VIRGINIA TECH

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VIRGINIA TECH

KEEPING IT REAL High-tech simulations advance learning

SESQUI WHAT? Meet the sesquicentennial Class of 2022

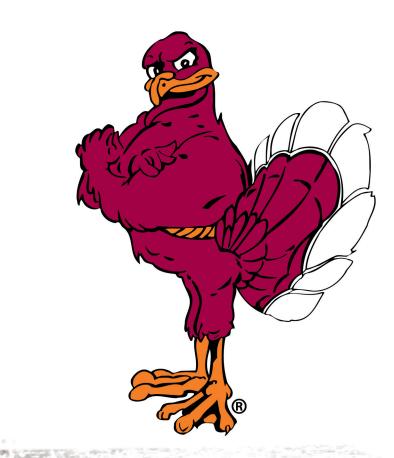
FARM TO TAP Alumni craft the next chapter in brewing

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- Private Beach
- Custom Boat Dock

Stunning, Private Waterfront Estate

at Smith Mountain Lake, Virginia

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FARM TO TAP

Connecting agriculture with education is at the heart of Virginia Tech's story. Special projects like the Barley Breeding Program are helping farmers capitalize on the expanding brewing industry. Armed with magnifying glasses and tweezers, Wynse Brooks, a research associate in the School of Plant Environmental Science, spends time each spring crossing barley strands to develop malting varieties that are adaptable to Virginia. Turn to page 34 to learn more.

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22 A VIRTUAL ABYSS

Personal computers, mobile phones, and smart technologies are resources that make our lives more convenient. But what happens when our personal data leaks out of the cyber world? Where does it go? How can we protect our information? Virginia Tech is taking a lead role to fill the voids in cybersecurity, from research and policy-making to workforce development.

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Crafty Hokies are making tracks in the brewing industry.

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ON THE COVER: Illustration by Andrea Ucini. (at right) A CAPITAL LOCATION: The Virginia Tech Research Center - Arlington is located a short distance from many of the leading science and research agencies of the federal government and many high-tech companies.



CYBER COLLABORATIVE : President Tim Sands addresses the Commonwealth Cyber Initiative Blueprint Advisory Council during a retreat held at the Virginia Tech Research Center - Arlington in September.

EXPANDING OUR IMPACT

Fall is an exciting time of year at Virginia Tech, as we welcome nearly 9,000 new Hokies-students, faculty, and staff-to our campuses across Virginia. Like those who came before them, their unique experiences, skills, and perspectives make our university community stronger and better able to make a positive impact on the commonwealth, the nation, and beyond.

That was the vision when Virginia Tech was established in 1872 to provide an affordable education in agriculture and engineering. We continue to build on that foundation as we prepare our graduates to lead into the future.

This fall, we welcomed the Class of 2022, our sesquicentennial class. Many of these students will receive their degrees as we celebrate Virginia Tech's 150th year. On page 18, you can learn more about this talented and diverse group. I believe our founders would be proud of them and the university that exists today.

We are developing leaders in business, government, and health

4 | PRESIDENT'S MESSAGE

care—people who are taking on the challenges and opportunities of tomorrow. Our university stands at the forefront in research with funded projects that range from studies on coastal erosion and sea-level rise to cybersecurity and developing computers that work like our brains. You can read about some of those projects in this issue.

And while we are doing well, we have the potential to accomplish much more. Being "good" isn't good enough for Hokies. We are committed to being exceptional in all aspects of our institution. Strengthening our commitment to be a research leader, an innovative educator, and a service-oriented community will empower us to meet our challenges and create our future.

Our forebearers had a bold vision for Virginia Tech. With our remarkable campus community and your support, we will carry that forward into a new generation.

Tim Sands is Virginia Tech's 16th president.

VIRGINIA TECH MAGAZINE FALL 2018, VOL. 41, NO. 1

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LETTERS

TO THE EDITOR

WELL CONNECTED

While tidying a pile on my home desk, I came across the fall 2016 Virginia Tech Magazine. Obviously at the time it came I thought I was too busy to read it. I'm so glad I set it aside rather than toss it.

Today, the beautiful cover pulled me in. I read the whole thing. I believe I enjoyed this issue more than any I have received, especially the lost ring stories. Thank you so much for all you do to keep far-flung Hokies feeling part of the Virginia Tech family.

While I haven't done the great things so many stories are about, I am grateful for my VT education and for the degree, which contributed to my ability to achieve my life goals, humble as they may be.

Dorothea R. Schwind St. John '75 Buckeye, Arizona



AN ENGAGING TRADITION

The summer 2018 edition of the Virginia Tech Magazine arrived today, and as usual, I read it cover to cover within short order. And, as usual, I was very impressed with what is going on today at my alma mater. The articles were enlightening, and the stories of accomplishments of various personalities were very interesting.

But, what caught my fancy was the great article about Ring Dance by Patty Perillo on page 72. I wasn't sure the tradition had survived the many years since my days at Tech. My wife, Judie, and I led the formal figure or in today's words-formation-proceeding the festivities. I was the shortest member of the Class of '62 attending, and Judie was a perfect fit. We still cherish the picture of me in the mandatory tux and her in the mandatory white formal. Judie presented me with my class ring, and I presented her with an engagement ring. We celebrated all weekend and are still celebrating today!

Seth P. Oginz '62 Bent Mountain, Virginia







STUDENTS PREPARE FUTUREHAUS DUBAI FOR SOLAR DECATHLON MIDDLE EAST

AS A 100-TON CRANE HELPED

students hoist the last solar roof panels for FutureHAUS Dubai into place, Thanhthao "Michelle" Le beamed like a proud parent.

"I've spent three years of my life on this," said Le, of Herndon, Virginia, who graduated last month from the School of Architecture + Design. "Concepting, researching, designing, presenting, collaborating, building. To see it come to life is almost beyond words."

With all 18 of the house's signature prefabricated "cartridges" now connected, the team will transform it into a solar home for the Solar Decathlon Middle East as the competition's only U.S.-based team. The 10-day global challenge takes place Nov.

14-28 in Dubai, where 21 universities will compete to win the distinction of designing and building the world's best net-positive-energy home.

This year's competition—launched by the U.S. Department of Energy and the United Arab Emirates' Dubai Electricity & Water Authority-tasks teams with building a grid-connected solar home that performs optimally in Dubai's desert climate and supports the city's bid to have the world's smallest carbon footprint by 2050.

FutureHAUS Dubai builds on years of Virginia Tech housing research expertise. After winning the 2010 Solar Decathlon with LumenHAUS, Virginia Tech explored how factory manufacturing processes could enhance construction

efficiency and technology integration in homebuilding. The resulting FutureHAUS prototype burned in a fire in February.

Virginia Tech's Solar Decathlon team is a diverse, interdisciplinary group, comprised of 65 students and 15 faculty members representing five colleges, 14 disciplines, and seven countries.



DONATIONS TO VIRGINIA **TECH TOP \$150 MILLION** FOR SECOND YEAR

TENS OF THOUSANDS OF DONORS

made more than \$153.6 million in new gifts and commitments, combined, to the university during the 2017-18 fiscal year.

"I continue to be impressed by the spirit and generosity of the Hokie Nation, and I'm grateful for our donors' commitment to the future," said Virginia Tech President Tim Sands. "They make it possible for us to fulfill our land-grant mission to change lives and communities through research and education, and they empower our vision to become a leading global university."

A total of 33,020 individual donors, corporations, or foundations made new gifts or commitments to the university in fiscal 2018. The university's fiscal year runs from July through June.

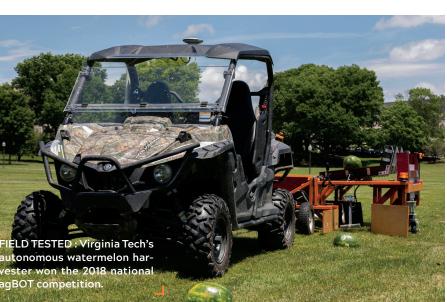
Multiple colleges and programs saw increases in new gifts and commitments. Donations to the Pamplin College of Business more than doubled, to nearly \$13.9 million, and donations to Virginia Tech Athletics rose 59 percent, to nearly \$44.7 million.

Major gifts that fueled the university's fundraising in fiscal 2018 included \$20 million to support the launch of the Calhoun Honors Discovery Program, \$15.2 million-the single largest outright gift ever made to Virginia Tech Athletics-for a new Student Athlete Performance Center, and \$5 million to establish the May Family Foundation Pathway for First-Generation Students.

TWO APPOINTED. TWO REAPPOINTED TO VIRGINIA TECH BOARD OF VISITORS

Virginia Gov. Ralph Northam appointed two new members to the Virginia Tech Board of Visitors July 1.

The new board members are Edward H. Baine of Chesterfield, Virginia, senior vice president for distribution for Dominion Energy's Power Delivery Group; and Preston M. White of Virginia Beach, Virginia, CEO of Century Concrete.



AGBOT AUTONOMOUS WATERMELON HARVESTER TAKES TOP PRIZE

THE VIRGINIA TECH AGBOT TEAM clinched first place in the 2018 agBOT Challenge at Gerrish Farms in Rockville, Indiana, earning a top prize of \$30,000.

The national event, hosted by Gerrish Farms and airBridge LLC, was broken into two separate challenges-weed and feed and harvesting-with university and industry teams competing head-to-head for \$100,000 in prizes.

Virginia Tech's team won the watermelon harvesting challenge by creating an autonomous system that could locate, identify, sort, and harvest ripe watermelons in a field. Each team in the harvesting competition was scored in mechanics, software, innovation, and execution.

Northam reappointed Mehul Sanghani

of Vienna, Virginia, founder and chief executive officer of Octo Consulting Group; and Horacio Valeiras of La Jolla, California, CEO of Frontier Global Partners LLC.

Baine, Sanghani, Valeiras, and White are graduates of Virginia Tech, and all are members of the university's Ut Prosim Society. Their terms on the board run from July 1 through June 30, 2022.



WATER-WISE: Researchers examined lake catchments—areas of land where water runs into a freshwater lake—at Lake Mendota in Wisconsin, Oneida Lake in New York, and Lake Sunapee (pictured) in New Hampshire.

STUDY EXPLORES CONNECTIONS BETWEEN LAND MANAGEMENT, WATER QUALITY, AND HUMAN RESPONSE IN LAKE CATCHMENTS

SCIENTISTS HAVE LONG STUDIED THE

effects of humans on lakes, but a new examination led by researchers at Virginia Tech explores how those ecological impacts can cycle back to affect humans. The study, published in the journal Ecosphere, offers a new model for protecting and maintaining lakes.

"Lakes provide so much in terms of drinking water, recreation, aesthetic value, and more," said Kelly Cobourn, project lead and assistant professor of water resource policy in Virginia Tech's College of Natural Resources and Environment. "People derive a lot of value from connecting with lakes. We also understand that humans degrade the quality of lakes with some of the choices they make. We provide a roadmap for understanding and approaching these problems that hasn't been used before."

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The study, which is in its third year, brings together researchers from Virginia Tech, The Pennsylvania State University, University of Wisconsin, Cornell University, Michigan State University, and Cary Institute of Ecosystem Studies. The team uses coupled natural and human systems modeling to understand how humans and the environment affect one another.

This project aligns with the university's Global Systems Science Destination Area.

VTCRI SCIENTIST EARNS THIRD CONCURRENT GRANT FROM THE NATIONAL CANCER INSTITUTE



DEB KELLY, ASSOCIATE PROFESSOR

at the Virginia Tech Carilion Research Institute, was awarded \$2.1 million by the National Cancer Institute (NCI) to study the protein that gives rise to a hard-to-treat form of breast cancer.

This is her third concurrent R01 grant, which funds a specific line of research for five years.

"The awarding of three concurrent R01 research grants through the rigorous National Institutes of Health peer-review process from the National Cancer Institute to an early- to mid-career scientist who is working on different aspects of a common problem is highly unusual," said Michael Friedlander, executive director of VTCRI and Virginia Tech's vice president for health sciences and technology. "It is indicative of the high regard that Debbie's colleagues have for her and her work."

BOEING FORMS PARTNERSHIP WITH UNIVERSITY HONORS PROGRAM

BOEING HAS MADE A SUBSTANTIAL

commitment to Virginia Tech's Calhoun Honors Discovery Program.

Boeing's \$3 million will establish the Boeing Studio to allow students to engage in collaborative, transdisciplinary projects under the supervision of Discovery Program faculty and with Boeing experts available for advice.

"We are honored and excited to expand Virginia Tech's partnership with Boeing in such a transformative way," President Tim Sands said.

Boeing will support the studio by funding full-time Boeing Distinguished Professors of Practice, who will divide their time between Virginia Tech's Blacksburg campus and Boeing. In addition, Boeing staff will lend technical expertise by serving as visiting industry mentors, leading workshops, giving lectures and demonstrations, and helping to place students in internships.

"Boeing is proud to support this trailblazing new program that will help Virginia Tech students develop the skills they need to become the innovators of the future," said Tim Keating, executive vice president of government operations for Boeing.

Boeing will also participate in the research of the Calhoun Center for Higher Education Innovation.

Smoot Drive was renamed after the reconfiguration of the Southgate entrance to campus, which was reworked from a



RESEARCHERS FIND FOOTPRINTS OF A BUG DATING BACK MORE THAN 540 MILLION YEARS

A TEAM OF SCIENTISTS LED BY SHUHAI

Xiao, of the Virginia Tech College of Science, have discovered the oldest known footprints ever found, estimated at 540 to 550 million years old.

Found in a small chunk of sediment rock in a shallow sea bottom in China, the tiny tracks—millimeters in width—were made by an unknown bug-like creature no bigger than a thumb. The footrail (pictured above) is only a few inches long, no bigger than an average hand palm. The findings of these ancient footprints were published in Science Advances and may help scientists determine when and how legs and limbs evolved.

The new fossils are up to 10 million years older than previously known footprints.

Funding for the study was supported by National Natural Science Foundation of China, the Chinese Academy of Sciences, the U.S. National Science Foundation, and the National Geographic Society.

DEDICATION CEREMONY HONORS ALUMNUS RAY SMOOT

LONGTIME VIRGINIA TECH FOUNDATION

workhorse Raymond Smoot Jr. '69 was honored on June 5 with the dedication of Smoot Drive in the Virginia Tech Corporate Research Center. stoplight intersection with U.S. 460 into a full exit and entrance, with access both to the Corporate Research Center and to the main campus.

Smoot joins Frank Beamer as the second member of the Class of 1969 to have a street on campus named for him.



AN IMPORTANT LINK

THIS SPRING, VIRGINIA TECH TEAMED up with a blockchain pioneer to develop

a revolutionary curriculum with tremendous potential for cybersecurity defense.

"All multi-user websites will move to a blockchain in the future because blockchain provides accountability and auditability of user interactions," said Dan Larimer, a Department of Computer Science alumnus and chief technology officer of Block.one. "Traditional systems have one server that can be compromised by hackers and corrupt everyone's data without trace. With blockchain applications, hackers must attack individual users; it is more difficult to hack multiple users than attack a single server."

Block.one, a global leader in blockchain and publisher of the EOSIO blockchain software, has made an initial \$3 million commitment to the Department of Computer Science in Virginia Tech's

College of Engineering to help students build skills in blockchain.

The funds will be used primarily to update and develop blockchain courses and curricula and hire faculty and staff for the department. This will enable the university to deliver a full blockchain offering, including a variety of courses, an undergraduate minor or concentration in blockchain development, and a boot camp or short course. Implementation of the program began this fall.

As part of the collaboration, Larimer will advise the university on curricula development, including participation in live classroom sessions, seminars, and symposia.

"The courses we hope to develop at Virginia Tech will allow students to write blockchain applications, which require high-performance, deterministic, and safe code," Larimer said.

VIRGINIA TECH RELEASES RATINGS FOR **BICYCLE HELMETS**

THE VIRGINIA TECH HELMET LAB,

which is led by Stefan Duma, The Harry Wyatt Professor of Engineering and director of the Institute for Critical Technology and Applied Science, has released its first set of ratings for bicycle helmets.

Each helmet's score reflects its ability to reduce head-injury risk. Four models earned five stars. Two merited two stars; the rest fell in the three- or fourstar range. The Insurance Institute for Highway Safety funded the project and contributed to the research.

STUDENTS PUBLISH BOOK ON THE FAB FOUR

EIGHTEEN VIRGINIA TECH HISTORY

students recently collaborated on writing and editing a book on the iconic rock band, the Beatles. Available online as an e-book and for purchase through Amazon, "Welcome to the Beatles" brings fresh perspectives on the Fab Four from writers born more than 25 years after the group last played together.

"I've taught the senior seminar on the Beatles a couple of times, but this is the first published book to come out of it," said Robert Stephens, an associate professor of history. "I chose the Beatles because it allows the students an exciting way into writing about global history, as you can see from the book. They find it engaging, often because of their parents' or grandparents' interest in the band."

THREE NAMED TO VIRGINIA TECH LEADERSHIP TEAM



DWAYNF PICKNFY, BRYAN GARFY and Lisa Wilkes have been named to leadership positions this fall.

Pinkney joined Virginia Tech in August as the senior vice president for operations and administration. He will oversee all aspects of the financial and operational enterprises of the university including financial

BEAMER, LAWSON FAMILIES HONORED

ON OCT. 6. DURING A SPECIAL ceremony, Virginia Tech's Indoor Practice Facility was renamed the Beamer-Lawson Indoor Practice Facility to honor the Frank Beamer family, as well as a significant leadership gift from the John Lawson family. The naming followed an earlier unveiling of a monument in Moody Plaza celebrating Beamer.



affairs, human resources, policy and governance, and planning and facilities management.

Most recently, Pinkey was the senior associate vice chancellor for finance and administration at the University of North Carolina at Chapel Hill.

Garey is the new vice president for human resources. He brings nearly 25 years of human resources experience, including 15 years in public higher education, to his role. Garey spent the last decade in progressively higher-level management positions at the University of Virginia. He has also worked at the University of Florida and MCI Worldcom.

Wilkes has been named vice president for business affairs. She will serve as the principal deputy and senior advisor to Pinkney and will work closely with university leaders to drive change, enhance business strategies, and advance operational and administrative goals.

Wilkes began her career at Tech as a graduate student intern in 1995. She has held multiple positions of increasing responsibility at the university.

John and Paige Lawson, along with Frank and Cheryl Beamer, were recognized in a midfield ceremony at halftime complete with a salute from Skipper.

