis D. Snyder**, Port Tobacco, Md., 3/29/2020.

—'62—

**David W. Gillespie**, Wilmington, N.C., 1/28/2020.

**William Farr Holtzclaw**, Rehoboth Beach, Del., 1/17/2020.

**Edward F. Swansey Jr.**, Richmond, Va., 11/2/2019.

—'63—

**James Arnel Conner**, Roanoke, Va., 3/14/2020.

**William Lee Dail**, Lynchburg, Va., 1/13/2020.

**Joseph Edmund Hile**, Danville, Va., 3/25/2020.

**Raymond Reynarld Kirby**, Floyd, Va., 1/27/2020.

**John William Minichan**, Barbo-  
ursville, W.Va. 4/25/2020.

**Jerry M. Soukup**, Seminole, Fla., 2/1/2020.

**Charles E. Tilson Jr.**, Blacksburg, Va., 4/18/2020.

—'64—

**Joseph Wilson Arnold**, Mechanicsville, Va., 1/13/2020.

**Ronald Hamilton Mackey**, Middleville, Mich., 2/10/2020.

**Michael Watson Stoner**, Hagerstown, Md., 4/21/2020.

—'65—

**James Frederic Ballard**, Haymarket, Va., 3/19/2020.

**Ronald Lee Barker**, Richmond, Va., 1/26/2020.

**James Michael Glennon Jr.**, Wadmalaw Island, S.C., 4/17/2020.

**Edgar Paul Hilton**, Glen Allen, Va., 3/1/2020.

**Jack Buckland Johnson Sr.**, Roanoke, Va., 4/12/2020.

—'66—

**Edward George Astin Jr.**, Rocky Mount, N.C., 3/8/2020.

**Harold Thomas Blankenship Jr.**, Alexandria, Va., 4/11/2020.

**William E. Miller**, Bradenton, Fla., 2/20/2020.

**John L. Rothgeb Jr.**, Santa Ana, Calif., 1/11/2020.

**Lee Edward Sharpe**, Frederick, Md., 3/19/2020.

**Patricia Jane Skeen**, Rosedale, Va., 2/2/2020.

**Rodney W. Smith**, Elliston, Va., 2/8/2020.

**Charles Winston Swain**, Williamsburg, Va., 3/2/2020.

**Hugh Barnes Townsend Jr.**, Manquin, Va., 4/25/2020.

—'67—

**Averill M. Hansen Jr.**, Fort Mill, S.C., 2/20/2020.

**Richard Louis Kornmann**, Lewistown, Pa., 1/30/2020.

**Robert Schindler Pearman**, Grotoes, Va., 4/1/2020.

—'68—

**James Wright Ellis**, Mechanicsville, Va., 4/26/2020.

**Forrest Dale Hall Jr.**, Reedville, Va., 1/5/2020.

—'69—

**Robert Wallace Austin Jr.**, Danville, Va., 1/29/2020.

**Henry Johnson Davis Jr.**, Goffstown, N.H., 3/31/2020.

**Ronald Earl Fletcher**, West Grove, Pa., 3/12/2020.

**Charles Temple Gaynor**, Chicago, Ill., 2/26/2020.

**Dennis Ho**, Dover, Del., 3/16/2020.

**Steven Wayne Pittman**, Richmond, Va., 1/16/2020.

**Daniel Irvin Putzulu**, White Post, Va., 3/1/2020.

**Dennis Meredith Smith**, Bergton, Va., 3/28/2020.

—'70—

**Homer Ronald Coake**, Draper, Va., 1/22/2020.

**John N. Dooley**, Broken Bow, Okla., 3/18/2020.

**William E. Elliott III**, Clintwood, Va., 9/2/2019.

**Joseph Francis Goncalves Jr.**, Chesapeake, Va., 3/19/2020.

**Kermit K. Hutcheson**, Athens, Ga., 2/2/2020.

**Clifford F. Phillips II**, Buchanan, Va., 3/8/2020.

**Walter W. Revere**, Wake, Va., 3/17/2020.

—'71—

**Bruce Howard Booth**, Reedville, Va., 1/14/2020.

**William Michael Darracott**, Germantown, Md., 1/28/2020.

**Gordon Thomas Dickinson**, Shrewsbury, Pa., 4/13/2020.

**Wayne Coulbourn Lee**, Winchester, Va., 3/21/2020.

**Gary Stephen Quesenberry**, Radford, Va., 1/11/2020.

**Carl Granville Thomas Jr.**, Ocala, Fla., 4/20/2020.

—'72—

**Mark Squire Adams**, New York, N.Y., 2/15/2020.

**Boardman Homer Caraway Jr.**, Lancaster, S.C., 2/11/2020.

—'73—