The National Football Foundation also conducted an on-field salute of Beamer, who was selected to the College Football Hall of Fame in his initial year of eligibility, presenting the coach with a commemorative plaque that will stay on permanent display at Virginia Tech.

A 1975 geophysics alumnus of Virginia Tech, Lawson is the executive chairman of W.M. Jordan Co. He was co-chair of Virginia Tech's last \$1 billion comprehensive campaign, a past Rector for the Virginia Tech Board of Visitors and a namesake of the Myers-Lawson School of Construction at Virginia Tech.

MONUMENTAL MOMENT: Frank Beamer and John Lawson '75 are recognized at halftime on Oct. 6.

> EXTRA, EXTRA! READ ALL ABOUT IT.

• •

For additional details, images, and videos related to the stories featured in Drillfield News, go to vtmag.vt.edu

5 HokieBird suits

196

Special requests

for HokieBird

appearances in

2017

5 lbs.

The weight

of the feet

54

Wedding

invitations in 2017

.

35 lbs. The weight of the suit

THE BEST PART OF BEING THE HOKIEBIRD WAS SEEING THE FACES LIGHT UP WITH A SMILE AS I WOULD APPROACH AND INTERACT WITH PEOPLE. ... MORE OFTEN THAN NOT, I FOUND MYSELF SMILING BEHIND THE MASK WHILE POSING FOR PHOTOS."

A.J. Yost '15

TALKING TURKEY: (above left) Colleen Thom '14 reveals her identity at commencement, a special HokieBird tradition. (above right) A surprise guest dropped in at the wedding of Kelly Jamieson Noack '09 and Chris Noack '07 in June 2017.

HOKIEBIRD

WHILE ATTENDING HIS FIRST VIRGINIA TECH FOOTBALL GAME DURING HIS FRESHMAN YEAR, CODY LOPEZ SAW INTO HIS FUTURE.

HOW TECH TICKS

"THE HOKIEBIRD WAS ON THE 50-YARD LINE, CARTWHEELING AROUND IN CIRCLES, I TOOK A PHOTO OF HIM WITH MY IPOD TOUCH FROM WAY UP IN THE SOUTH ENDZONE AND POSTED IT TO INSTAGRAM, THINKING, 'THAT'S GOING TO BE ME SOME DAY,'' LOPEZ SAID.

IN 2013 LOPEZ MADE GOOD ON HIS PREDICTION.

SERVING AS VIRGINIA TECH'S BELOVED MASCOT IS AN EXPERIENCE. AFFORDED TO JUST A HANDFUL OF STUDENTS EACH YEAR. THE OPPORTUNITY POSITIONS THEM AT THE FOREFRONT OF HOKIE NATION'S LOVE AND ADMIRATION, NOT TO MENTION IN THE RECEIVING LINE FOR COUNTLESS HIGH-FIVES AND OH-SO-MANY HUGS. **T**W

> Did you know?

ON BEING THE

The HokieBird is gender-neutral, representing all Hokies everywhere.

Wallace, Jamieson-noack

3 Average number of HokieBirds to graduate each year



85

Number of hugs the HokieBird received to break the Guinness World Record for mascot hugs given in a minute in 2015



15 HokieBird shoe size

What was the best part of being the HokieBird?

"It was always so energizing to walk around anywhere from a tailgate to a residence hall and see how excited fans were to see you. It makes you so proud to be a part of this community because while we were just students in a furry suit, the spirit and passion that the HokieBird evokes in students, alumni, and fans shows the power and strength of Hokie Nation."

- Chris Saccoccia '12

"To identify yourself as a Hokie is one thing, but when you represent and embody the face of the school, that is something pretty special. Seeing people light up no matter the age and you bringing some semblance of joy to their lives, even if short-lived, is extraordinarily rewarding."

- Jared Stollar '13

What did you learn from being the HokieBird?

"Playing the HokieBird has reminded me to stay grounded and to keep giving back to the community I'm in."

- Adam Kendrick '10

"Being the HokieBird has shown me that making someone's day is one of the most valuable and gratifying things. It has also emphasized the importance of not taking life too seriously and that people can really be affected by the actions of others."

- Rachel Anderson '18

<u>)</u>

BIRD IS THE WORD

For a gallery of images of the HokieBird and more information about Virginia Tech's mascot, visit vtmag.vt.edu.

ATHLETICS

SPILA FÓTBOLTA

JON INGASON KNEW VIRGINIA TECH

was serious about recruiting him to play soccer when Assistant Coach Pat McSorley traveled to Ingason's hometown, Vestmannaeyjar, an archipelago off Iceland's southern coast, to watch him train.

"You have to take a ferry or a plane to get there," said Ingason, who was impressed by the visit, his Facetime tour of campus, and the high level of soccer played in the ACC.

As a first-year student-athlete, Ingason quickly confirmed his coaches' instincts, playing defense as a center back nearly every minute of the 2017 season and helping guide the Hokies to the NCAA tournament for a second consecutive year.

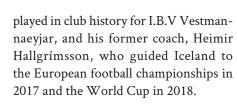
Coaches and fellow players are looking to Ingason, now in his second year on the Virginia Tech pitch, for leadership following the departure of 10 seniors.

In fact, his peers almost unanimously named him captain of the team.

"I guess that makes me kind of a leader. I guess the coaches have seen that in my game. I'm looking forward to it," said Ingason.

Iceland, a nation with a population of just 350,000, doesn't send many students to Virginia Tech, but Coach Mike Brizendine, who is in his 10th year at the helm of the men's soccer team, wasn't surprised by Ingason's advanced abilities. Not only had Brizendine reviewed video of Ingason, the coach knew of the young player's field experience, which included more than 100 games in the Icelandic Premier League and 10 games for the U-19 Icelandic national team.

Ingason's soccer skills were cultivated by his father, Ingi, a former soccer player who holds the record for the most games



"[Jon's] very mature. He's a man who's played with men," Brizendine said. "His adjustment period was much shorter than most."

On the field at Tech, Ingason found a more physical game than in Europe, but off the field he felt at home.

"The people—they're all friendly, they're all kind, they're all humble," Ingason said. "You're welcomed straight away, and the people are open to getting to know you.

"Education is very important in Iceland ... so for me coming out here and getting a chance to get an education from such a great school as Virginia Tech is just a privilege." RL



WHAT'S THE DEAL WITH **SELFIES?**

ADVANCEMENTS IN TECHNOLOGY

and the popularity of social media have propelled self-taken portraits, also known as selfies, to status as a cultural phenomenon. The word itself has become so popular it was named Oxford Dictionaries' 2013 Word of the Year, and National Selfie Day is celebrated annually on June 21.

The selfie trend has spawned a related economy with online guides and an array of tools available for purchase. There's even a cellphone-attachable tennis ball to command a dog's attention for the perfect pet-owner selfie.

How did we get here, and why?

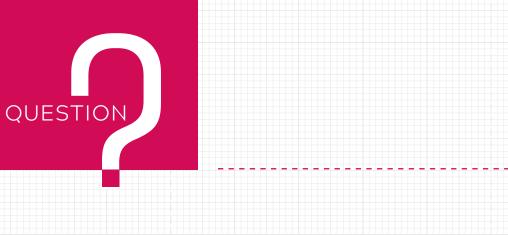
According to James Ivory, an associate professor in Virginia Tech's Department of Communication, the selfie trend may be recent, but its roots are not.

"I think the selfie phenomenon is a good example of how society and technology alternately influence each other. On the one hand, the simplest explanation for the proliferation of selfies is that this is the first time in history that so much of the population has access to both high-quality camera technology and online publishing. The technology enables us to document life-including ourselves-more readily than ever before," said Ivory.

But just because we have mobile phone cameras and instant internet access doesn't

lost loved ones.

"Thus, I have a feeling that if Renaissance bluebloods, 19th-century cowboys and outlaws, and Victorian mothers and fathers had been able to snap a few selfies, they certainly would have. But the most conclusive evidence may be in the technology-of all the features that might be squeezed into a smartphone, the nearly universal availability of a camera is evidence that humankind wants one-and maybe always has, said Ivory." TW



mean we have to take pictures of ourselves. So why do we use this technology for 'selfies' so often? "Some believe the selfie culture is evidence of youth narcissism, social media addiction, or any number of other pathologies," Ivory said. "Yet, historical anecdotes show that previous generations participated in primitive selfie practices specific to their eras.

"For example, it has long been a custom for the wealthy to sit for elaborate self-portraits. And, in the early days of photography, when the process was cumbersome and expensive, even the ascetically untamed West saw photographers successfully selling portraits in places where only select luxuries were in demand. Victorian-era families were known to sit for photos with recently deceased loved ones. These postmortem images reflect the desire for the bereaved to immortalize their own likenesses along with those of





PICTURE-PERFECT: Graduations, alumni events, and tailgates are great occasions for snapping selfies.

CORPS OF CADETS

WHAT'S

IN AN ENVIRONMENT OF CHANGE,

Virginia Tech is preparing students for careers that will evolve alongside advancing technology. Future professionals will tackle complex challenges in public privacy, cybersafety, and other adverse effects of the digital environment.

Training such leaders requires innovative curriculum and a dedicated space for intensive, time-sensitive learning that mirrors reality.

Enter the New Classroom Building's Integrated Security Education and Research Center (ISERC), a space that replicates the workplace during real-world, highrisk scenarios. Here, students resolve complex challenges with implications for science, technology, policy, and ethics.

"This is basically like a flight simulator where you can take a [Boeing] 747, turn off both engines, and see how folks deal



NEVER QUIT: Cadets with the Naval Special Preparatory Team train in the War Memorial Pool.

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ALL IN, ALL THE TIME

IN THE PAST TWO YEARS, NO ROTC program in the country has had more students selected for U.S. Navy SEAL

training than Virginia Tech.

Of the 18 ROTC students chosen to train as SEALs this year, four are 2018 graduates of the Virginia Tech Corps of Cadets and the university's Naval ROTC.

Another six senior cadets are among the 53 men and women nationwide who began the rigorous SEAL selection process. A seventh was accepted as a candidate for the Navy's specialized Explosive Ordinance Disposal program, which trains technicians to disarm improvised explosive devices, neutralize chemical threats, and render safe nuclear weapons.

The students' success is testament to their character and dedication to training and to a program that is growing stronger every year, said Capt. Michael Fisher, commanding officer of Virginia Tech's Naval ROTC. SEALs (Sea, Air, and Land teams) are the Navy's most elite special operations force. Candidates come from the Navy's Officer Candidate School, the U.S. Naval Academy, the Navy's ROTC programs at 166 colleges and universities across the country, and from applicants already serving with naval units.

Between 40 and 50 ROTC applicants are selected for SEAL Officer Assessment Selection each summer. From those candidates, only half will continue to Basic Underwater Demolition School—21 weeks of basic SEAL training followed by 26 weeks of qualification training.

Cadets interested in becoming SEALs train with the Naval Special Preparatory Team, a small specialty group within the corps and the Naval ROTC. They volunteer for 12-plus hours of extra training a week, including 10-mile runs, 22-mile marches carrying a 55-pound backpack, 90-minute pool sessions, and circuits on the Corps of Cadets obstacle course.

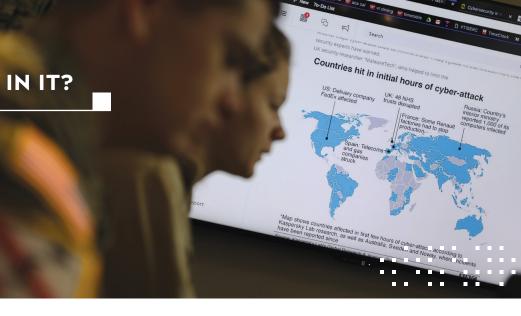
The team is mentored by Capt. Peter Phillips a corps deputy commandant and a retired Navy SEAL. Phillips graduated from Virginia Tech and the Corps of Cadets in 1989 with a degree in history.

Phillips helps connect the team's juniors and seniors with active-duty mentors. He designs their training to make it even more realistic.

"I do a lot of mentoring and coaching on the mental aspects [of the SEAL selection process]," Phillips said. "Most people quit because of the mental side."

Shay Barnhart is the communications director for the Corps of Cadets.

[From the editor: Due to the nature of the work associated with the SEAL program, the names of the cadets have been withheld by request of the U.S. Navy.]



KEEPING IT REAL

with it without anyone getting injured," said physics professor Patrick Huber, director of ISREC. "Obviously, we can't drop students into crisis situations and see how they do. So, the trick with this lab is to have them gain experience in a simulated and safe environment."

Building manager Rob Viers guided the creation of the state-of-the-art space.

"Once I met with these folks, and we talked about potentially outfitting this room, I started to get excited," Viers said. "I knew exactly what [audio visual technology] needed to go in here."

The 2,400-square-foot space contains a 27-foot projection screen, three 12,000-lumen projectors, and seven wall-mounted 60-inch LED televisions. The large screen can feature as many as 16 different screens simultaneously. Activity in the classroom is observable from a control room equipped with a two-way mirror.

The ISERC also includes two ceiling microphones capable of pinpointing the location of a speaker to improve audibility. Viers said this system, and two installed pan/tilt/zoom cameras, could be utilized for streaming and recording purposes.

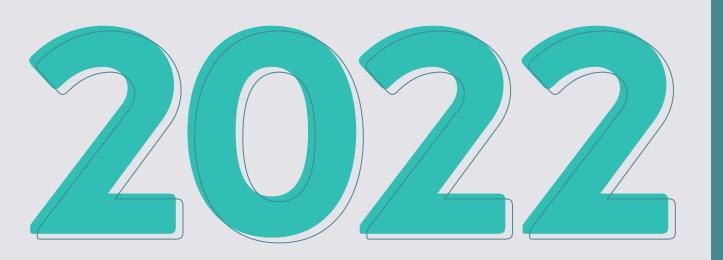
During the planning phase, ISDA leaders visited Air University's war gaming center at Maxwell Air Force Base, in Montgomery, Alabama.

"The best thing we walked away with from there is that you have to evaluate what you did in the class for anything to be effective," Viers said.

Eventually, the team hopes to add an ISREC in the National Capital Region to facilitate joint simulations across the state. \blacksquare TW

SIM SPACE: (above) University students experience simulated crises in the Integrated Security Education and Research Center (ISERC), a hightech classroom in the New Classroom Building at Virginia Tech. (at left) Students are assigned roles on a crisis-management team and tasked with resolving a real-world problem.

class of



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UNDERGRADUATES

46 states and U.S. territories
53 countries
4.06 average GPA
4,277 in-state
1,698 out-of-state
453 international
34% underrepresented students

VETERINARY MEDICINE

1600 applicants
126 students
87 Virginia and Maryland residents
39 out-of-state

VTCSOM

- 4,000 applicants43 students
- 20 in-state
- 23 out-of-state

Isabelle Largen wants to solve the world's water crisis.

Rohan Muthukumar wants to design virtual reality devices for people with autism.

Both have big visions to make the world better. They believe that a Virginia Tech education will help them do it.

Largen and Muthukumar are two of the 6,428 first-year students who entered the university this fall. Many of these students will graduate with the Class of 2022 during Virginia Tech's sesquicentennial, marking the 150th year since its founding.

The sesquicentennial class boasts a high academic profile, and underserved and underrepresented students make up 34 percent of the group.

Both Largen and Muthukumar received scholarships through Virginia Tech's Beyond Boundaries program, which has increased its number of scholarships this year by more than 50 percent. *JB*

CLASS ACT For more photos and videos of the Class of 2022, visit vtmag.vt.edu.





TOP OF THE CLASS: (top) In August, members of the Virginia Maryland School of Veterinary Medicine Class of 2022 received their white coats. (above) In July, the Virginia Tech Carilion School of Medicine welcomed its ninth class. (at right) V.P.I. as it was when opened (1872). (below) First-year students gathered in Lane Stadium for a class picture in August.



SESQUI WHAT?



sesquicentennial

[ses-kwi-sen-**ten**-ee-*uh*1]

adjective

1. pertaining to or marking the completion of a period of 150 years.

noun

2. a 150th anniversary or its celebration.

50 years

ON A SEEMINGLY UNEVENTFUL NIGHT IN 1992, HACKERS TARGETED VIRGINIA TECH AND SLIPPED UNDETECTED INTO THE UNIVERSITY'S COMPUTER SYSTEM.

BUILDING THE RESOURCES TO THWART A

Reality set in the next morning, when then-management of information technology specialist Randy Marchany uncovered the breach, and discovered that a server had been wiped clean.

"It was an 'oh s---' moment," said Marchany, now chief information security officer of Virginia Tech and director of Virginia Tech's Information Technology Security Laboratory. "It took us months to recover."

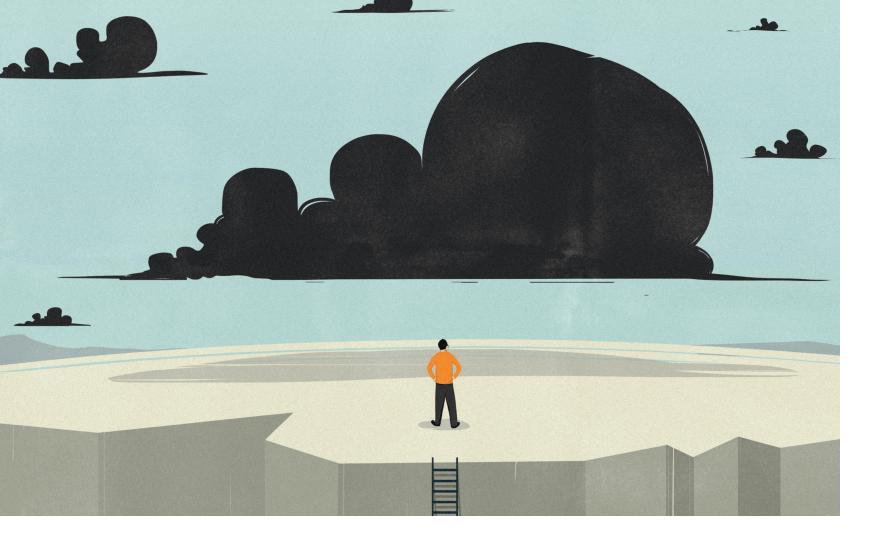
Determined to avoid another breach, Marchany and his colleagues deconstructed the attack, using it as a catalyst to devise a more proactive approach to protecting the university's information network.

"We said, 'Let's figure out how they got in, because we don't want to have to go through this again," he said.