**Thomas Edward Brown**, Sterling, Va., 12/29/2019.

**E-Li Elizabeth Chen**, Greensboro, N.C., 1/14/2020.

**Elwyn Martin Clifton**, Fincastle, Va., 2/11/2020.

**Robert Loron German**, Virginia Beach, Va., 3/13/2020.

**Nancy “Betsy” Parks Maloney**, Spotsylvania, Va., 1/10/2020.

**Ronald Keith Mason**, Henrico, Va., 3/16/2020.

**Susan Yates Mills**, Leesburg, Va., 4/9/2020.

**Beverly Huston Sgro**, Asheville, N.C., 3/13/2020.

—'74—

**Gordon Charles Alling**, Fredericksburg, Va., 3/10/2020.

**John A. Bresnahan**, Annandale, Va., 3/10/2020.

**Grover Lee Carter Jr.**, Chester, Va., 3/28/2020.

**George Edwards Hunt Jr.**, Rocky Mount, Va., 3/2/2020.

**Donald Rae McLean**, Wasilla, Alaska., 2/9/2020.

**Deborah Elizabeth Edwards Osborne**, Blacksburg, Va., 1/22/2020.

**Dennis John Phillips**, Charlotte, N.C., 4/23/2020.

**Michael A. Schroedl**, Newport News, Va., 2/15/2020.

**Joseph Gary Vipperman**, Pulaski, Va., 1/14/2020.

—'75—

**Joseph Thomas Coleman**, Roanoke, Va., 3/12/2020.

**Mary Moyer Phelps**, Middleburg, Va., 4/13/2020.

**Sandra Smith Ridout**, Grand Junction, Colo., 3/18/2020.

**Virginia Harrison Russell**, Lawrenceville, Va., 3/21/2020.

**Phillip Cato Scheider**, Manassas, Va., 1/15/2020.

**Margaret “Peg” Wirth Woolf**, Hamilton, N.J., 2/19/2020.

—'76—

**Lloyd Allen Anderson**, Abingdon, Va., 3/1/2020.

**Wayne A. DeVan**, Landisville, Pa., 1/29/2020.

**James Earl Glascock**, Capron, Va., 3/27/2020.

**Frances Anne Harrison**, Bluefield, W.Va., 1/19/2020.

**Frederick David Snell Jr.**, Blacksburg, Va., 2/13/2020.

**Robert Bruce Vaughan**, Westford, Vt., 2/10/2020.



**James Lynn Williams**, Spotsylvania, Va., 2/14/2020.

**Richard T. Williams II**, Louisville, Tenn., 2/29/2020.

’77

**Naomi Ruth Winfrey Astle**, Beckley, W. Va., 4/12/2020.

**Larry William Carper**, Friendswood, Texas, 4/14/2020.

**Robert M. Fisher**, Bedford, Texas, 2/14/2020.

**Thomas William Klima**, Alexandria, Va., 2/25/2020.

**Louis Andrew Sanders**, Norfolk, Va., 2/7/2020.

**Romona Perry Williams**, Roanoke, Va., 3/13/2020.

’78

**Ellen Mason Luce**, Falls Church, Va., 1/4/2020.

’79

**James Wallace Kirks Jr.**, Chesapeake, Va., 1/15/2020.

**Steven Daniel Moses**, Yorktown, Va., 2/10/2020.

’80

**William Legrand Higgs**, Mountain Top, Pa., 1/26/2020.

**Fernando Anthony Munilla**, Statesboro, Ga., 2/9/2020.

**James F. Ripp**, Blacksburg, Va., 2/3/2020.

’81

**Joseph Lindsay Browning**, Reston, Va., 1/31/2020.

**Roy R. Smith Jr.**, Blacksburg, Va., 1/23/2020.

**William Charles Newman**, Hilton Head Island, S.C., 3/26/2020.

’82

**Deborah Lowe Duty**, North Myrtle Beach, S.C., 1/16/2020.

**Amanda Shockley Hanks**, Franklin, Va., 1/25/2020.

**James Thomas Kline III**, Falls Church, Va., 1/12/2020.

**Theresa Cardinal Lee**, Manassas, Va., 1/28/2020.

**Peggy Condon Vance**, Mohnton, Pa., 3/1/2020.

’83

**Gayle Allison Hooper**, Springfield, Va., 1/29/2020.

**Mark Taylor Keffer**, Virginia Beach, Va., 4/19/2020.

**Joel Gregory Long**, Nevada City, Calif., 3/8/2020.

**Vincent Paul Vala**, Culpeper, Va., 4/21/2020.

’84