The incident helped university leaders uncover an enormous void in knowledge about data security and set in motion a chain of events that would propel Virginia Tech toward a role in the research and workforce development needed to address cybersecurity.

A quarter century later, the university has decoded more than a few cybersecurity puzzles and stands as a leader, not only in cyber research but also in the education of data defense professionals.

STORY BY TRAVIS WILLIAMS ART BY ANDREA UCINI



C Given the ever-growing cyberthreat, Virginia's innovative technology sector, and strong research institutions in higher education, it makes perfect sense for the commonwealth to seed a significant cyber research and workforce initiative. **9**

DEL. CHRIS JONES (R-SUFFOLK), CHAIR OF THE HOUSE APPROPRIATIONS COMMITTEE

A 21ST-CENTURY CHALLENGE

igital technology is advancing by leaps and bounds. The world is shrinking as global connectivity continues to increase. Cybercrime, once limited to minor disruptions and childish pranks, has moved in a more dangerous direction.

Today, computer criminals steal personal data, influence public opinion, and threaten critical infrastructure. Cyberattacks that once targeted mega-computers housed in large corporations and government agencies now reach people in their most personal spaces-from homes and automobiles to purses and pants pockets.

According to data collected by the Virginia Cyber Security Commission, from January to May 2017 more than 78 million cyberattacks were attempted in the commonwealth, about six per second. On a national level, the World Economic Forum reported 15.4 million U.S. citizens were casualties of identity theft in 2016. And experts estimate that businesses will lose \$6 trillion per year to cybercrime by 2021.

The threat is magnified in Virginia, where nearly 36,000 cyber jobs sit vacant—a number that jumps to about 42,000 when including the greater Washington, D.C., metro area.

"Governments, corporations, universities, and individuals are all at risk from the growing range of cyberthreat actors," said Charles Clancy, professor of electrical and computer engineering and director of the Hume Center for National Security and Technology at Virginia Tech. "Corporations have major challenges with hackers, primarily because they don't have the people they need to counter increasingly sophisticated attacks."

The Commonwealth of Virginia is seeking to address the deficiency head-on in its 2018-20 budget, committing \$25 million to build a world-class cybersecurity ecosystem. Established as the Commonwealth Cyber Initiative (CCI), the effort provides for cybersecurity workforce development, research, and technology commercialization through a primary "hub" anchored by Virginia Tech in Northern Virginia and a network of "spoke" sites across the state.

"Given the ever-growing cyberthreat, Virginia's innovative technology sector, and strong research institutions in higher education, it makes perfect sense for the commonwealth to seed a significant cyber research and workforce initiative," said Del. Chris Jones (R-Suffolk), chair of the House Appropriations Committee.

Legislators specified that Virginia Tech serve as a lead organization to develop a blueprint for moving the initiative forward.

Decades of groundwork have positioned Virginia Tech faculty as experts in cybersecurity and cultivated the critical public and private sector relationships needed to put that expertise to work. The university's influence extends far beyond the mountains of Southwest Virginia and has accelerated through the expansion of programs, faculty, and facilities in the National Capital Region (NCR).

Moreover, at Virginia Tech, cybersecurity is no longer viewed as a specialized skill set, but rather baseline knowledge spanning the entire academic spectrum, as evidenced by such cross-disciplinary efforts as the Integrated Security Destination Area.

"Virginia Tech is building an ecosystem of cyber-related research, education, and engagement that will position the commonwealth as a world leader in cybersecurity," said President Tim Sands.

"We're excited about the opportunities this will create for our students, researchers, and partners across Virginia."

THE COMMONWEALTH CYBER INITIATIVE

A common threat is often the best bridge between disparate groups. Virginia educational institutions are joining forces with industry and government to fight a common enemy for the greater good of the state and nation.

The CCI encourages these partners to jointly address the critical shortage of cybersecurity professionals and to position Virginia as a global leader in the cyber arena.

"The Commonwealth Cyber Initiative will help fill the tens of thousands of open cyber jobs in Virginia, spur the development of new real-world offensive and defensive cyber technologies, and help diversify our economy," said Jones, the House delegate.

The effort will emphasize three areas: the development of a cybersecurity workforce, research and development of new technology to improve safety for the internet of things, and innovation and entrepreneurship designed to accelerate the tech economy of Northern Virginia. Much of the work will occur at the intersection of cybersecurity, data analytics, and autonomous systems.

Over the next two years, some of the CCI resources will create the initiative's main hub site in Northern Virginia.

"A physical presence in Northern Virginia allows this new dedicated research operation to be literally down the street from the largest cyber customers in the world," said Del. Mark Sickles (D-Fairfax).

The success of the initiative will hinge on teamwork.

"It's a multistakeholder process, and we're working to integrate it all together to expand the pipeline for future cybersecurity workers, bolster research, and accelerate technology commercialization," Clancy said.

Nearly 50 organizations from industry, government, and academia have teamed up to draft a blueprint for moving forward. Phase one wrapped up in September, with an all-in team meeting in Arlington, Virginia. The CCI blueprint will be delivered to the Virginia Research Investment Committee by Dec. 1.

"Today's global landscape demands security in the cyberdomain.



Tomorrow's landscape will merge cybersecurity with emerging technologies like machine learning and autonomous systems. Investing in research and discovery transfer for the next generation of cybertechnologies will cement Virginia's economic leadership," said Theresa Mayer, vice president for research and innovation at Virginia Tech and chair of the CCI Blueprint Executive Committee.

"This is a collaboration that's really going to build on the work we have been doing to deliver innovative solutions," Mayer said. "Success will require partners from every corner of the state bringing their expertise and resources to the table to reach its full potential."

The state's commitment to CCI is impressive and will serve as a seed, which, if appropriately cultivated, will catalyze a world-changing effort to dramatically increase safety and security across the cyberlandscape.

"This is a monumental moment, not just for Virginia Tech, but for all of Virginia," said Mayer, who earned a bachelor's degree in electrical engineering from Virginia Tech.

SECURE TRANSITION

How did Virginia Tech move from crime casualty to defensive leader?

"It was a lot like building a ladder and climbing as you go. Rung by rung. It took years of earnest work, innovative thinking, and that roll-your-sleeves-up-and-get-it-done mentality synonymous with being a Hokie," Clancy said.

It's an effort that's nearly impossible to capture close-up, but when viewed through a wider lens that connects components, becomes crystal clear.

In the early 1990s, researching a network-based cyberattack wasn't exactly easy. In fact, simply finding a book on the topic was a challenge because most studies were focused on encryption and code breaking.

Eventually, Marchany and his colleagues stumbled upon a startup security company, the SANS Institute, which had plans to host a cybersecurity conference in Washington, D.C. Unable to cover the registration fees, the team from Virginia Tech opted to speak at the event in return for a fee waiver for their attendance.

"We said, 'Well, we don't know anything about cybersecurity, but we could talk about what happened to us with our attack," Marchany said. "We didn't realize that at that time, nobody really talked about successful attacks against themselves."

The humble presentation led Marchany to join SANS on future projects. He's been a part of their teaching team since.

In 1998, Virginia Tech, leveraging Marchany's teaching experience, created an information technology (IT) defense course for the computer engineering department.

"We said, 'You're teaching a lot of good stuff. Why don't you convert that into a course?" said Joseph Tront, then-associate dean in the College of Engineering (COE).

This academic year marks Marchany's 20th teaching the course. The class, which has evolved to reflect current needs, is taught as the senior-level Computer and Network Security Fundamentals course and is a core requirement for the cybersecurity minor.

"You can really go all the way back to Randy Marchany and that course when searching for a root of Virginia Tech's history in cybersecurity," Clancy said. "Those early courses laid the groundwork for what we're doing today."

In the early 2000s, Virginia Tech began to shift other pieces into place. In 2001, the IT security department opened a lab, making it available for student research.

"It's kind of like a teaching hospital," Marchany said.

"What it gives students is the opportunity to analyze data and study situations in a real-time environment," Tront said.

In 2004, Virginia Tech earned recognition as a National Security Agency (NSA) Center for Academic Excellence in Information Assurance Research. Today, the university holds the designation as an NSA Center for Academic Excellence in Cybersecurity Operations as well.

Cybersecurity curriculum and research continued to expand throughout the decade, with a heavy focus on unclassified projects, but a philanthropic act and an enterprising leader would soon change the university's cyberlandscape.

THE NATIONAL CHALLENGE

If the cybersecurity challenge in the U.S. had a home, it would likely be in or around Northern Virginia.

Virginia Tech made a major investment, matched by a generous gift from an alumnus, in addressing the nexus of cybersecurity and national security with the launching of the Ted and Karyn Hume Center for National Security and Technology in 2010. The center was established with offices in Blacksburg and Arlington to educate the next generation of leaders in national security technologies, as well as conduct research and development for the defense and intelligence communities.

The Hume Center was an almost immediate success, but when Charles Clancy, who had a background in wireless research programs in the U.S. intelligence community, joined the campus in Northern Virginia the center really began to bloom.

Clancy came to Virginia Tech in 2010 and by 2011 was named director of the Hume Center. He injected a drive for research and an entrepreneurial spirit that accelerated growth.

According to Jim Bohland, former vice president of the NCR, gaining the trust of various government agencies was key to building successful cybersecurity programs, and the only way to do that was to prove yourself. Clancy came to Tech with a network of key relationships and the commitment to make things happen.

"I found him very willing to go the extra mile on things," Bohland said.



C This is a collaboration that's really going to build on the work we have been doing to deliver innovative solutions. Success will require partners from every corner of the state bringing their expertise and resources to the table to reach its full potential. 99

THERESA MAYER VIRGINIA TECH'S VICE PRESIDENT FOR RESEARCH AND INNOVATION AND CHAIR OF THE CCI BLUEPRINT EXECUTIVE COMMITTEE Today at the Hume Center, over 80 research and affiliated faculty members engage more than 400 students each year in a variety of research and experiential learning projects. Faculty also maintain their own research portfolios at academic departments across the university.

"There are a million different research projects ongoing," Clancy said. "But the challenge in talking about them is that many are sensitive."

Clancy notes that this research offers vast benefits for government and private industry, and although the subject matter is not always publicly available, Hume Center faculty are routinely invited to speak before governing bodies and agency leaders.

Also, some nonclassified studies are garnering attention.

NONCLASSIFIED STUDIES

Jim Hawdon, sociology professor and director of the Center for Peace Studies and Violence, is part of a Virginia Tech research team recently awarded a \$170,000 National Science Foundation grant for their work investigating algorithms for threat detection. Hawdon's focus builds on a five-year analysis of how information in the cyber realm can be weaponized.

"There are different ways to harm us through technology," Hawdon said. "Often, it's using devices as weapons. What we're looking at is using the device as the delivery system, and the weapon is information."

From social media posts that proliferate fake news to electronic propaganda that elevates hate-groups and terrorism, the potential impact of Hawdon's work spans from the individual to the national level.

"In the U.S., the rates at which people are exposed to this, as well as the rate they are producing it, has dramatically increased since 2013," Hawdon said.

Likewise, assistant professor of political science Eric Jardine's research on the dark web has been made public. His studies resulted in development of a course at Virginia Tech that introduces students to navigating and measuring content in a largely unmonitored corner of the internet.

"The dark web permeates a lot of things. You can buy malware,

drugs, guns, or worse," Jardine said. "But knowing the dark web exists and that there are ways you can leverage it can help law enforcement and government agencies figure out anything from what information has been leaked and how to counter identity theft to tracing perpetrators engaged in human trafficking and child abuse."

The course also explores policy, examining how jurisdictions apply law enforcement to the dark web.

The Hume Center has also become a catalyst for developing technology that translates to the public market. Since 2012, the center has spun off eight venture-backed startups.

"These companies have raised nearly \$130 million in venture funding since 2012 and currently employ nearly 200 people, the majority in the Commonwealth of Virginia," Clancy said.

Most recently, the Arlington-based startup DeepSig executed a licensing agreement to allow further development of Hume Center-incubated, groundbreaking technology that uses artificial intelligence to design powerful wireless communications systems.

"It will be faster, more cost-efficient, more secure, and easier to deploy than today's wireless systems," said Virginia Tech researcher and DeepSig founder Tim O'Shea.

The research that resulted in this breakthrough was in part the result of a more than \$1.1 million state grant approved by the Virginia Research Investment Committee and matched by DeepSig.

O'Shea said the culture of innovation at the heart of the Hume Center gave him the opportunity to pursue research in his areas of interest and supported the proposal that took his ideas from concept to reality.

That culture also drew the interest of intelligence professional Letitia Long '82.

A former director of the National Geospatial-Intelligence Agency, Long became aware of the Hume Center long before joining its Advisory Board in 2016. The opportunities for students fuel Long's motivation to serve on the board.

"When I think of the Hume Center, I think of students," Long said. "I think the success of the center is the value proposition of getting students their security clearances and having them on

classified projects that address our nation's toughest problems. In real life, you don't work alone. You work as a team. You solve problems as a team. And that takes interdisciplinary understanding, along with experiential learning. Hume is doing that."

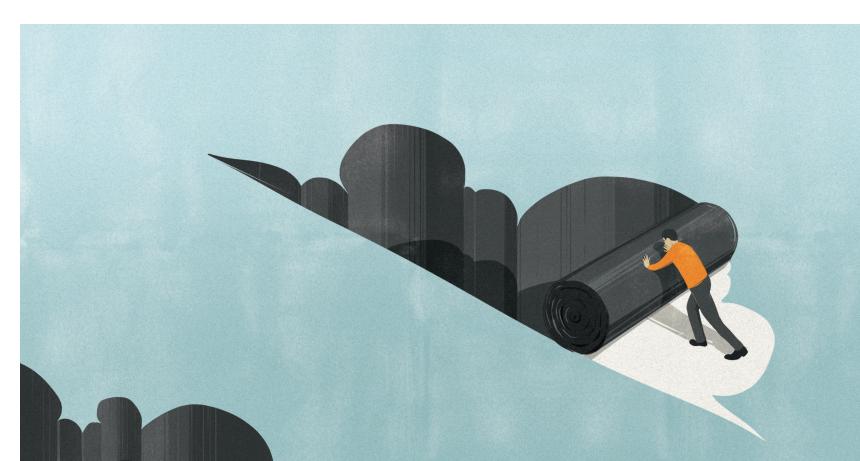
Current Virginia Tech students can take advantage of a variety of Hume Center opportunities, including the year-long CyberLeaders program. Students in the program, which is sponsored by a grant from the Hewlett Foundation, spend the fall semester taking courses in Blacksburg. In the spring they travel to the NCR to participate in further study and complete a capstone project.

"The class schedule was more like a part-time job," said senior Eamon Heaney of the intensive course load while at the NCR.

A computer engineering and political science double-major, Heaney was one of seven students in the 2017-18 program, which involved research projects focused on the emerging security risks resulting from the growing connectivity of common tools and appliances, commonly called the internet of things.

"My biggest takeaway was 'Don't connect meaningless devices to meaningful devices," he said.

Fellow CyberLeaders participant Helen Huavil said working alongside students studying political science enlightened her about the overarching reach of cybersecurity issues.



C There are different ways to harm us through technology. Often, it's using devices as weapons. What we're looking at is using the device as the delivery system, and the weapon is information. 99

JIM HAWDON SOCIOLOGY PROFESSOR AND DIRECTOR OF THE CENTER FOR PEACE STUDIES AND VIOLENCE

C The Integrated Security Destination Area is kind of the next step, in my belief. Cybersecurity is not just a major or a minor. I don't care what area of study you're in, there's some aspect of cybersecurity that's got to be a part of 99 your job.

RANDY MARCHANY AN INTEGRATED SECURITY DESTINATION AREA STAKEHOLDER



"I knew it would have a policy component, but I was surprised to see how much we would get into it," said Huavil, a computer engineering major. "I now have a better idea of what leaders in the industry feel, and I understand the policy issues related to the technology."

Students plugged in at the Hume Center come face-to-face with top-level leaders in public and private agencies. These special networking opportunities have helped many jumpstart their careers.

"I had more job offers than I knew what to do with when I got out," said one former Hume Center student, who after earning both bachelor's and master's degrees at Virginia Tech, chose a job with a public sector agency. (The critical nature of her work requires that many of the details about herself and her job be concealed.)

She chose Virginia Tech because of the emphasis on hands-on learning, co-ops, and integrative research projects. Her decision paid off.

"We were getting to look at top-notch technologies, and we were getting to assess the risk factors associated with them," she said. "It made it real easy to see the real-world applications of the work I was doing."

She said her favorite part of the experience was working with the Hume Center team.

"They just have a wealth of perspective that I think is hard to find in a lot of other places," she said.

At one time, participation in cybersecurity programs was limited to students studying computer engineering and computer science, but Virginia Tech is eliminating barriers between academic disciplines. Cybersecurity is evolving from a niche interest into a baseline skill for all students.

There is perhaps no greater example of this kind of cross-disciplinary education than the university's investment in Destination Areas, including one focused on integrated security.

"The Integrated Security Destination Area (ISDA) is kind of the next step, in my belief," said Marchany, an ISDA stakeholder. "Cybersecurity is not just a major or a minor. I don't care what area of study you're in, there's some aspect of cybersecurity that's got to be a part of your job."

DESTINATION: INTEGRATED SECURITY

The Integrated Security Destination Area (ISDA) brings together leading academicians and industry experts to address complex issues related to human interaction with and reliance on interconnected technologies, and the need to secure global social, political, and financial networks. The ISDA leverages Virginia Tech's existing strengths and partnerships to focus on four interrelated themes: cybersecurity, privacy and ethics, governance, and global security in modern society.

In the classroom, that translates to hands-on opportunities that mirror real-life situations.

Sophia Longmire wants to communicate complex intelligence information across diverse audiences, but developing such skills requires practical experiences-something university students rarely have. Last spring in an ISDA gateway course, Foundations of Security, Longmire honed those skills alongside students from computer science, engineering, and business.

Longmire said, she is "learning how to use my communication major with other majors. This is the only class I've been able to do that in."

Of the 26 students enrolled in the course, Longmire was the lone communication major. That distinction earned her the role of press secretary during the multi-week catastrophic event simulation "The Crisis Games."

Divided into four groups representing government and industry entities, students were provided with a real-world scenario-a hurricane-force storm reminiscent of Sandy that strikes the East Coast while a simultaneous cyberattack is unleashed on hospitals in the same region.

Each class period, students responded to the sorts of high-pressure problems-from nuclear threats to financial and physical security issues-that individuals and communities would face before, during, and after such an incident. Simulating reality, student participants representing government and private sectors organized public updates via press conferences and press releases, for which they leaned on the communication major.

"It was tough getting people who are used to talking in their own technical terms to kind of use more layman's language so that not only I could understand and be able to write about it, but the people reading it would also be able to get it," Longmire said.

Such cross-disciplinary awakenings are at the core of Virginia Tech's Destination Areas, which work to build transdisciplinary teams to tackle the world's pressing problems through research, education, and engagement.

"[The course is] an introduction to the world of problem-solving and decision-making, where it is essential to be aware of the multitude of different perspectives, and [the experience] stresses the ability to talk to each other," said R.E. Sorenson Professor in Finance Janine Hiller, who helped develop the curriculum.

Through that model, the ISDA addresses a complex range of security challenges that affect individuals, institutions, and nations.

Hiller said the hope is that students will develop an interest within security that will focus their studies, then return to take part in a capstone course featuring a similar simulation during their senior year.

Course instructor Aaron Brantly, assistant professor in political science, said the gateway course and the game-like simulation correspond with the ISDA's mission by eliminating the educational stereotypes that suggest that only certain academic majors successfully produce security and intelligence professionals.

"We're trying to get [students] to think beyond their disciplinary studies by having them interact with tier-one faculty from across the university," Brantly said.

Brantly, who spent much of the past decade working and teaching in the cybersecurity field, joined Tech this fall after teaching at West Point for three years. He built the software for the course simulation, which includes interactive shipping maps, power grids, flight plans, and news reports.

Computer science professor Daphne Yao, who has spent much of the past decade developing defenses against stealthy attacks and exploits, taught a portion of the course, as did Wade Baker in the Pamplin College of Business, who serves on the RSA Advisory Board and is recognized as a driving force behind Verizon's annual Data Breach Investigations Report.

To create the realistic physical environment necessary for such courses, physics professor Patrick Huber joined forces with New Classroom Building manager Rob Viers. (See related story on page 19.) "I've never done anything like this before," said student Vibhay Nanda.



CONNEC

For more information, to purchase tickets, or to provide feedback:

WEBSITE: parking.vt.edu/alternative/ regional/ncr-shuttle

PHONE: 540-231-6141

Nanda, who graduated in May with a degree in computer engineering, said being immersed in the working environment with students from other majors stretched his thinking on real-world situations.

"I'm just so trained in my major, trained to think from a technical perspective," Nanda said. "I have the bigger picture now, like I don't just have technology to work with, but I also have real people."

GETTING REAL

Educational opportunities that emphasize real-world experiences and simulate actual workplace interactions set Tech students apart.

Driven by the university's motto Ut Prosim (That I May Serve), Virginia Tech's pursuit of effective, practical, hands-on strategies to tackle the world's most pressing problems has led to a reputation as a reliable global community ally.

In 1992, a simple choice to share a transparent account of a campus data breach boosted the university's climb from cybersecurity novice to cybersecurity leader.

Today, university research and education are transforming the future, filling gaps in the workforce and developing tools to help businesses, individuals, and communities across the globe avoid the pitfalls of a virtual abyss.





Virginia Tech's Campus Connect Bus provides a safe and convenient link between the university's campuses in the Blacksburg/Roanoke and Ballston/Arlington areas. Each of the three Abbott Transportation buses in service is equipped with free Wi-Fi and has electrical outlets at each seat. The full-size charter buses have seatbelts, reading lights, reclining seats, and a restroom.

Currently, the bus departs from and arrives in Blacksburg and the National Capital Region twice each weekday and once each weekend day. The service operates year-round, except on university holidays. The university will expand availability to meet demand.



FARM to TAP-

BY TRAVIS WILLIAMS

The mountains of Virginia have long painted the backdrop for many distilling tales, so it's fitting that the region's land-grant university is now a new setting for the continuing story of brewing.

When Virginia began allowing craft breweries to sell their beers for on-premise consumption, the industry boomed in the commonwealth. Since early 2012, 188 new breweries have popped up, according to the Virginia Craft Brewers Guild. As of 2017, the industry accounted for a \$1.5 billion economic impact and employed 13,500 people full-time.

Virginia's growth is consistent with the craft beer scene nationwide. In 2017, The Brewers Association for Small and Independent Craft Brewers reported craft brewers' sales grew by 5 percent, and retail sales of craft beer increased to account for more than 23 percent of the \$111.4 billion U.S. beer market.

At the crossroads of craftsmanship, innovation, and opportunity, the budding industry has drawn attention across the academic spectrum at Virginia Tech. From being home to the largest barley-breeding program on the East Coast to the nationally recognized Food and Beverage Fermentation Program, the university is working to enhance the entire industry—from the farm to the tap.



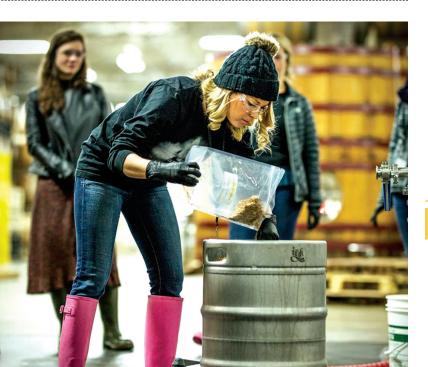


Alumni representing a wide breadth of disciplines have carved out paths in the industry. From food science and biology majors to engineering and marketing students, Hokies are making a positive impact on the brewing, distribution, and widespread enjoyment of craft beer.

Here are some of their stories.

HOLD MY BEER (top) Hops are labor-intensive crops that were successfully grown in Virginia during the colonial era. (bottom) Samantha Hunt '13 works as a sensory scientist and sour lab quality assurance lead at Wicked Weed in Asheville, North Carolina.





THE FARMER-BREWER

Greg Zielske doesn't shy away from sharing how he spent some of his time at Virginia Tech.

"We enjoyed a lot of forms of productive procrastination," said Zielske '09, a psychology major.

Along with art, music, hiking, and exploring the region, homebrewing became a favorite pastime. The hobby was boosted by the fermentation knowledge Zielske garnered through Professor David Schmale's mushrooms and molds course.

"I can't remember if it sparked it or just encouraged it, but that class was awesome," Zielske said.

Less than a decade later, Zielske has turned his hobby into his career at Rising Silo Brewery, which crafts farm-inspired beverages just a few miles from the Blacksburg campus.

"I just did a lot of the beers over and over again. ... That's how I figured out the nuances," said Zielske, who also grew his knowledge through such courses as the Intensive Brewing Science Extension program through the University of California, Davis.

Located at Glade Road Growing, a working farm, Rising Silo opened in 2015 and boasts of being the region's lone farm brewery. Zielske operates a three-barrel brewing system and brews two to three days a week, beginning around 6 a.m. for up to 12 hours. Farm-grown produce, including carrots, blueberries, and squash, are often used to help create the 10 beers Rising Silo offers on-site. The location's open-air taproom serves the public four days a week and features such creatively named brews as Ale Virginny, Alexander Black IPA, and Brown Chicken Brown Ale.

Zielske said despite the long brewing hours and, at times, even longer cleaning hours, overseeing the brewery is a labor of love.

"Running a brewery is a fun creative outlet, as well as a craft to master. Working on the farm alongside wonderful, motivated people, and being a part of this local food movement is an incredible experience. We are making a product that adds to the farm and brings people together," Zielske said. "I love what I do and where I work."

THE MICROBIOLOGIST

Jessica Maitland always loved science, but she wasn't quite sure what to do with that passion until taking one of Virginia Tech's food science courses.

"It was like a light-bulb moment because it was a way to learn about microorganisms at the cellular level, while also seeing how everything applies on a macro scale, like in food, something that you interact with all the time," Maitland said.

Maitland eventually enrolled in an early version of Professor Sean O'Keefe's Brewing Science and Technology course, where she found even more direction for her future.

"There's so much to learn about it [beer]. The scientific components and the history of it," Maitland said. "That's where I started being interested in brewing."

A three-time graduate of Virginia Tech, Maitland '07, '09, '13 has a critical role in the industry, working as a microbiologist for Stone Brewing in Richmond, Virginia.

"I'm responsible for monitoring the health of the microorganisms we do want in our beer, those that contribute to flavor, alcohol, and carbonation, while ensuring that the microorganisms we don't want in our beer stay out of our process," Maitland said.

Maitland recognizes the real-world connection between her work and her studies at Tech.

"I took a lot of science classes and learned a lot about using the scientific method throughout my undergraduate and graduate programs. That really helped me come into the workforce ready to apply that method to everyday work responsibilities and problem-solving," Maitland said.

THE SCIENTIST

A chance mention of her homebrewing brother to a Virginia Tech advisor led Samantha Hunt '13 to a food science course.

"The next semester I took Intro to Food Science, and that's when I knew I wanted to switch into [the] food science [major] in hopes of making and drinking beer for a living one day," said Hunt.

Today, Hunt is living out her dream through her role as sensory scientist and Sour Lab quality assurance lead at Wicked Weed in Asheville, N.C. She credits her success in part to the rigors of her studies, including learning how to write a Hazard Analysis Critical Control Point plan and knowing how to organize an unbiased sensory panel.

"My boss at Wicked Weed has mentioned a number of times that those two aspects set me apart from every other applicant," Hunt said.



OUTSTANDING IN THE FIELD

Virginia Tech's Barley Breeding Program, is making strides in the development of new and improved varieties of winter malting barley—a critical element in brewing.

Although malt barley is most commonly grown in the Midwest and Northwestern states, finding a successful Virginia strain is important for farmers.

While the market for feed barley diminished long ago, the grain remains a valuable crop. Barley is harvested early—before wheat—which leaves ample time to plant other marketable crops, like soy beans.

Virginia Tech's long history with barley dates back to the early 1900s when the focus was mostly on feed, but the rise of craft brewers and maltsters and the trend toward locally sourced agriculture shifted the program's focus.

REAPING RESULTS (top) Wynse Brooks, senior research associate in crop and soil environmental sciences, meticulously crosses strands of malt barley by hand. (bottom) Brooks spends the better part of a month each spring breeding barley in a greenhouse at the Hahn Horticulture Garden.





According to Hunt, her greatest challenge is keeping up with how quickly brewing technologies and methods are evolving, but she's found the brewing community is there to help her along the way.

"While there is a ton of competition between breweries, there's also a sense of respect. If I'm in a bind in the lab and run out of, let's say, caustic solution, I know about eight people in the industry in Asheville alone that I could call to borrow some," Hunt said. "I'm truly blessed to work in such an amazing industry."

THE PROMOTER

Virginia Tech equipped Elizabeth Scalla not only with the knowledge and experience to launch her career, but also with the attitude she believes has been key to her success.

"The Ut Prosim motto is something I carry with me every day. 'That I May Serve' is the core of my work ethic and leadership style," said Scalla '12, who studied marketing management.

The brand manager for Devils Backbone Brewing Company, Scalla is tasked with expanding the awareness of the Lexington, Virginia, brewery beyond the commonwealth.

"Drinking local beer is important to the craft beer consumer, so finding ways to resonate with consumers outside of our home state of Virginia is extremely challenging," Scalla said.

She said one of the ways the brewery tackles this issue is by hiring local sales and event representatives in their new territories.

"An actual person supporting our brand who is based locally in expansion markets helps our beer have more of a personal identity in areas outside of Virginia," Scalla said.

A third-generation Hokie, Scalla said there wasn't much debate about where she would get the training for her future career.

"When I was selecting a college, I was torn between a business degree or veterinary medicine. Virginia Tech is recognized as a leader in both fields, so I knew whichever path I decided on, I could get a great education in Blacksburg," Scalla said. "Most importantly, I grew up cheering on the Hokies and was proud to carry on the family tradition. "

THE BREWMASTER

Virginia Tech helped lay the foundation for Mark Medlin to engineer beers.

"I learned how to think about and solve problems in the engineering program," said Medlin '99, a mechanical engineering graduate.

Medlin's time at Tech predates any brewing course, but his campus experiences did serve as the inspiration for his future.

"My friends and I were regulars at the Vintage Cellar, where we learned about craft beers and brewing for the first time," Medlin said.

After working for a few years as a controls engineer, Medlin attended the Master Brewer's Program at the University of California, Davis, before landing at the Atlanta, Georgia-based SweetWater Brewing Co. in 2008. As brewmaster, Medlin manages the brewery, which produces and sells about 240,000 barrels of beer a year.

"I act as the director of all operations, as well as plant engineer and master brewer. The work I really enjoy the most is making the process of making beer better at SweetWater," Medlin said.

He says the greatest challenge is getting a fresh beer in a consumer's hand.

"We strive to continuously improve the quality of beer over time through recipe and process development. At SweetWater, we have gone to a bottle-and-can conditioning process to improve shelf stability," Medlin said.

Like many others in the industry, Medlin enjoys the combination of the challenge of brewing as well as the company of other brewers.

"I have always found the process and science of brewing beer to be intriguing, ever since I started homebrewing," Medlin said. "There is also a certain sense of camaraderie amongst industry peers that makes the industry something special."

THE ENTREPRENEURS

When a Hokie brewer saw a problem within the brewing industry, he did what Hokies do-turned his attention from crafting beers to crafting a solution.

In 2014, John Bryce '01 teamed with fellow alums Shane Kunkle '00 and Jesse Pappas '98 to found the Lupulin Exchange, an online secondary market for hops that experts say has revolutionized the industry.

"It's the eBay of hops for commercial brewers," said Bryce.

Since September 2014, the Lupulin Exchange has facilitated more than \$25 million worth of hops transactions and worked with more than 4.000 breweries. The online business model allows buyers and sellers to list and shop for hops by crop year, type, and growing location.

Prior to the global hops shortage in 2008, Bryce said he could just pick up the phone and locate specific varieties at will. Immediately following the crisis, nearly every brewery signed hops contracts with dealers, so forecasting growth and needs became a major challenge during the industry's later period of explosive growth. With no secondary market at hand, Bryce struggled to find the hops he needed and to unload those of which he had a surplus.

"I'm supposed to be running a 20,000-barrel brewery, but the next thing you know, I'm spending an entire work week selling hops via email," Bryce said.

Bryce began to envision a more efficient way for buyers and sellers to connect. He tapped into his Hokie network, reaching out to first to Kunkle, his former roommate, who had majored in computer engineering, and later to Pappas, who had a background in restaurant and bar management along with an education in psychology. Kunkle brought along software engineer Darren Kopp, the only non-Hokie of the founding four.

"Virginia Tech and Blacksburg really provided the foundation for our friendship and our partnership," Pappas said.

THE DISTRIBUTORS

James M. Archer Jr. '42 promised each of his six children an education at their college of choice—with one exception.

"He said, I'll somehow find a way to get you through school anywhere in the country you want to go, even VMI, but if any of you ever go to the University of Virginia, you're on your own," recalled his son, Jim Archer '72.

In addition to inspiring his family's affinity for Virginia Tech, James Archer also laid the foundation for what would become a successful business, relocating his family to Salem, Virginia, in 1959 to become part-owner of Blue Ridge Beverage Co. By 1962, he and wife, Regine, had become the sole owners of the distribution company, which employed about 10 people and delivered beer in nine counties.

Today, Blue Ridge Beverage employs close to 475 people across five facilities, from which they distribute a wide variety of



HOPE FOR HOPS

Holly Scoggins recognized an opportunity while attending a 2014 workshop on growing hops.

"Based on all the unanswered questions surrounding hops in our region, it was clear Virginia Tech was in a position to help growers out," said Scoggins, associate professor of plant and environmental science.

In 2015, Virginia Tech constructed its first hop yard, where Scoggins tested about 15 varieties.

Hops growing in Virginia involves a steep investment, and the labor-intensive process can be unattractive to farmers.

"But for someone with the right combination of growing experience, willingness to sweat, and marketing savvy, there is potential here," Scoggins said.

HOP TO IT (top) Holly Scoggins, an associate professor in the Department of Horticulture, trims a hops bine during the harvesting process at the Urban Horticulture Center. (bottom) Daniel Jackson, research manager in the Department of Horticulture, collects data while harvesting hops.



beer, wine, and soft drink products throughout a 49-county, 17-city footprint in Central and Southwest Virginia. Each year, the company sells more than 8 million cases of beverages to restaurants, grocery markets, and convenience stores, including about 100 brands of craft beer.

"We have a lot to do with this craft-beer craze we're all enjoying," said Bob Archer '69, the company's current chairman and CEO. "There wouldn't be that variety and choice available without distributors."

As Blue Ridge Beverage continues to grow, Bob and Jim Archer say they often reflect on how Virginia Tech and their experiences in the Corps of Cadets influenced their successes.

"The whole concept of *Ut Prosim*, the idea of ethical leadership, that foundation came from Virginia Tech and our parents," Jim Archer said.

THE ADVOCATE

Last year Botetourt county administrator Gary Larrowe's advocacy paid off when the San Diego, California-based Ballast Point Brewing Co. began operation at a facility in Daleville, a small rural town just northeast of Roanoke. The 11th-largest in the country, the craft brewery is housed in a roughly 260,000-square-foot facility and is home to a restaurant and tasting room with 96 taps.

Larrowe believes that along with an influx of about \$59 million into the local economy and 200 new jobs, Ballast Point will help draw a younger generation to Botetourt County.

The brewery is capable of producing about 200,000 barrels of beer a year, which will be distributed down the East Coast, into Mexico, and even to parts of Europe.

With the full impact of the brewery on the horizon, Larrowe is happy to say his opportunity to serve Botetourt County is a direct result of Virginia Tech.

"I've literally been around the world as a result of Virginia Tech, and there's the education that came from there. ... everything really goes back to being a Hokie," he said.





TO BREW OR NOT TO BREW

The Virginia Tech brewhouse provides students with real-world experiences related to the chemistry, biochemistry, and processing aspects of malting and brewing operations.

"This is my favorite class I think I've taken at Virginia Tech," said student Casey Feher, adding that the depth of the course enabled her to land a six-month internship with Devils Backbone Brewing Co. "This is what I love. This is what I'm passionate about."

Food and beverage fermentation is one of four undergraduate programs within the Department of Food and Technology. In 2017, the fermentation program became one of six four-year programs in the U.S. and Canada recognized by the Master Brewers Association of the Americas.

SOMETHING'S BREWING (top) College of Agriculture and Life Sciences 2018 Outstanding Senior, Meg Beatty, spent much of her academic career doing research on hops, fermentation, and brewing. (bottom) The Virginia Tech brewhouse is home to a 2.5-hectoliter, professional-grade Esau & Hueber system.