**William Peter Bialick**, Clarksville, Md., 3/14/2020.

**Brian Patrick Fimian**, Arlington, Va., 4/5/2020.

**Evelyn Harris Wigglesworth**, Chesapeake, Va., 4/4/2020.

’85

**James Andrew Pemberton**, Ponte Vedra Beach, Fla., 2/9/2020.

**Carolyn Lee Thomas**, Ferrum, Va., 1/14/2020.

**Joseph Lloyd Wilson**, Cedar Falls, Iowa, 3/10/2020.

’86

**Wallace Palmer Carroll**, Mechanicsville, Va., 1/18/2020.

**John Patrick Herring**, Chesterfield, Va., 1/30/2020.

**Alice Mae Verra Williams**, Winston-Salem, N.C., 1/19/2020.

’87

**Nelson Botts Janes**, Las Vegas, Nev., 2/6/2020.

’88

**Johan Sikkar**, Severna Park, Md., 2/25/2020.

**Kimberly Hamrick Tavaglione**, Woodbridge, Va., 1/24/2020.

’89

**Judith Kathryn Rains Jandreau**, Rock Hall, Md., 4/16/2020.

**Floyd Steven Meredith**, Pearisburg, Va., 2/26/2020.

**Lisa Marie Brown Petrovich**, Haymarket, Va., 3/5/2020.

**Michael John Smith**, Snoqualmie, Wash., 3/22/2020.

**Warren David Strickler**, Kingsport, Tenn., 1/25/2020.

’90

**Laura Michelle Armstrong**, Newport News, Va., 3/22/2020.

**William Howard Brown**, Danville, Va., 2/17/2020.

**Charles Francis Fox**, Dubai, 2/25/2020.

**Timothy Blaine Roach**, Lynchburg, Va., 2/29/2020.

’92

**David Eisele Baum**, Williamsburg, Va., 2/9/2020.

**Kaye Farley Johnson Nichols**, Roanoke, Va., 3/20/2020.

**Stephen Christian Piccirilli**, Eldersburg, Md., 2/21/2020.

’93

**Kevin John Martin**, Crozet, Va., 2/21/2020.

**Jeanette Webb Rhile**, Advance, N.C., 2/20/2020.

**Michael Greenlee Van Ness**, Lexington, Va., 3/29/2020.

’94

**Michelle LaMay Forgash**, Leesburg, Va., 2/18/2020.

**Jane R. Misheloff**, Arlington, Va., 1/21/2020.

’95

**James D. Patterson**, Charlotte, N.C., 2/28/2020.

’97

**Robert R. Everett Jr.**, Richmond, Va., 1/27/2020.

’98

**Jon A. Taillon**, Arlington, Va., 2/20/2020.

’99

**Zachary William Fletchall**, Daleville, Va., 4/17/2020.

’01

**Peter Anthony Lobue**, Fort Thomas, Ky., 4/1/2020.

’02

**David Michael Hundley**, Ridgeway, Va., 2/27/2020.

’03

**Debra Wilson Gillis**, Boulder, Wyo., 2/13/2020.

**George Whitney Shellem**, Colorado Springs, Colo., 1/25/2020.

’07

**Megan Elizabeth Bennett**, Plainfield, Ill., 1/9/2020.

**Geoffrey David Malgee**, Midlothian, Va., 2/1/2020.

**Robert Duvall Neese**, Brentwood, Tenn., 4/9/2020.

’10

**Lauren Kathleen Angleton**, Bend, Ore., 2/6/2020.

**Matthew John Sarver**, Bernardsville, N.J., 2/22/2020.

’15

**Scott Le Hoang**, Manassas, Va., 1/26/2020.

’19

**David Carrington Huff**, Blacksburg, Va., 3/29/2020.

**Willem David Schilder**, Blacksburg, Va., 1/22/2020.



OBITUARIES

FACULTY/STAFF

**Ray Douglas Pethtel Jr.**, former Virginia Department of Transportation (VDOT) commissioner, director of the Center for Transportation Research at Virginia Tech, and the founding director of the Joint Legislative Audit and Review Commission for the Commonwealth of Virginia, died Sept. 12. A champion of innovation, Pethtel played a significant role in positioning Virginia Tech as a leader in transportation research and technology.