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SEATTLE SPHERES: Amazon created a direct link to nature right at their urban headquarters. The Spheres are home to more than 40,000 plants from the cloud forest regions of more than 30 countries. The indoor gardens offer spaces where people like Tom Taylor '84 can think and work a little differently.

AROUND THE HOKKE NATION 45 Class Notes 56 Travel Tours 58 Retro 63 Alumni Commentary 64 Family

"ALEXA, WHO IS TOM TAYLOR?"

TOM TAYLOR '84, LEADS THE ALEXA PROGRAM AT AMAZON. He discovered the secret to success in kindergarten.

"Three simple words: 'Raise your hand," said Taylor. "If you see something that you want to be a part of, you have to communicate that interest. If a professor or a friend or an employer asks for volunteers, you should be the first to respond—every time. Success is all about taking risks. Looking for more. Raising your hand high and saying 'Pick me."

Taylor, who majored in mechanical engineering at Virginia Tech and furthered his education at the Massachusetts Institute of Technology, admits that his early efforts in the professional arena included a few missteps.

"I didn't come out of the gate running," said Taylor. "I made mistakes. One of the biggest was not transitioning well from a flexible college schedule to rigid work hours and big company corporate culture. I was lucky that I had a supervisor who saw some raw potential and coached me in a positive direction. I've been given chances throughout my career that I believe I had no right to be given. I try to do that for my employees now."

After working as an engineer at Delphi Automotive Systems for a decade, Taylor moved to Seattle and joined K2 Sports. He managed the company's ski and snowboard manufacturing operations worldwide.

In 2000, Taylor left K2 to pursue a position with growing internet retailer Amazon. The move was a step away from

conventional engineering, but Taylor saw the opportunity to use systems-centered thinking to develop gold-standard business processes for the online seller.

"Amazon's success is driven by connecting people with products seamlessly. Developing a safe process for purchase and delivery for millions of buyers and sellers involves managing minute details from order to fulfillment," Taylor said.

Early on, Taylor worked from London managing European operations. In 2004, he returned to the U.S. to work with large retailers interested in utilizing Amazon's platform. His role included fraud control and compliance as well as balancing the needs of large retailers with those of smaller sellers. In 2016, during a meeting with Amazon leadership, Taylor had an opportunity to take his career in a new direction.

"I was asked to consider taking over a marketing role within our devices group. I thought that would be a very poor match to my skills and experience, but after using the new Echo speaker and building voice skills, I told them my ideal job would be to run Alexa," Taylor said of the voice-controlled personal assistant. "After reminding me that there was already someone doing just that, our conversation shifted to other topics."

Not long after, Alexa's team leader left Amazon. Today, senior vice president Taylor oversees the entire Alexa and Echo program area. "I raised my hand, and it led to a fun and exciting new opportunity.

"Ut Prosim, to serve ... I have lived that in wanting to help the world," said Taylor, who once served on the Virginia Tech Rescue Squad. "I want to be a good leader, to help our employees have better lives. Alexa is about that, too, for customers. She was created to make life a little better, a little easier."

According to Taylor, Alexa's personality was designed with three primary character traits in mind-"she is humble, helpful, and quirky," he said.

Alexa is named for the Library of Alexandria, which stored the knowledge of the ancient world. To date, she has over 50,000 skills thanks to developers around the world. Alexa has received more than a half million marriage proposals, demonstrating how much customers love interacting with her.

Robert Stites '89, who earned a degree in materials engineering, also works with Taylor and Alexa.

Stites describes Taylor as having brilliant focus and a naturally-open disposition. "Tom has a wonderfully self-deprecating personality that makes it easy for you to talk to him. You can see elements of this in Alexa; Alexa doesn't present herself as distant, demanding, or 'techie,' but as a trusted assistant ready to help you."

According to Stites, Taylor also brings a commitment to lifelong learning to his role. "Tom continues to test himself in new areas, but sometimes that doesn't work out quite as planned," Stites said recalling a business trip to China. "Tom had to cancel due to a skateboarding accident. I had a great time explaining his predicament to the leaders we were meeting in Asia. Tom's energy, enthusiasm, and sense of adventure invigorate the organization, and he keeps us all on our toes."

For Taylor, success isn't just about work. "A lot of life is serendipitous," he said. "You have to be ready. That doesn't just mean having skills or knowledge. You need to stay healthy. You need to focus on the important people in your life and take care of your relationships so that you are prepared to take advantage of opportunities. It can't be one at the expense of the other. Finding balance is as important in the office as it is outside."

As for the future, Taylor is excited about where Alexa may lead him. "If I've learned anything, I've learned to enjoy the adventure. You should never expect that where you start is where you will end up." \blacksquare ES



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 Rd., Blacksburg, VA 24061; email the information to classnotes@vt.edu; or submit the news online at vtmag.vt.edu/submit-classnote.php, where photos may also be uploaded for consideration.

Alumni mailing addresses may be viewed online at alumni.vt.edu/directory by logging in with your Virginia Tech PID and password.

For assistance, call 540-231-6285.

CAREER Richard M. Arnold, Blacksburg, Va., received the 2018 Citizen of the Year Award from the Christiansburg-Blacksburg Rotary

Club.

'49

Charles E. Hamner Jr., Chapel Hill, N.C., received a World Changer Award from the Research Triangle Park Rotary Club for his contributions to science.

'63

CAREER Preston M. White, Virginia Beach, Va., was appointed by Gov. Ralph Northam to serve on the Virginia Tech Board of Visitors.



CAREER Joseph R. "Dick" Commander, Chester, Va., received the 2018 Chancellor's Award for Leadership in Philanthropy from John Tyler Community College.

Ferdinand Harvey, Pulaski, Va., was recognized by the Friends of the Pulaski County Library System for providing a facility for monthly used book sales



CAREER Ernest F. Benfield, Blacksburg, Va., was named professor emeritus by the Virginia Tech Board of Visitors.

'72 CAREER Alan C. Wade,

as a founding member.

'75 CAREER Steven C. Angle, Rocky

'76

CAREER David A. Christian, Toano, Va., retired as executive vice president and chief innovation officer of Dominion Energy on Jul. 1.

Leonard E. "Butch" Joyce Jr., Chesterfield, Va., was appointed vice president for LaBella Associates.



CAREER Joseph E. Wells, Reston, Va., is intelligence community market leader for Dewberry in Fairfax, Va.



CAREER **John J. Breedlove,** Pounding Mill, Va., joined First Sentinel Bank's Board of Directors.

Debora M. Collins, Nellysford, Va., was appointed deputy superintendent for Albemarle County Public Schools.

Robert J. Hanley, Hughesville, Md., was appointed vice president, cyber solutions architect for Sabre Systems Inc.



Annandale, Va., joined the Applied Insight Technology Advisory Council

Mount, Va., was elected to a fourth term as mayor of Rocky Mount.



ALUMNI + STUDENTS = A WINNING COMBINATION

Richard Randolph will graduate from Virginia Tech next spring. Lisa Carter Ellison finished her bachelor's degree in 1986. Thirty-three years separate the graduations of these two Hokies. A June trip to Havana, Cuba, brought them together.

Ellison and Randolph were two of 18 alumni, undergraduate and graduate students, faculty, and staff who traveled to Cuba for seven days in June for the first cultural immersion trip hosted by the university's Black Male Excellence Network.

Crowdfunding played a large role in making the trip possible for students. Through the university's spring JUMP crowdfunding campaign, the Black Male Excellence Network raised about \$7,000 to cover most of the trip's costs for undergraduate students.

THE LEADER OF THE BAND

AS A TODDLER MY DAUGHTER'S REACTION TO THE BAND SCRAMBLING TO THE NEXT LINE UP FOR THE NEXT SONG WAS 'LOOK MOMMA, **THEY SAW A SPIDER!'**

Shirley Vest Brumagin '87

IN STEP: (above left) Dave McKee M.A. '86 spent 32 years leading "The Spirit of Tech." (above right) The Marching Virginians are comprised of more than 300 student performers.

IN 1986, GRADUATE ASSISTANT DAVE McKee accepted what he thought would be a temporary role.

"They said, 'Take the band and run it for a year," said McKee. "And I said, 'Sure.' And one year turned into 32."

In June, McKee retired as the director of the Marching Virginians, having overseen "The Spirit of Tech" during a time of unprecedented success for both the university and the athletics department. Polly Middleton, former associate director of athletic bands at Virginia Tech, took over as director in July.

"My first year as director was Coach [Bill] Dooley's last year, and then Frank [Beamer] came in," said McKee, M.A. '86. "What a great time to be here."

Under McKee, the Marching Virginians achieved national prominence, routinely performing at televised events and playing alongside elite college bands, including the University of Tennessee, Florida State University, and the University of Texas. Their work has been featured in ESPN The Magazine.

McKee lights up at the mention of the accolades, but says the simple day-to-day interactions with students fueled his passion.

"The students that I've been able to work with are the main thing that has made me jump out of bed every day and come to this campus," McKee said. "They're just extraordinary, and they want to be a part of something bigger than themselves."

During McKee's earliest years directing the 300-plus performers, practice areas shifted constantly, and students often stored instruments in their personal vehicles.

"If somebody's car had an accident or was broken into, there was an instrument gone," he said.

McKee noted that there was also some obvious economic disparity since most students were funding their own instruments. "At that time, you had one guy playing a really nice trumpet, and one

guy playing a trumpet held together by duct tape," McKee said.

Virginia Tech helped close that gap, providing support at a level that is atypical among college and university bands.

"What's unusual is that all the instruments are provided by the university. All the uniforms are provided by the university, and the university escrows money so that every time the uniforms need to be replaced, there's money set aside for that," McKee said.

Over time, the football team's successes led to more opportunities for post-season play, which increased the Marching Virginians' exposure to other bands.

"The bowls, I think for the MVs, helped to show us what we could be," McKee said. "Did we hang on to Frank's coattails? You bet. Great ride!"

As the trips increased, top-notch performances became the expectation, with students motivated by McKee's oft-uttered, "Sell it."

"When you go out on the field, you have to sell yourselves," McKee said. "Whether it's a dopey dance or some really artful play, you want the audience members to sit up and think: 'That was cool.'"



That ride hit a peak during the 1999 season in which the undefeated Hokies advanced to play against Florida State University in the national title game in the Sugar Bowl in New Orleans.

"That was a moment I'll never forget," said McKee. "I remember sitting on the drum major stand at the end of the third quarter. I called my dad on my cellphone, and I said, 'Hey, I just want you to hear part of this crazy scene from here."

I REMEMBER MY FIRST TIME MARCHING IN **THE PREGAME SHOW... HEARING THE CROWD ROAR WHEN WE** FORMED THE VT. JUMPING UP AND DOWN IN THE LINES FOR ENTER SANDMAN, AND THEN LAUNCHING **RIGHT INTO TECH** TRIUMPH WHILE TRYING TO CATCH MY BREATH!"

Ashley Carpenter '07

The value of service is another lesson McKee emphasized.

Modeling Ut Prosim (That I May Serve) has become a tradition for the Marching Virginians. Members have taken part in hurricane relief trips, blood drives, fundraising, and school presentations. In the spring of 2009, they partnered with Community Housing Parking to build a home to honor the memory of Ryan "Stack" Clark, a band member who died during the April 16, 2007, campus shooting. Also, each year during a home football game, the band hosts Hokies for the Hungry, a canned food drive.

McKee said such activities encourage the band members to bond and reinforce the shared sense of purpose necessary for successful performances.

Jenna O'Brien '18, a Wenger Family Scholarship recipient, said her time working with McKee helped her develop aspirations for leadership. "Dave showed me that people always come first. You are nothing without the people you work with." O'Brien said.

Not a surprising takeaway from the man who jumped out of bed each day for 32 vears to work with his students. \blacksquare *TW*



In July, Polly Middleton celebrated a homecoming when she returned to Blacksburg to take the helm of the Marching Virginians.

For five years, Middleton served as the assistant director of the band and as the associate director of athletics bands. She left Virginia Tech in 2016, working first at Arkansas State and later at Illinois State University. These positions allowed her to gain valuable leadership experience.

"I am excited to be working with the Marching Virginians again," said Middleton. "I love what they represent. And Blacksburg feels like home."

Middleton is the fifth director in the Marching Virginian's 44-year history and the first woman to take on the role.

Though Middleton has multiple music education degrees, she insists her most valuable lessons came from working with retired director Dave McKee.

"I went to school for many years to learn to be a music educator," she said, "but I learned so much working with Dave McKee. His passion and energy for the job are contagious, and his impact on students is impossible to overstate.

"To be able to continue the legacy is an honor, both daunting and exciting at the same time. This is my dream job," Middleton said.

Edwin J. Jones, Blacksburg, Va., was elected as a voting member of the National 4-H Council Board.

Kevin A. Panchision, is working at GuernseyTingle as a mentor with the quality assurance and control programs.



CAREER Horacio A. Valeiras, La Jolla, Calif., was reappointed to the Virginia Tech Board of Visitors by Gov. Ralph Northam.



CAREER Mary Cunningham Boyce, New York, N.Y., was appointed to the Altair Board of Directors.

Elizabeth Greene Creamer, Blacksburg, Va., was named professor emerita by the Virginia Tech Board of Visitors.



CAREER Michael D. Abazinge, Tallahassee, Fla., is a professor in the School of Engineering at Florida A&M University

Mark M. Asher, Jenkintown, Pa., added a partner and changed the name of his business to Asher Slaunwhite Architects

Azim Eskandarian. Blacksburg, Va., was named the Nicholas and Rebecca Des Champs Chair in Mechanical Engineering by the Virginia Tech Board of Visitors.

Jay B. Jackson, Fredericksburg, Va., established the Law Offices of Jay B. Jackson PLLC and specializes in elder law, estate planning, and personal injury.



CAREER Gregory Scott Faison, Ashland, Va., has opened a second Cigar Realm store in Hanover County. Until 2010, Faison was the chief financial officer at Colfax, a manufacturer of industrial fluidhandling equipment.

Ellen Rafferty Fish, Timonium, Md., is executive vice president and chief lending officer of Hamilton Bank. She was appointed by the governor of Maryland to serve on the University System of Maryland Board of Regents.

Shelby A. Kinnaird, Chesterfield, Va., authored a book, "The Pocket Carbohydrate Counter Guide for Diabetes: Simple Nutritional Strategies to Lower Your Blood Sugar."

Carol Miller Swain. Nashville. Tenn., was a candidate for mayor of Nashville.



CAREER Michael R. Evans, Blacksburg, Va., is director of the newly formed School for Plant and Environmental Sciences for the College of Agriculture and Life Sciences at Virginia Tech.

> John P. Grotzinger, San Marino, Calif., mission leader and project scientist for NASA's Curiosity Rover, has found new evidence that may suggest that Mars could have supported ancient life.

> Gary S. Michel, Charlotte, N.C., is president and CEO of JELD-WEN Holding Inc.

Laura J. Treanor, Sarnia, Ontario, was appointed Vincennes University provost and vice president of instructional services/dean of faculty.

'86

CAREER John C. Eisenhart, Alexandria, Va., joined FisherBrovles LLP as a partner and member of the patent prosecution team.

Martin A. Kazmierczak, Leesburg, Va., was promoted to senior associate with Dewberry in Fairfax, Va.



CAREER Page Scott Geske, Twin Falls, Idaho, authored a book, "Milepost 95."

> Elizabeth Canevari Sprouse, Palmvra, Va., received a master's degree in education from Mary Baldwin University.

Joan C. Benz, Rockville, Md., retired from Winston Churchill High School after more than 40 years of service in education.

James R. Martin II, Pembroke, Va., was named dean of the Swanson School of Engineering at the University of Pittsburgh.

Robert J. DiStefano, Harrisburg, Mo., received the 2018 John L. Funk Award of Excellence from the Missouri Chapter of the American Fisheries Society.

I AM A MARCHING VIRGINIANS' HORN. AND I MARRIED AN HIGHTY TIGHTIES' TROMBONE. WE DATED ALL THROUGH COLLEGE. NOW WE **HAVE TO FIGURE OUT** WHICH BAND OUR SON WILL BE IN."

Catherine Bethel Grant '15





88

CAREER Jagath J. Kaluarachchi, Logan, Utah, was named dean of the College of Engineering at Utah State University

Anuj Mehrotra, Coral Gables, Fla., was named dean of George Washington University's School of Business.

Maria E. Rocha Sagar,

Williamsport, Pa., earned the National Academy of Sports Medicine Certification of Personal Training.

Brian K. Williams, Hayes, Va., is director of product development at Ferguson Enterprises.

CAREER Richard A. Brisbin, Johns Island, S.C., was selected as a shareholder with Haynsworth Sinkler Boyd P.A.

Mark A. Debes, Falls Church, Va., is chief banking officer for Touchstone Bank.

Wilev V. Johnson III. Madison Heights, Va., was the commencement speaker at Central Virginia Community College.

Sean S. Kilcarr, Springfield, Va., is senior editor for the American Association of State Highway and Transportation Officials magazine.



PLUGGED IN: THE POWER OF HOKIE CONNECTIVITY

Seventeen years after graduating from Virginia Tech's College of Liberal Arts and Human Sciences, three-time Emmy Award winner Matt Arden '99 is serving on the Marketing Industry Mentoring Board of the Pamplin College of Business.

Arden has also found mentoring opportunities that have continued to inspire him to combine his career experiences with his passion for helping Hokies.

"As someone who wasn't the best student but was pretty successful once I got outside of college, I felt I could help students who might need a little push or who show promise but are struggling academically," Arden said.

Read more about Arden at vtmag.vt.edu.

Cecil C. Snead II, Buckingham, Va., is superintendent for Orange County Public Schools.

Brent F. Harvey, Cornelius, N.C., was appointed chief risk officer for Parsons Corp.



CAREER Sudip Bhattacharjee, Bethesda, Md., was named the Thomas M. Wells and Kathy Dargo Professor in Accounting and Information Systems by the Virginia Tech Board of Visitors.

Moses W. Foster Jr., Chesterfield, Va., is president and CEO of the advertising and marketing firm, West Cary Group.

Mark R. Frascatore, Potsdam, N.Y., is dean of Niagara University's College of Business Administration.

Susan Tinsley Gooden, Richmond, Va., was named interim dean of the L. Douglas Wilder School of Government and Public Affairs at Virginia Commonwealth University.

Shafi J. Keisler, Charleston, S.C., is president and CEO of Ad+Genius LLC, a STEM-based advertising technology and cloud services firm.