**Robert H. Pusey** ’57, M.S. ’58, Ph.D. ’72, professor emeritus of chemical engineering, died April 4. Pusey, who held various positions over his 40-year career at the university, was recognized with an Academic Advising Award in 1993 and was a charter member of the Academy of Advising Excellence.

**Charles A. Roatenberry**, a longtime electrician within the Division of Campus Planning, Infrastructure, and Facilities, died July 30.

**Jack Marshall Tyree**, former director of Virginia 4-H, died May 27.

**Robert Wheeler**, professor emeritus of mathematics in the Virginia Tech College of Science, died June 1.

A GENEROUS FRIEND



**Russell Amos Hitt**, who helped transform his family’s business into one of the nation’s largest and most successful general contracting firms and whose family has been extraordinarily generous to Virginia Tech, died on Sept. 14.

Hitt and his family’s foundation were among the early supporters of Virginia Tech’s two-building Intelligent Infrastructure and Construction Complex, a home for the university’s nationally leading programs in smart construction, autonomous vehicles, ubiquitous mobility, and energy systems. One of the buildings, which will allow for doubling the enrollment of the Myers-Lawson School of Construction, will be named Hitt Hall.

While Hitt did not attend Tech, he admired and benefitted from the graduates the university was producing. Hitt received the Myers-Lawson Award for Outstanding Contributions to the Construction Industry from the Virginia Tech Myers-Lawson School of Construction.

Read more about Hitt at [vtmag.vt.edu](http://vtmag.vt.edu).