Kurt R. Schaubach, Arlington, Va., was appointed vice president of broadband technologies with the National Rural Telecommunications Cooperative

Carla Szwarc Toth, Sugar Hill, Gau is senior vice president of sales and marketing with GreenMantra Technologies.



CAREER Anthony L. Dipietro Jr., Maineville, Ohio, along with his team, was awarded the GE Design Execution Award for significant advances in state-of-the-art technology

Melvin E. Tull III, Richmond, Va., is senior vice president of strategic business development and general counsel at Bankers Insurance LLC.

'92

CAREER Jay A. Altizer, Dallas, Texas, is president, North America, at GES-Global Experience Specialists.

Christina L. Hennessey, Torrance, Calif., was appointed associate librarian at California State University.

Anthony L. Martin, Yorktown, Va., celebrated 20 years in practice as a general cosmetic dentist.

Cynthia L. Romero Rogers, Culpeper, Va., was named assistant principal for Pearl Sample Elementary School in Culpeper, Va.



CAREER Leonard C. Gilroy, Fountain Hills, Ariz., is senior managing director of the Pension Integrity Project at Reason Foundation, a nonprofit think tank.

Hugh Boyd Morrison Jr., Seattle, Wash., is an actor in local community theater, developer of Xbox games, New York Times bestselling author of adventure novels, and Jeopardy champion

'94

CAREER Cara B. Cummins, Atlanta, Ga., along with her husband, designed a home featured on the 2018 MA! (Modern Atlanta) Architecture Tour.



CAREER Edward H. Baine, Moseley, Va., was appointed to the Virginia Tech Board of Visitors by Gov. Ralph Northam.

John C. Bunin, Afton, Va., received the National Council for Geographic Education's inaugural Brunn Creativity Award for Outstanding Teaching of Geography Online.

Vinod K. Lohani, Blacksburg, Va., was named the W.S. "Pete" White Chair for Innovation in Engineering Education by the Virginia Tech Board of Visitors



CAREER Becky C. Bareford, Mechanicsville, Va., was named vice president and chief operating officer for the Federal Reserve Bank of

Nizar F. Danial, Yonkers, N.Y., was promoted to vice president and engineering manager for Universal Builders Supply Inc.

Melanie J. Fisher, Roanoke, Va., was named assistant principal for the Burton Center for Arts & Technology in Roanoke County.

Kimberly P. Greer, Fairfax, Va., is principal of Langley High School.



CAREER Jewel Evans Bronaugh Chester, Va., was appointed commissioner of the Department of Agriculture and Consumer Services by Gov. Ralph Northam.

Matthew S. Cosner, Hollywood, Md., received the 2017 Dr. Delores M. Etter Award for efforts in mission engineering and analysis with the Department of the Navy.

Ellen P. Jefferson, Austin, Texas, is executive director of Austin Pets Alive, helping animal shelters achieve a 98 percent no-kill rate.

David M. Moore, Deltaville, Va., was named senior Extension agent emeritus by the Virginia Tech Board of Visitors.

James L. Moore III. Lorton. Va., was named vice provost for diversity and inclusion at Ohio State University.

Mehul P. Sanghani, Vienna, Va., was reappointed to the Virginia Tech Board of Visitors by Gov. Ralph Northam

Kristin D. Shultz, Waterford, Va., is CEO for Naval Research Lab Federal Credit Union

Tim R. Thayne, Lehi, Utah, is founder and CEO of Homeward Bound, a program in early intervention and in-home transition services for families of troubled teens.

'**98**

CAREER James W. Barnes, Creedmoor, N.C., earned an MBA from North Carolina State University.

Lal M. Harter, Chantilly, Va., received the Private Sector Financial Excellence Award from the Association of Government Accountants

Ethan E. McAfee, Alexandria, Va., is founder and owner of Amify.



CAREER Lacy Ward Jr., Prospect, Va., is executive director of the John Marshall Foundation.



CAREER J.C. "Cole" Smith, Clemson, S.C., received The Fellow Award from the Institute of Industrial and Systems Engineers.

WEDDING Andrea Williams Scibeck and Richard Scibeck Jr., Arlington, Va., 10/28/17.



CAREER William G. Abplanalp, Blacksburg, Va., was named director of management systems and data administration for Virginia Tech's Division of Operations.

Shawn A. Baker, Richmond, Va., is vice president of research at Forisk Consulting.

Steven P. Black Jr., Winchester, Va., was promoted to associate with Dewberry in Leesburg, Va.

Heather A. Campbell, Glen Allen, Va., was promoted to associate with Dewberry in Richmond, Va.

Peter D. Hancock, Nashville, N.C., was named Roanoke Timberlands Manager for Roseburg Forest Products.

John D. Lowe, Denver, Colo., was appointed CFO of CPI Card Group Inc.



BIRTHS Ashby Moran Marcus, Oakton, Va., a daughter, 4/27/18.

'03

CAREER Monica R. Manns, Richmond, Va., is Henrico County Public Schools' first director of the Office of Equity and Diversity.

Mary A. Beverly, Abingdon, Va., received the 2018 John Marshall Foundation high school teacher award.

Richmond T. Brittingham, Purcellville, Va., was promoted to senior associate at Dewberry in Leesburg.

Priyan De Silva, Montgomery Village, Md., is president and CEO of Helios Electric LLC, an electrical engineering and construction firm.

Erik C. Dull, Chevy Chase, Md., was promoted to associate with Dewberry in Fairfax, Va.

Emily C. Winslow Lilly, Beckley, W.Va., is the first woman in the Army National Guard to graduate from Army Ranger School.

Jeremy R. Moss, Norfolk, Va., was named by Virginia Lawyer's Weekly as an Up & Coming Lawyer for 2017.

Virginia Tech's global role continues to evolve. But real, continuous impact is only possible with your contributions. Make your gift today.





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CHAPTER AWARDS 2017-18

OUTSTANDING CHAPTER AWARD GOLD **Alleghany Highlands** Atlanta Baltimore **Central Florida** Central Virginia Charleston Charlotte Denver Fauguier **First State** Jacksonville Middle Tennessee National Capital Region

NC Triad **Orange County** Palmetto Richmond **Roanoke Valley** San Antonio Shenandoah Tidewater

Triangle Williamsburg

SILVER Chicago Columbia Dallas/Fort Worth Fredericksburg Minnesota New England New River Valley

Peninsula San Diego Southeastern Michigan

BRONZE

- Central Pennsylvania Houston New Jersey North Alabama Southwest Virginia

SUPERLATIVE AWARDS

OUTSTANDING CHAPTER EVENT

Central Pennsylvania Chapter, Speaker Event at Desperate Times Brewery

HONORABLE MENTION

Alleghany Highlands Chapter, The "Almost" Acapella Song Fest

OUTSTANDING COMMUNITY SERVICE PROJECT

National Capital Region Chapter, Carpenter's Shelter of Alexandria

OUTSTANDING CHAPTER NETWORKING EVENT

Orange County Chapter, ACC Alumni Networking Event

OUTSTANDING CHAPTER MARKETING PROGRAM

Roanoke Valley Chapter

INNOVATION AWARD

Shenandoah Chapter, Freshmen Welcome Event

BROADENING ALUMNI ENGAGEMENT AWARD

Denver Chapter, HokieTalks Networking and Speaking Event

MOST IMPROVED CHAPTER Triangle Chapter

OUTSTANDING "RENEWED" CHAPTER Roanoke Valley Chapter

OUTSTANDING CHAPTER VOLUNTEER

William Sealock Jr. '71. Shenandoah Chapter

OUTSTANDING CHAPTER OFFICER

Valerie Carpenter-Ho '99, Tidewater Chapter Duke Grant '06, Central Virginia Chapter

HALL OF FAME: OUTSTANDING CHAPTER EVENT

- RVA Career Expo, Richmond Chapter
- Annual Memorial Blood Drive, Shenandoah Chapter

Jhaymee S. Wilson Heinlein, Belmont, N.C., was selected as a 2018 ACHE Thomas C. Dolan Executive Diversity Program Scholar in health care.

BIRTHS Karin M. Conley Steele, Gaithersburg, Md., a son, 5/9/18.

Lauren K. Shue, Charlotte, N.C., a daughter, 6/6/18.



CAREER Michael P. Giordano. Alexandria, Va., is assistant general counsel with the FBI.

Jason W. McKenzie, Virginia Beach, Va., is co-owner of Latitude Climbing + Fitness facility.

Daniel W. Myers, Richmond, Va., is managing director of Lighthouse Labs, a business accelerator that offers grants and mentorship to startups.

Matthew D. Shoulders, Cambridge, Mass., received the Camille Dreyfus Teacher-Scholar Award for his talents and leadership qualities in the field of chemical sciences.

BIRTHS Crystal Morgan Fraser and Brian D. Fraser '08, Aldie, Va., a son. 2/18/18

Todd B. Helton and Lauren Gully Helton '12. Charlotte, N.C., a daughter, 4/29/18.

'05

CAREER Darrell L. Cain, Atlanta, Ga., was named president of Pierce College in Puyallup, Wash.

Amber Rath Stern, Lake Wylie, S.C., was named to the Charlotte Business Journal's 40 Under 40 list.

Terrell L. Strayhorn, Nashville, Tenn., joined the National Association for Campus Activities board of directors as a special advisor.

'06–

CAREER Jason R. McDonough, Aldie, Va., is senior vice president/ director of commercial real estate lending for John Marshall Bank.

Jessica D. Squires Colwell, Midlothian, Va., is the minister at the United Methodist Church at Flint Hill.

Tracy R. Wolfe, Winchester, Va., published her first novel, "Abducted Hope."

BIRTHS Adam M. Sayre and Susan Wilson Sayre '08, Fayetteville, N.Y., a son, 11/28/17.

'07

CAREER Karen N. Schaaf, Richmond Hill, Ga., received the Georgia Watercolor Society's Peach Award at the 2018 National Exhibition

David I. Winokur. Snoqualmie. Wash., is director of Medical Imaging and Interventional Cardiovascular Services at Overlake Medical Center.



CAREER Carl C. Kaczmarek III, Clifton, Va., is an associate with Dewberry in Fairfax, Va.

Manisha P. Patel, Greensboro, N.C., was appointed vice president of the North Carolina Association of Women Attorneys.

Brian A. Peters, Raleigh, N.C., received a doctorate in educational research and policy analysis at North Carolina State University.

Loren L. Goble Stewart, Clarion. Pa., co-authored a book, "Final Elements in Safety Instrumental Systems."

Brian J. Taylor, Troutville, Va., was appointed associate vice president, commercial relationship officer for HomeTrust Bank.

BIRTHS Matthew T. Seibert and Anna C. Seibert '09, Beavercreek Township, Ohio, a daughter, 4/23/18.

'09

CAREER Brian A. Wright, Arlington, Va., authored a book, "Mets in 10s: Best and Worst of an Amazin' History.

Jennifer Tucker, Arlington, Va., was appointed deputy administrator of the National Organic Program, which is associated with the Agriculture Marketing Service of the USDA.

'10 -

CAREER Harpreet Singh Dhillon, Blacksburg, Va., was named the Steven O. Lane Junior Faculty Fellow of Electrical and Computer Engineering by the Virginia Tech Board of Visitors.

Paul J. Longo, Oyster Bay, N.Y., is an associate with Dewberry in Fairfax, Va.

George Parker III, Virginia Beach, Va., is Newport News School Board superintendent.

Chad S. Ratliff, Charlottesville, Va., co-authored a book, "Timeless Learning: How Imagination. Observation, and Zero-Based Design Change Schools.'

Jeremy P. Stovall, Nacogdoches, Texas, received the Teaching Excellence Award from Stephen F. Austin State University.

WEDDING Joseph W. Hutt IV and Laura Anne Nolan Hutt '11, Arlington, Va., 6/17/17.

John D. Salamone Jr. and Elizabeth Anderson Relle Salamone '11, Potomac Falls, Va., 4/28/18.

BIRTHS Kendall L. Bailey and Kathleen Bailey '12, Allston, Mass., a daughter, 3/30/18.



ROCKING THE WORLD OF MUSIC VIDEO

Since graduating from Virginia Tech's industrial design program in 2003, Mel Soria has directed several award-winning hit videos for bands like Fall Out Boy, Train, Panic! At the Disco, and New Politics. In 2015, his music video for Fall Out Boy's hit single "Uma Thurman" won the MTV Video Music Award for Best Rock Video.

Soria is guick to point out that his education at the College of Architecture and Urban Studies is the "secret weapon" that has allowed him "to hack into the world of film and distinguish myself as a director."

Read more about Soria in the spring 2018 edition of CAUS+effect at caus.vt.edu/news-events/newsletter.



CAREER Olivera Jankovska, Houston, Texas, received the 2017 President's Volunteer Service Award and the UNICEF USA Global Citizenship Fellowship.

Kristin E. Robertson, Sunrise, Fla., was named sales representative for Berg + Schmidt America LLC.

BIRTH Joel R. Osgood, Raleigh, N.C., a son, 5/5/18.



CAREER Bradley A. Copenhaver, Meadowview, Va., was appointed deputy secretary of agriculture and forestry by Gov. Ralph Northam.

Bruce W. Hammill, Spring Lake, N.C., constructed a rustic venue for weddings and other events.

Derek A. Thackston, Richmond, Va., earned a doctor of medicine from Virginia Commonwealth University's Medical College of Virginia Health Sciences Division.

Joseph B. Vacca, Neptune, N.J., is an associate with Cushman & Wakefield, providing real estate support to current and potential tenants and landlord clients in Central New Jersey.

WEDDING Shawn P. McDonough and Alyssa Wohlleben, Arlington, Va., 6/10/18.

BIRTHS Kyle J. Moore, Midlothian, Va., a son, 4/12/18.



Aylett, Va., was a candidate for town council in Alexandria, Va. Kelsey M. Martin, Roanoke, Va.,

is an associate for the law firm of Gentry Locke.

WEDDING Matthew T. Hoerner, and Caroline Askew Hoerner '13. Nashville, Tenn., 10/7/17.

CAREER Johnson Y. Bray, Troy, N.C., is Concord Downtown Development Corps. executive director.

Alexander M. Koma, Charlottesville, Va., joined ARLnow as a reporter.

BIRTHS Carter M. Neal. Montpelier, Va., a son, 6/7/18.



CAREER Benjamin M. Welch, Virginia Beach, Va., had the honor of swearing in his father as rear admiral.

Elizabeth A. Vaught-Jenkins, Roanoke, Va., was selected as assistant principal for Penn Forest Elementary School.

Severin M. Knudsen, Portland, Ore., is a veterinarian at Enterprise Animal Hospital.



CAREER Gabriella M. Jacobsen, Blacksburg, Va., developed an ecofriendly, reusable tote bag made from 100 percent organic cotton. A percentage of profits from the sale of the bags supports sustainable food systems

Ryan F. O'Toole, Richmond, Va., was appointed to the Board for Professional and Occupational Regulation by Gov. Ralph Northam.

Brett T. Sain. Blacksburg, Va., is an assistant portfolio manager for Cushman & Wakefield | Thalhimer.



CAREER Amelia A. Dirks, Hudson, Ill., is a Fulbright English teacher at the Hellenic-American Educational Foundation in Athens, Greece.

Shawn T. Trosper, Forest, Va., is principal of Liberty Middle School.

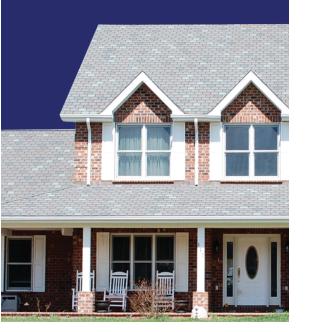


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MAKE AN EXTRA PAYMENT ON YOUR MOST EXPENSIVE DEBT.

Review your outstanding debt and make an extra payment on the account with the highest interest rate.

PLAN FOR YOUR RETIREMENT.

For single taxpayers with income less than \$118,000, you can fully fund a Roth IRA in the amount of \$5,500 annually. These contributions (not including earnings) would be tax-free at retirement.

SET ASIDE MONEY FOR FUN.

Be conservative and use half of your extra funds to do something you enjoy. It's okay to treat yourself every once in awhile!

USE YOUR FUNDS TO COVER PROFESSIONAL EXPENSES.

Maintaining or even enhancing your career involves anything from additional training to a wardrobe update. Investing in yourself is a great way to channel your funds.

MONEY MATTERS

A WINNING LOTTERY TICKET. A LARGER THAN EXPECTED TAX REFUND. TWELVE

months of successful budgeting. No matter the reason, people often find themselves in a slightly better than expected financial situation.

But what's the best use of those extra funds?

We asked Krystal McCants '03, who was recently named a top tax accountant in the D.C. area by Washingtonian Magazine, how her fellow Hokies can make the most of their money.





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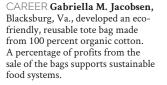


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DEREK KLOCK ASSOCIATE PROFESSOR

DEVELOP A STRONG CREDIT REPORT.

"Developing a very strong credit report is going to keep your options open," said Klock.

Lytton agreed. "We have always been proponents of college students having credit cards, with the understanding that the cards have to be used responsibly. You would buy the things that you typically buy anyway, purchase them with the card, and pay the full balance every month, all the while building a strong credit history."

HAVE A PLAN.

"Recognizing what you have left to live on after factoring in your salary and your loan payment is important," said Lytton. "It is recommended that young adults save 10 to 15 percent of their income for retirement, emergencies, and future goals."



TO MAKE IT COUNT

COMMENCEMENT IS AN EXCITING TIME PUNCTUATED BY DREAMS OF A SUCCESSFUL future. Yet, graduation also triggers a countdown.

Just six months after crossing the stage to accept a degree, many students must begin repaying student loan debt, in addition to covering their living expenses. According to a study by the Pew Research Center, about 4-in-10 adults ages 18 to 29 in the U.S. have student loan debt, with the average borrower in 2016 owing \$17,000.

Derek Klock, associate professor of practice in finance, and Ruth Lytton, professor of financial planning, suggest that all students, regardless of major, enroll in financial planning courses during college.

"Graduates need a plan for how their lifestyles can be managed around their student loans, as well as just providing the basics," said Lytton.

Klock and Lytton recommend five strategies to help new graduates avoid financial setbacks.

> Written by Katie Magnant, a senior majoring in public relations who was a summer intern with Virginia Tech Magazine.

DON'T OVERBORROW.

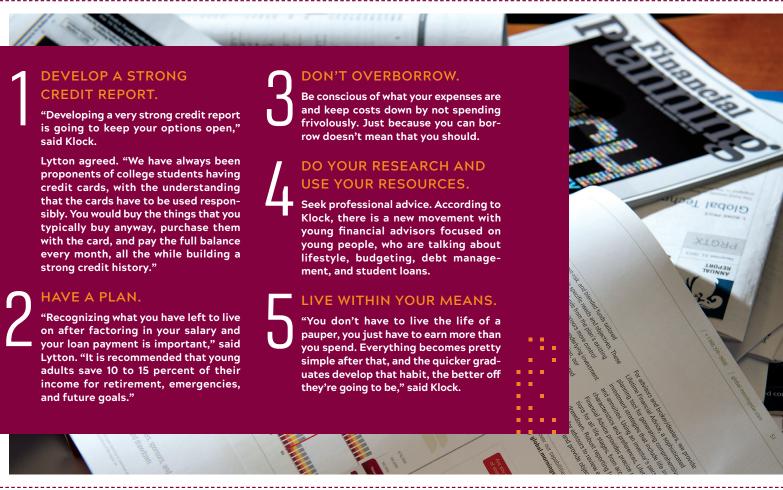
Be conscious of what your expenses are and keep costs down by not spending frivolously. Just because you can borrow doesn't mean that you should.

DO YOUR RESEARCH AND **USE YOUR RESOURCES.**

Seek professional advice. According to Klock, there is a new movement with young financial advisors focused on young people, who are talking about lifestyle, budgeting, debt management, and student loans.

LIVE WITHIN YOUR MEANS.

"You don't have to live the life of a pauper, you just have to earn more than you spend. Everything becomes pretty simple after that, and the quicker graduates develop that habit, the better off they're going to be," said Klock.



March 9-17, 2019 Join Virginia Tech and the Moss Arts Center in Barcelona

Experience Barcelona during a seven-night journey that will include magnificent architecture, world-famous cuisine, and an idyllic countryside. Learn how to prepare Catalán dishes and sip cava, Spain's sparkling wine, at a family-owned winery.

Ruth Waalkes, associate provost for the arts and executive director of the Moss Arts Center at Virginia Tech, will host the Barcelona trip. Waalkes oversees the strategic campus-wide integration of the arts at Virginia Tech and leads community-based arts initiatives across the region on behalf of the university.

17

EACH YEAR THE VIRGINIA TECH ALUMNI ASSOCIATION OFFERS A VARIETY OF OPPORTUNITIES FOR TRAVEL TO ALUMNI, FRIENDS, AND THEIR FAMILIES. WITH DOZENS OF AVAILABLE DESTINATIONS, THERE'S A PERFECT ADVEN-TURE AWAITING EVERY HOKIE. FOR A COMPLETE LIST AND TO LEARN MORE ABOUT EXPLORING THE WORLD ALONGSIDE OTHER HOKIES, VISIT ALUMNI. VT.EDU/TRAVEL.

April 7-15 **Southern Grandeur**

April 29 - May 9 Gems of the Danube

May 1-19 **Cultural Crossing**

May 5-14 **European Coastal Civilizations**

2019 ALUMNI TRAVEL TOURS

MAKE A MEMORABLE TRIP BETTER: TRAVEL WITH FELLOW HOKIES.

Feb. 10-23 **Radiant Rhythms**

June 6-11 Oregon Trail and the **Portland Rose Festival**

June 7-17 **The Great Journey** Through Europe

July 26 - Aug. 6 Wildlife and Frontiers of Alaska



For more information about Alumni Association travel tours, go to alumni.vt.edu/travel.





IN THE BEGINNING: (above) The Osborne 1, released in 1981, was the first commercially successful portable microcomputer. (top) A 1992 computer class in Pamplin Hall. (middle) Students pick up software in 1982. (bottom) Electronic games and talking on the phone were popular 1998 pastimes.

Retro



THE COMPUTER EVOLUTION

THE COMPUTERS AT VIRGINIA TECH IN the mid-20th century bear little resemblance to their modern counterparts. Over time, hardware has diminished in size while increasing significantly in speed and capability. Today's ubiquitous smartphones are billions of times faster and more powerful than the room-sized supercomputers of the 1950s.

As early as the 1980s, students received specialized software at the beginning of each academic year, which enabled them to log onto the university's computer system. Individual workstations in computer labs were in high demand. Alumni who attended in those years remember waiting for hours to use computers at Newman Library for classwork.

"Students today have their laptops and tablets, but back in the day, you signed up on a chalkboard for a computer and once you scored that thing, you were on it for 9, 10, 11 hours," said Chris Bryan, an alumna who attended Tech in the mid-'80s. "Everybody was working to crack the same problems and that made the computer lab feel like a big think-tank. It was not unheard of to order in coffee and donuts."

Since 1998, undergraduates have been required to own a personal computer.

Today, Special Collections, a unit within the University Libraries, has begun to acquire older computers, which are the only way to access legacy material on outdated media such as floppy discs. $\blacksquare MA$



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417 DOWN

OUTDOOR ADVENTURER: Tom Wright '86 stands beside a float plane on Surprise Lake in Aniakchak Nation Monument, Alaska

STEP OUT YOUR FRONT DOOR INTO A WORLD OF ADVENTURE AND EDUCATION THAT **IS OUR NATIONAL** PARKS. JUST DO IT!"

Tom Wright '86

WHEN HE WAS GROWING UP, TOM Wright's father often took his family on

On one such trip in 1977, the Wright family visited the Texas ranch of President Lyndon Baines Johnson. Although he was bored at the time—"I thought, 'C'mon, dad," he remembered—the visit became the start of an extraordinary journey for Wright '86.

National Park Service's 417 units. The Lyndon B. Johnson National Historical Park was not the first park unit he'd visited; he can remember seeing grizzly bears walk up to the windows of his parents' car in Yellowstone National Park in 1969.

It wasn't until 2008 that Wright, who works as a tire engineer for Goodyear Tires in Akron, Ohio, actively began trying to visit every park unit. That year, during a trip to Thailand, Wright realized he could visit War in the Pacific National Historical Park in nearby Guam. Once he checked off that far-flung park, he challenged himself to visit every single unit administered by the National Park Service.

That decision led Wright across the U.S. and throughout its territories. He's flown to tiny lakes in Alaska's northern reaches, as well as to American Samoa. He crossed private property (with permission) to reach Yucca House National Monument, and he visited Birmingham

Civil Rights National Monument and three other units designated by President Barack Obama as national monuments in the waning hours of his presidency in 2017.

Some of Wright's visits were made possible by his participation in the nonprofit National Park Travelers Club, which enabled him, for example, to jointly book a private flight with another member in order to visit the six Alaskan national parks located north of the Arctic Circle in a single day.

Here are two of Wright's favorite parks and memories made in the 40 years between his 1977 visit to the LBJ ranch and 2017 visit to Cumberland Island National Seashore, which was his final, unvisited park unit-at least until new ones are designated.

Black Canyon of the Gunnison National Park, Colorado

"People have died going down to the river and back up," Wright said. "It's a 2,000-foot climb down, slip-sliding all the way down on shale. About 20 years ago, I hiked down, and I barely got back out. Going down, I was saying, 'Man, I just need to sit on my butt and slide down.' I was more worried about going back up. Every time you'd take a step, the rocks would slide, and you'd almost lose a step for every one going forward."

Kobuk Valley National Park North of the Arctic Circle, Alaska

"To me, sand is supposed to be on the beaches," said Wright. "These dunes are 100 feet tall, and it's 25 square miles of sand. That's a hoot. The Park Service likes to say this place looks more like the Sahara Desert rather than being 35 miles north of the Arctic Circle." MA

Since then. Woofie's has earned several small business awards and was even featured on CNBC's "The Job Interview" in December 2017.

trips across the U.S.

Since then, Wright has visited all of the

REROUTING



THE PATH TO A DREAM CAREER IS NOT

always direct. It requires adjustment, hard work, and sometimes a blending of passions. For Caroline Murphy, director of pet-sitting services for Woofie's in Ashburn, Va., finding the right path involved a complete change of direction

After graduating in 2013 with a bachelor's degree in agribusiness and an animal and poultry sciences minor, Murphy accepted a position with an agriculture and marketing company.

"I didn't feel fulfilled in that line of work," Murphy said. "I remained in touch with Woofie's, which was a pet-sitting company I worked for during undergrad."

Aware of the risk she'd be taking, Murphy left the corporate job in 2014 to become Woofies' right-hand, accepting a leadership position in the small business.

"[The television segment] was very cool for us," Murphy said. "We went to New York for a couple of days, and we spent one full day interviewing. There were at least 20 cameras capturing the entire experience."

Murphy said that her experiences at Virginia Tech helped her develop the skills and confidence to analyze her goals and redirect her plans toward a more rewarding career. Along the way, she was able to combine her two interests-animals and business-into a career she loves.

This summer Woofie's began offering franchise opportunities, a milestone for the growing company.

"Tech gave me the confidence to look at something, like a small business, and see an opportunity," Murphy said. "You can do something that you love-you just have to find it and make it work for yourself."

Written by Allysah Fox '18 who was an intern with Virginia Tech Magazine.

REROUTING

A DOGGONE SUCCESS: Caroline Murphy '13 transformed her love for pets into a rewarding career at Woofie's. (right) Murphy directs pet-sitting services for a growing business in Ashburn, Virginia.

TECH GAVE ME THE CONFIDENCE TO LOOK AT SOMETHING, LIKE A SMALL **BUSINESS, AND SEE** AN OPPORTUNITY."

Caroline Murphy '13

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Written by Allysah Fox '18 who was an intern with Virginia Tech Magazine.





UNLEASHED For more about Caroline Murphy, visit vtmaq.vt.edu.

WHEN HE WAS GROWING UP. TOM Wright's father often took his family on trips across the U.S.

On one such trip in 1977, the Wright family visited the Texas ranch of President Lyndon Baines Johnson. Although he was bored at the time-"I thought, 'C'mon, dad," he remembered-the visit became the start of an extraordinary journey for Wright '86.

Since then, Wright has visited all of the National Park Service's 417 units. The Lyndon B. Johnson National Historical Park was not the first park unit he'd visited; he can remember seeing grizzly bears walk up to the windows of his parents' car in Yellowstone National Park in 1969.

It wasn't until 2008 that Wright, who works as a tire engineer for Goodyear Tires in Akron, Ohio, actively began trying to visit every park unit. That year, during a trip to Thailand, Wright realized he could visit War in the Pacific National Historical Park in nearby Guam. Once he checked off that far-flung park,

417 DOWN



he challenged himself to visit every single unit administered by the National Park Service.

That decision led Wright across the U.S. and throughout its territories. He's flown to tiny lakes in Alaska's northern reaches, as well as to American Samoa. He crossed private property (with permission) to reach Yucca House National Monument, and he visited Birmingham Civil Rights National Monument and three other units designated by President Barack Obama as national monuments in the waning hours of his presidency in 2017.

Some of Wright's visits were made possible by his participation in the nonprofit National Park Travelers Club, which enabled him, for example, to jointly book a private flight with another member in order to visit the six Alaskan national parks located north of the Arctic Circle in a single day. ■ MA

SAVE THE DATE

REUNION WEEKEND 2019 IS JUNE 6-9. BE SURE TO JOIN THE CONVERSATION ONLINE USING #VTREUNION19.

HUNDREDS OF HOKIES RETURNED

to campus in June for the first-ever summertime reunion weekend. Events and activities held throughout the event showcased the exciting ways Virginia Tech is moving forward.

"The summer reunion was amazing! I loved coming back to Tech, staying in the dorms, eating at the dining hall, and getting to sit in on some wonderful lectures with my whole family," Katrina Oakes '03 said. "A favorite thing for me was class happy hour in Eggleston Quad. We made some great new Hokie friends and are still sad reunion weekend is over."

There were opportunities to talk with top professors and researchers, chances to connect with old friends and make new ones, and occasions to celebrate

our strong ties to each other and to our university.

We can't wait to do it all again, and you can get involved, too!

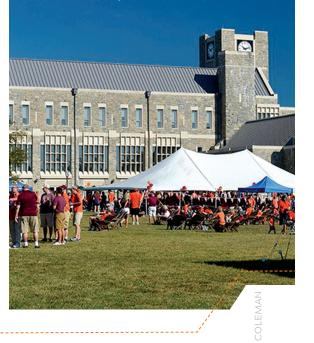
Volunteering is a great way to connect with other alumni and to develop deeper relationships with our university.

Class volunteers play a critical role in our reunions. They help shape the weekend by:

- Serving as ambassadors for the event.
- Sharing thoughts and ideas about reunion programming.
- Making a gift to Virginia Tech, which counts toward your reunion class goal

By sharing your passion for Virginia Tech, you will advance the connections that help build a stronger learning environment.

Get involved and learn more at: alumni.vt.edu/reunion2019.



TECH SUPPORT

AS YOU CAN SEE FROM THE STORIES

in this issue, through collaboration and innovation Virginia Tech alumni, students, and faculty are finding solutions for large-scale, real world problems.

Tech-savvy Hokies are changing how we live and learn. By maximizing the benefits of technology, they are improving our daily routines and making our lives easier, healthier, and safer.

You read about an alumna, who is involved in critical cybersecurity work. You also read about Tom Taylor '84, who oversees Amazon's Alexa program. These Hokies and others like them are changing our daily routines and contributing to the technology we use regularly.

As the university's chief alumni officer, I'm always in awe of-but not surprised by-the talent and success of Hokies who continue Throughout the year we've traveled to dozens of cities bringing along university leaders and faculty experts to inform all Hokies and share our excitement about where they university is headed.

In the last two years, we've grown the number of these events allowing more alumni to gather together in communities across the country.



to excel in every career field imaginable and have an intrinsic drive to do good.

During a series of recent networking events, I saw this firsthand as alumni, students, friends, and faculty learned from one another and built new bonds. The Virginia Tech Alumni Association has partnered with schools and colleges across campus, as well as industry partners and local alumni chapters to host these events.

Most recently, President Tim Sands and

I traveled to Silicon Valley where we met Hokies on the cutting edge of technology, eager to change the world. The alumni relations team also traveled to Roanoke, Virginia and Raleigh, North Carolina, partnering with the College of Science and Virginia Tech Carillion to host panels from Hokie alumnae excelling in the STEM disciplines.

We learn from each other and become inspired at our networking events. Hokies coming together keep our community strong. I can't wait to see you at one of our events soon.

Matthew M. Winston Jr. '90 is senior associate vice president for alumni relations.

For more information about our networking events and to find one in your area, visit alumni. vt.edu/events/networking

FAMILY

1 "We are Hokies who were destined to be together—friends during our time at Tech, reconnected after graduation at a Nationals baseball game in D.C., and now celebrating our first anniversary." —Laura Nolan Hutt '11, who married Ren Hutt '10, Washington, D.C., 6/17/17.

2 "Colton joins big brother Cameron as our newest little Hokie fan." — Crystal Morgan Fraser '04, who along with Brian Fraser '08, Aldie, Virginia, welcomed a son, Colton Truscott, 2/18/18.

3 "A special photo in honor of the place that brought us together!" —Caroline Askew Hoerner '13, who married Matthew Hoerner '13, Nashville, Tennessee, 10/7/17.

4 "My husband Joseph and I added a daughter to our family in the spring." —Patricia Ricketts Walker '06, Alton, Virginia, who welcomed a daughter, Caroline Rae, 3/22/18.

5 "We love and miss Blacksburg so much we decided to name our little boy after one of our favorite places." — Adam Sayre '06 and Susan Sayre '08, Fayetteville, New York, who welcomed a son, Lane Lee, 11/28/17.

CONGRESS HALL









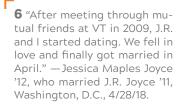












7 "Lydia was born in Blacksburg in May and already loves being a little Hokie." — Katie Williams '13, who along with Tyler Williams '11, Blacksburg, Virginia, welcomed a daughter, Lydia Anne, 5/16/18.

8 "My son, Charlie, is on schedule to attend Virginia Tech in August 2035!" — Jeff Holland '95, MURP '98, Chesapeake, Virginia, who welcomed a son, Charles Billy, 7/1/17.

9 "Our Hokie wedding wouldn't have been complete without our favorite mascot in attendance." —Tori Sheets '16, who married Chris Vincent '18, Blacksburg, Virginia, 5/16/18.



IN MEMORIAM

Listing includes notices shared with the university Jan. 1-April 1, 2018.

_____'35 _____

William Eston Harvey, Lynchburg, Va., 12/28/17.

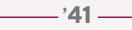


Horace Travis Ayres, Las Vegas, Nev., 11/17/17.

James Frederick Boone, Blacksburg, Va., 2/6/18.



Malcolm Everett Phillips Jr., Richmond, Va., 12/14/17.



Howard Joseph Graninger, Columbus, Ind., 1/8/18.

-'42 -

Henry W. Hoffman, Grottoes, Va., 12/21/17.

Chapman M. Hale Jr., Kingsport, Tenn., 2/20/18.

Virginia Gent MacLeod, Milford, Ohio, 3/20/18.

Jacob A. Randolph Jr., North Chesterfield, Va., 1/12/18. James Richard Craddock, India-

napolis, Ind., 2/22/18.

_____'43 _____

Willard S. Gilley, Williamsburg, Va., 2/10/18.

_____'44 ____

John M. Trimble, Crozet, Va., 12/25/17.

James W. Sink, Rocky Mount, Va., 2/16/18.

66 | HOKIE NATION | IN MEMORIAM

Robert R. Maller, Strasburg, Pa., 1/12/18.

Norman G. Lankford, Carrsville, Va., 1/14/18.

Sanford J. Holzsweig, Plano, Texas, 2/9/18.

Alan M. McKeithen, Saint Petersburg, Fla., 2/1/18.

Robert Glenn Jackson, Nags Head, N.C., 1/29/18.

_____'**47** ____

Bennett Nathanson, Bala Cynwyd, Pa., 1/18/18.

George R. Hayes, Gloucester Point, Va., 1/4/18.

Nita Apperson Little, Christiansburg, Va., 2/4/18.

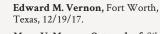


Richard N. Thomas, Richmond, Va., 12/8/17.

Charles Richard Smith, Midlothian, Va., 12/27/17.

Douglas H. Layman Sr., Boynton Beach, Fla., 2/27/18.

James J. Owen, Blacksburg, Va., 1/31/18.



Mary V. Morgan Osterndorf, Silver Spring, Md., 2/20/18.