RM, LOGAN WALLACE

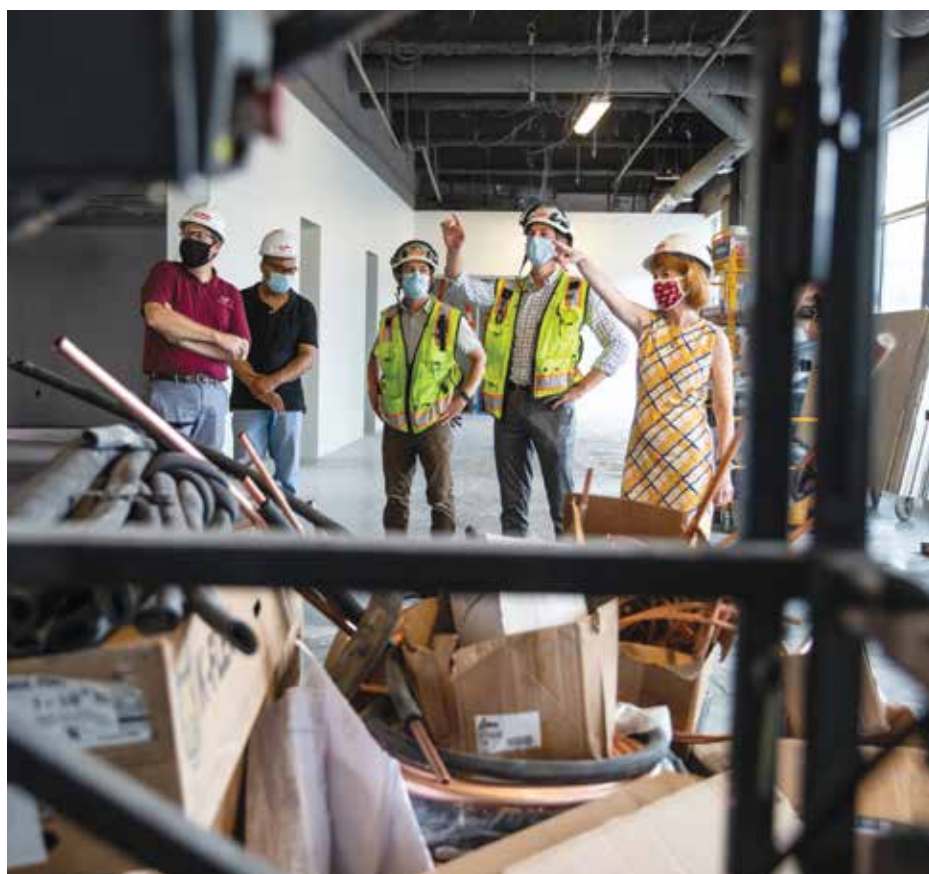




Lance Collins

# END NOTE

SERVING AT THE FUTURE'S LEADING EDGE



A WORK IN PROGRESS: In July, Lance Collins viewed construction progress at his future office location in Alexandria, Virginia.

THE CORONAVIRUS PANDEMIC HAS fundamentally changed how we work.

It's called me into service in ways I never would have imagined. That was true in the spring, when the virus emerged soon after I had been named inaugural executive director of Virginia Tech's Innovation Campus, and as I was focused on wrapping up 10 years as dean of Cornell's College of Engineering.

As spring gave way to summer and eventually fall, and I relocated to Alexandria, I found that we as a community have had to adapt in ways that previous generations and even our own selves of several months ago could never have fathomed. Institutions of higher education around the world faced historic disruption as we changed our programs to educate our students while promoting good public health practices.

The Innovation Campus now under development in Alexandria, Virginia, affords the opportunity to reinvent graduate education and research in a way that is inextricably linked to the private sector



VIRGINIA TECH  
**REUNION**<sub>2021</sub>  
**WEEKEND**

Join us  
**JUNE 10-13**



## Home is where the Hokies are.

Reunion Weekend is an exciting alumni tradition we look forward to all year long, and for 2021 we're planning something special. This year you'll be able to join Hokies all over the world from your home. We'll explore Virginia Tech in new ways and connect with fellow Hokies virtually.

**This year we're celebrating classes of 1971, 1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011, and 2016 from wherever Hokies are.**

**Registration will open in early 2021.**  
Don't wait to make plans. Get ready for the summer!

GET THE LATEST DETAILS  
**ALUMNI.VT.EDU/REUNION2021**



**UNVEILED:** In April, Virginia Tech shared architectural renderings for an Innovation Campus building in the greater Washington, D.C., metro area.

and the state and federal governments. The physical campus will open in 2024 in the wake of the destruction wrought by the novel coronavirus on our society. As we look to computers and the rapid advance of technology to continue working and innovating even during a pandemic, the Innovation Campus is training tomorrow's leaders in computer science and computer engineering while also providing a platform for groundbreaking research in a purpose-driven, action-oriented culture that will get real-world results.

Our goal is to produce graduates who are not just skilled coders, but who have the breadth, depth, and context to become pioneers and leaders in the rapidly evolving digital economy.

Virginia Tech is ideally situated for this mission, not just because of the Innovation Campus, but because of its nearly 150-year land-grant mission, its service ethic, and its long history of operating at the future's leading edge. That heritage endures across its long history in

Blacksburg, where faculty, students, and researchers have for decades changed the world with advances in agriculture, engineering, science, architecture and construction, the arts, and other areas.

Virginia Tech's reach has spread to encompass a medical school and state-of-the-art biomedical research institute in Roanoke, and dozens of Cooperative Extension offices across the commonwealth. With the Innovation Campus, we're now expanding our longtime role in Northern Virginia by leaping into another arena in the greater Washington, D.C., metro area.

We are entering an exciting new technology era, where universities will continue to play their traditional role of nurturing brilliant minds and bold ideas to advance the frontiers of what's possible through research and infusion of talent into the market. Together with our partners, private sector companies, nonprofits, the federal government and its agencies, and even K-12 schools, we will drive technology forward for

the benefit of the commonwealth, the nation, and the world. ■

*Lance R. Collins is the vice president and executive director of the Virginia Tech Innovation Campus.*

## IN OUR NEXT ISSUE

During June 2020, the Centers for Disease Control conducted panel surveys of adults to assess mental health, substance abuse and suicide ideation. More than thirteen percent reported having started or increased substance use to cope with stress related to COVID-19.

Researchers at Virginia Tech have long studied various aspects of substance misuse including its short and long-term effects on students and families. Read about how the university is working to learn more about substance misuse and how to support those affected in the spring issue of Virginia Tech Magazine.