Molly Galloway McInteer, Fredericksburg, Va., 2/18/18.

David William Jones, Charlottesville, Va., 3/20/18.

Walter V. Goyne, McLean, Va., 12/9/17.

Stephen Edward Patchett, Sodus, N.Y., 1/26/18.

John H. Salley, Natural Bridge, Va., 1/16/18.

James R. Clements Jr., Alpharetta, Ga., 11/24/17.

Thomas S. Maddock, Newport Beach, Calif., 2/3/18.

James Leonard Bullock, Minneapolis, Minn., 11/25/17.

Leon Milton Cooper, Lexington, Ky., 2/18/18.

Richard H. McCormick, Chesapeake, Va., 12/7/17.

Ruth Shockley Embler, Christiansburg, Va., 12/10/17.

Frank T. Putney Sr., Wytheville, Va., 2/9/18.

Eric K. Newby Jr., New York, N.Y., 12/18/17.



Walter J. Bronikowski, Brielle, N.J., 1/28/18.

Charles E. Thomas, Dayton, Ohio, 12/24/17.

William R. Eason, Buffalo Junction, Va., 12/9/17.

A. Bruce Crenshaw, Birmingham, Ala., 12/2/17.

Lynn E. Slonaker, Virginia Beach, Va., 12/16/17.

Randolph Bennett James, Salemburg, N.C., 2/20/18.

Laurence E. Coffin Jr., Fort Washington, Md., 2/15/18.

William C. Smith, Leesburg, Va., 2/22/18.

-'53 -

Thaddeus F. Wach, Macon, Ga., 1/1/18.

James W. Bricker, Augusta, Ga., 12/19/17.

Albert B. Faris Jr., Campbell, Calif., 1/6/18.

Joseph Ray Barlow Jr., Smithfield, Va., 12/24/17.

Raymond H. Anderson Jr., San Juan Capo, Calif., 1/6/18.

Lynwood E. Hancock, Ashland, Va., 1/19/18.

____`54 __

Charles W. Strang Jr., Prescott, Ariz., 1/19/18.

Malcolm G. Stewart, Florence, S.C., 1/8/18.

Creed W. Trimble, Cohutta, Ga., 2/9/18.

Raymond D. Tyus, Henrico, Va., 1/17/18.

Fred P. Kirkhart, Santa Rosa Beach, Fla., 12/30/17.

___`55 _____

Ernest P. Wolfe Jr., Montgomery, Ala., 2/17/18.

Leonard Joseph Di Silvestro, Eustis, Fla., 1/14/18.

Harry E. Corr, Gloucester, Va., 2/11/18.

_____^·**56** _____

Harold E. Parrish, Houston, Texas, 1/10/18.

Robert S. Parrott Jr., Waynesboro, Va., 12/11/17.

John Stanley Dawson Jr., Rochelle, Va., 1/12/18.

Allen Herbert Carroll, Lindale, Texas, 1/24/18.

James Edwin Turner Jr., Suffolk, Va., 12/27/17.

Maury I. Barksdale, Leesburg, Va., 11/29/17.



Lucas Daniel Clay Jr., Savannah, Ga., 3/24/18.

Edward Cornelius Comer, Roanoke, Va., 1/20/18.

Roger Lee Griffith Sr., Tuscumbia, Ala., 2/26/18.

William L. Wood, Roanoke, Va., 12/15/17.

Albert "Bill" Ewell Bailey III, Roanoke, Va., 2/14/18.

Ronald W. Simon, Urbanna, Va., 11/20/17.

Gradon O. Pendergraft Jr., Stuarts Draft, Va., 2/14/18.

Lawrence Henry Young, Jim Thorpe, Pa., 2/8/18.

Nemour M. Landaiche Jr., Tyrone, Ga., 1/26/18.



Wiley Buford Lewis, Fort Collins,

Charles E. Fultz, Leesville, S.C.,

Herbert Hutson Snyder Jr., Vinton,

William S. Pugh, Lynchburg, Va.,

-'59 -

Curtis Loton Burgess, Manassas,

Richard Crockett Nickols Jr.,

Thomas O. Williams III, Blacks-

Margaret Estes Dawson, Rochelle,

-'60 –

Nathan K. Patterson Jr., Wilming-

William A. Wilkinson Sr., Bath,

Thomas C. Baker, Winchester, Va.,

Richard B. Crim, Summit Point,

Wallingford, Conn., 2/24/18.

Pa., 1/2/18.

1/31/18

Va., 1/2/18.

2/15/18.

Va., 2/2/18.

burg, Va., 3/10/18.

ton, N.C., 12/17/17.

W.Va., 12/30/17.

Va., 1/12/18.

Pa., 1/25/18.

1/12/18.

Colo., 1/25/18.

Jesse E. Kent Jr., Southport, N.C.,

1/15/18.

2/2/18

2/15/18.

12/16/17.

Ky., 1/7/18.

1/18/18

lotte, N.C., 2/4/18.

Springs, Fla., 2/4/17.

boro, Va., 12/21/17.

 V_{a} , 2/12/18

Va. 1/15/18

12/1/17.

Va., 12/23/17.

Va., 2/9/18.

2/22/18

Va., 12/20/17.

mons. N.C. 1/31/18

ville, Md., 1/5/18.

City, Tenn., 12/1/17.

`64

tesville. Va., 2/5/18.

Guy Albert Sadler, Campbell, Calif.,

Robert Bruce Rogers Jr., Charlot-

'61 -

'63

Arthur F. Boudreau, McLean, Va.,

John Kent Kane II, Yorktown, Va.,

Ralph T. Laird Jr., Crestview Hills,

Vernon Eugene Burkholder, Paradise Valley, Ariz., 1/24/18. Noel Donald Self, Norfolk, Va.,

Donald George McClintock, Char-

Richard Earl Smith, Richmond,

Robert Franklin Mills II, Altamonte

Charles C. Wiseman, Boones Mill,

Harold Alfred Trumbo, Waynes-

Carl Alvin Cox, Independence, Va.,

Paul Newton Flynn, Alexandria,

Dennis Michael Kamber, Pooles-

Shirley Patton Richards, Johnson

Peter Gerard Vandenberg, Floyd,

Philip Arnold Loving, Strasburg,

Welford Lyon Coutts Jr., Clem-

James Ervin Davis, Farnham, Va.,

<u>'65</u>

Jerry Lee Grimes, Winchester, Va., 12/7/17.

Ballard Raymond Parker III, Richmond, Va., 2/13/18.

David Duane Abbott, Chandler, Ariz., 12/19/17.

__`66 ___

- **Robert Morris Pollok Jr.,** Danville, Va., 2/5/18.
- **Juette Osborne Renalds III,** Forest, Va., 2/25/18.

John Benjamin Crist, Morgantown, W.Va., 2/1/18.

John Paul Sterrett, Martin, Tenn., 1/11/18.

Daniel Warwick Burger Jr., Camden, S.C., 1/14/18.

_____'67 ____

Betty Roper Ricks, Virginia Beach, Va., 3/18/18.

Ronald Edwin Buffington, Delray Beach, Fla., 12/7/17.

Donovan James Beyeler, Goshen, Ind., 12/24/17.

Larry Belmont Wimmer, Forest, Va., 3/8/18.

Robert Franklin Crafton, Summerville, S.C., 12/17/17.

-'68 -

William Dale Givan, Athens, Ga., 12/23/17.

Stephen Charles Winters, York-town, Va., 1/24/18.

William Aubrey Trinkle, Marietta, Ga., 1/28/18.

William Ryan Burrowbridge, Blacksburg, Va., 3/7/18.

__`69_

William A. Steiger III, Columbia, S.C., 3/2/18.

Emory Jackson Dunning Jr., Virginia Beach, Va., 12/18/17.

Charles William Embler, Port Saint Lucie, Fla., 1/4/18.

George Richard Cataldi, Christiansburg, Va., 2/15/18.

_____'**70** –

Judith Edwards Duncan, Allisonia, Va., 2/14/18.

– '**71** —

Thomas Rutherford Watkins Jr., Roanoke, Va., 2/19/18.

Jeffrey Thomas Hudson, Savannah, Ga., 2/4/18.

Roslyn Reece McNamara, Columbia, S.C., 3/7/18.

Marvin A. Capano, Culpeper, Va., 12/29/17.

___`**72** _____

Dennis James Maher, Lexington Park, Md., 12/28/17.

Julian "Marty" Hannibal Martin Jr., Locust Grove, Va., 10/27/17.

Charles Vaden Thomas, Glen Allen, Va., 12/4/17.

Stephen Louis Bryant, Midlothian, Va., 1/23/18.

-'73

John Eugene Murnane III, Virginia Beach, Va., 3/1/18.

Douglas Lowell Bartley, White Post, Va., 2/13/18.



George H. Emert, Bellingham, Wash., 3/21/18.

John William King, Midlothian, Va., 12/24/17.

Ralph Alan Wills, Fairfax, Va., 12/18/17.

Judith Alleyne Peters, Belle Mead, N.J., 2/26/18.

Robert Johns Bertrand, North Syracuse, N.Y., 2/26/18.

Donald Craig Mullenax, Cumming, Ga., 12/6/17.



Jack Eugene Yeager, Dunbar, W.Va., 12/20/17.

James Albert Burrows, Saint Petersburg, Fla., 3/18/18.

Francis DeBellis, Max Meadows, Va., 4/1/18.

'76

Richard C. Wiseman, Saint Marys, Pa., 2/2/18.

Robert W. Hoyer, Winchester, Va., 2/27/18.

Russell C. Bird, Brookhaven, N.Y., 1/4/18

____'**77** ____

Stephen Charles Peters, Scottsdale, Ariz, 11/21/17

Harry G. Camper III, Rockingham, Va., 12/10/17.

Alphonso C. Smith, Hampton, Va., 3/1/18.

Wendell Lambert Swain, Glencoe, Mo., 1/30/18.

·**78**

Harold Scott Barker Jr., Glen Lyn, Va., 11/16/17.

Adam Martin Koslosky, Omaha, Neb., 3/18/18.

79

Stuart Allan MacCaffray Jr., Leesburg, Va., 12/18/17.

Katherine Hosler Brown, Goshen, Ind., 1/1/18.

James Thomas Foster, Fairfax, Va., 1/27/18.

-'80 –

Patricia Samordic Harris, Danville, Va. 1/11/18

·**'81**

Thomas James Murphy, Gainesville, Va., 12/2/17.

Linda Joy Wilson, Elliston, Va., 1/12/18.

'82 –

Brett McKinstry, Orlando, Fla., 2/4/18.

Nancy R. Barrick Evans, Blacksburg, Va., 12/16/18. Roland W. Chapman, Sedley, Va.,

12/3/17

Jeffrey Kenneth Boyer, Dover, Pa., 1/13/18.

·83

James Clark Williams Jr., Galax, Va., 2/1/18.

Robert Charles Gardner, Roanoke, Va., 1/17/18.

Mark Jonathan Fellows, Plano, Texas, 2/24/18.

·**84**

Robert James Toole Jr., Erieville, N.Y., 2/28/18.

Gary Bailey Peebles, Edinburg, Va., 2/24/18.

William Kendall Keith, Jesup, Ga., 2/24/18

John Edward Harrison, Chesapeake. Va., 2/12/18.



Wynndel Preston Baldock, Colum bus, Ohio, 1/24/18.

Timothy W. Hunsucker, Winston-Salem, N.C., 1/27/18. Scott Mitchell Carr, Charleston,

S.C., 12/22/17.

·**'86** ·

Thomas Eugene Blevins, Murrells Inlet, S.C., 12/23/17.

-'87 -

Helen Driver Douglas, Richmond, Va., 11/30/17.

'88

Michael Craig Barkley, Chesapeake, Va., 2/5/18.

Clyde "Rusty" Russell Burnette Jr., Chicago, Ill., 12/30/17.

'89

Jeffrey Marshall Bond, Moseley, V_{a} , 1/28/18

Jeffrey Boyd Bookwalter, Hampton, Va., 12/4/17.

Jimmy Earl Geiger, Bristol, Va., 2/19/18

-'90 -

Tracy Leigh Hylton, Martinsville, Va., 2/1/18.

Barry Lynn Beale Jr., Blacksburg, V_{a} , 2/3/18

David B. Pye, Marshall, Va., 1/27/18. George Pernell Munn Jr., Atlanta, Ga., 1/21/18.

-'92 -

Marilyn A. Bauer Hedges, Galesburg, Ill., 1/11/18.

·94

Terri Jackson Mosley, Richlands, Va., 1/12/18.

__'95 __

Rachel Campbell Hingst, Burke, Va., 1/11/18. Robert Lee Parsons, Williston, Vt.,

2/16/18. Richard Alan Hayth, Madison

Heights, Va., 2/27/18. -'96

James Russell Reid III, McLean, Va., 2/6/18.

·98

Kathleen M. Langeland Hogston, Ada, Minn., 3/10/18.

-'99

Robert Leighton Gaddy, Virginia Beach, Va., 12/4/18.

-'05

David Earle Burton III, Calverton, Va., 12/22/17.

-OBITUARIES-

Lesley "Sue" Ratcliff died July 6. Ratcliff was a service leader in the West End Market.

James S. Thorp, the Hugh P. and Ethel C. Kelly Professor Emeritus of Electrical and Computer Engineering, died May 2.

Richard B. "Dick" Vasey, former assistant dean of the College of Agriculture and Life Sciences and professor emeritus of forestry, died April 1.

'06

Michael Wayne Robinson Jr., San Diego, Calif., 12/22/17.

Brent Marc Wilkins, Henrico, Va., 12/10/17

-'07 –

Michael Andrew Carisetti, Washington, D.C., 12/4/17.

-'08-

Rebecca Ann Phillips, Danville, Va., 1/27/18.

John Alexis Giandoni, Woodbridge, Va., 3/16/18.

·**11** Caitlin Rose Merryman, Van Nuys,

Calif., 2/27/18.

_____ '12 _____

Robert Michael Kluxen, Blacksburg, Va., 1/18/18. Kathryn M. Krista, Bluemont, Va., 1/5/18.

_ '**13** —

Dennis Liu Chang, Fairfax, Va., 2/25/18

- '14 -

Kei Takeshi Lamberson, Blacksburg, Va., 1/24/18.



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YOU CAN ALSO EMAIL YOUR UPDATES TO ALUMNIDATA@VT.EDU. MAKE SURE YOU INCLUDE YOUR FULL NAME



SERVICE AND SACRIFICE: Each year, the Virginia Tech Corps of Cadets honors the service of our nation's soldiers during remembrance ceremonies held in honor of Veterans Day. In the U.S., Veterans Day is recognized in November to mark the anniversary of the signing of the armistice ending World War I in 1918.

The Veterans Day remembrance ceremony is held annually at the Pylons above War Memorial Chapel, where the names of all Virginia Tech students and graduates who have died in the line of duty since World War I are etched.

This year, the name of U.S. Navy Ensign Sarah Mitchell was added to the Ut Prosim pylon. A 2017 graduate of Virginia Tech and the Corps of Cadets, Mitchell died during a training exercise in the Red Sea.

Last year, cadets opened the day with a flag raising during morning formation on the Upper Quad.

For more pictures and information about Veterans Day at Virginia Tech, visit vtmag.vt.edu.

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Margo Ann Crutchfield

END NOTE At the intersection of art and technology



GALLERY GLIMPSES: The spring 2016 exhibition, DATAStream, featured a selection of artists, including Philip Argent, shown here. (opposite) The paintings of Kehinde Wiley were included in a spring 2014 exhibition.



AM I AN ARTIST? NO. BUT, I'VE ALWAYS

been passionate about creativity, knowledge, and learning. The work of artists is based in that. Art can expand our minds. Artists see the world differently, introducing new perspectives and new ways of thinking. Their work can expand our understanding of the world and of ourselves.

When I understood that Virginia Tech was making a commitment to strengthen the arts, to build the Moss Arts Center, and to bring art into the lives of students, faculty, and the community, I knew this was a place that I could make a significant contribution.

The intellectual density at Virginia Tech and the location drew my attention, but the opportunities I found—to be involved with an exceptional university, to be part of establishing a world-class exhibition program, to live in a beautiful, healthy place surrounded by mountains—was compelling.



Aspects of the Self: Portraits of Our Times, by Kehinde Wiley. (left) Dacia Carter, 2012, oil on canvas, Corwin Family Collection, courtesy Sean Kelly Gallery, New York. (right) Mame Ngagne, 2007, oil on canvas, Private Collection.

I have lived in some amazing places on four different continents. I was born in Brazil and grew up in Egypt, Libya, France, and Switzerland. My background also includes years of experience in a number of high-level museums, such as the Museum of Contemporary Art in Cleveland, Ohio; the Virginia Museum in Richmond, Virginia; and the Aspen Art Museum in Aspen, Colorado.

But Blacksburg is unique. It's small. It's in a beautiful environment. It's soaked in intellectual inquiry. And there are so many fascinating people here.

I have always been passionate about beauty and the power of the visual to seduce and engage us. Of course, not all art is beautiful. Much contemporary art is intentionally difficult, even abrasive at times, but the best art can and does stop us in our tracks and open our hearts and minds to what is important.

Creativity, innovation, and learning are

central to Virginia Tech's mission. So is service. These key values are also at the core of the exhibitions at the Moss. We feature innovative works by renowned regional, national, and international artists, as well as faculty and students. The work we do at the Moss serves all of us by presenting art to absorb, to enjoy, to reflect, and to expand our horizons.

The arts enrich us and are critical to our own humanity. I often think about the ancient Greeks, how they celebrated the mind, body, and soul in a balanced appreciation and respect of the best of what it means to be human. Virginia Tech's commitment to the arts brings this essential component of what makes us human—and what truly is one of the highest of any civilization's achievements—into the lives of us all. ■

Margo Ann Crutchfield is the curator-at-large for the Moss Arts Center.

IN OUR NEXT ISSUE

Meaningful research is integral to the mission of Virginia Tech. But intellectual investigation isn't limited to laboratories, libraries, or classrooms. Virginia Tech's studies cross continents and deal with subjects as varied as wildlife conservation, food security, and the health effects of after-hours emails.

The spring issue of Virginia Tech Magazine will highlight some of these studies. Also, we will explore the research behind the exhibitions at the Moss Arts Center. Curating art involves selecting artists and staging pieces to reflect the values of the university and inspire the students, faculty and community members. The spring issue will showcase how intellectual investigation is as essential to an exhibit's success as it is to a technical analysis.

Look for these stories and more in your next issue.

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