

VIRGINIA TECH magazine

FALL 2019



SMART FARMS

VIRGINIA TECH IS BUILDING
THE FARM OF TOMORROW—TODAY



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BOUNDLESS IMPACT

Glenn Youngkin, co-CEO of The Carlyle Group and a member of its board of directors, was among the featured speakers at an event on Oct. 11, 2019, which was held in the Moss Arts Center to kick off Boundless Impact: The Campaign for Virginia Tech. The campaign, which is the most ambitious in Virginia Tech's history, is expected to fuel major initiatives across the university. Turn to page 33 to learn more.

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Virginia Tech is leading the charge to harness technology to spark a new agricultural and natural resources economy. On the farm of the future, drones will communicate with robots. Sensors will upload data to guide crop and herd management. Plants will be biodesigned, and farm implements will include not only tractors but iPads as well.

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ON THE COVER: Brandon Bunn uses a drone, to oversee feed crops and to assist with cattle management on his family's farm in Dublin, Virginia. (at right) Fitz and The Tantrums perform for a crowd of nearly 8,000 at a special concert held during a weekend of festivities to kick off Boundless Impact: The Campaign for Virginia Tech. Photos by Jeff Greenough.





PRESIDENT'S MESSAGE

FUELING EXCELLENCE: Virginia Tech President Tim Sands welcomes special guests to an event celebrating Boundless Impact: The Campaign for Virginia Tech.

A PIVOTAL MOMENT

Autumn is beautiful in Blacksburg, and the energy on the Virginia Tech campus is contagious as our newest students find their places in the Hokie community and alumni take part in our timeless traditions. While that may sound like “business as usual” for a new semester, I believe fall 2019 is a pivotal time in our university’s history.

We began the academic year with a new strategic plan, The Virginia Tech Difference: Advancing Beyond Boundaries. It establishes four priorities: Advancing Regional, National, and Global Impact; Elevating the *Ut Prosim* Difference; Being a Destination for Talent; and Ensuring Institutional Excellence.

We are off to a great start.

This fall we made history as our Mid-Atlantic Aviation Partnership and Wing, an offshoot of Google’s parent company Alphabet, began the country’s first residential commercial drone delivery program in nearby Christiansburg, Virginia. Virginia Tech continues leading the way in shaping solutions for tomorrow’s autonomous vehicles and smart infrastructure.

Plans for the Innovation Campus in the greater Washington, D.C., area are moving forward. We’ve selected a prime location in Alexandria’s National Landing development, and our first class

of master’s degree students begins studies next year as we step up our efforts to meet the commonwealth’s needs for tech talent.

The Fralin Biomedical Research Institute’s newest building in Roanoke will open next year, as Anthony-Samuel LaMantia, one of the nation’s leading neuro-geneticists, prepares to join the institute, and Virginia Tech begins a university-wide cancer research initiative.

On Oct. 11, we announced our plans to fuel excellence across all university programs and advance our strategic priorities when we launched Boundless Impact: The Campaign for Virginia Tech. Our goals are ambitious, as we are seeking to engage 100,000 alumni in the university’s mission to serve humanity and raise \$1.5 billion to establish Virginia Tech’s place in the world as a catalyst for innovation that impacts everyday life. Innovation can take on cancer, feed hungry populations, build tomorrow’s infrastructure, and prepare a new generation of leaders to take on society’s biggest problems.

Look at what we’ve accomplished so far, and imagine what we can achieve in the future.

It’s the kind of challenge that always brings out the best at Virginia Tech, and I invite you to join us. ■

Tim Sands is Virginia Tech’s 16th president.

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

LETTERS

TO THE EDITOR

REMEMBERING THE GREAT WAR

I sincerely enjoyed reading the article about World War I in the summer edition of Virginia Tech Magazine. I attended VT from 1956 through 1958 but did not graduate as I joined the Naval Aviation Cadet Program. I earned my Navy Pilot Wings on Feb. 1, 1960. I spent 30 years in the Navy and flew from four different aircraft carriers. The Navy sent me to college in California to complete my degree. I retired in 1986. I worked for Anteon/General Dynamics for 24 years and have been a substitute teacher in Fairfax, Virginia, for eight years.

My father and his brother were 1915 graduates of VPI. My dad was an instructor in the Army at Fort Jackson, South Carolina. His brother worked for General Electric in Richmond, Virginia, as a chemist during the war. Neither was sent overseas to fight; they were preparing to go when the war ended. Most of my dad’s memorabilia is in the army museum at Fort Jackson. I have some of the items as well.

I hope this information is not boring, but I wanted to share some World War I, Virginia Tech history. I am sure there were many other Hokies who served in that great war also.

*Rowlett H. Bruce Jr.
Fairfax, Virginia*

AN HONORABLE MENTION

I read with interest the story in the summer issue of Virginia Tech Magazine that covered alumni who fought in World War I, and in particular about Capt. Lloyd W. Williams, Class of 1907.

Lloyd Williams was from Berryville, Virginia, where I also grew up some many years later. His name and fame are well known there. The local armory and National Guard Headquarters were named for him.

The companion story about The Rock brought back memories of the many times I saluted it on my way to and from Thomas Hall.

Thanks for keeping the memory of a fine Hokie alive.

*J.D. Berlin '57
Winchester, Virginia*

CORRECTION

Laura Belmonte, dean of the College of Liberal Arts and Human Sciences, was incorrectly referred to as Laura Delamonte in a headline on p. 13 of the summer edition of Virginia Tech Magazine.

HORSING AROUND: Amiya Veatch shares a moment with Peanut (left) and Picasso (right) on her farm in Fort Washington, Maryland. She is married to Jeffrey Veatch '93, who serves on the university's Board of Visitors.



AROUND THE DRILLFIELD

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NEWS

FINDING SANCTUARY

IN MARCH 2018, SHERIFF'S DEPUTIES AND ANIMAL control officials discovered 100 neglected horses barely alive in southeastern Maryland.

Corresponding media coverage caught the attention of Amiya Veatch, a member of the Advisory Council at Virginia Tech's Marion duPont Scott Equine Medical Center (EMC) in Leesburg. A longtime rider and horse owner, Veatch responded with an immediate offer of help. When the organization handling the rescue effort eventually agreed to let her visit, Veatch instinctively decided to bring a horse trailer along.

When Veatch returned home to Alexandria, Virginia, she was joined by a pregnant mare that she later named Mona Lisa and a young chestnut male now called Peanut.

Not knowing when Mona Lisa might give birth or how the delivery might go, Veatch enrolled her in the Foaling Out Program at EMC. Mares in the program are attended primarily by EMC's internal medicine service, but the center's theriogenology service (reproduction and breeding) and the surgery and anesthesia team assist as needed.

In the absence of a medical history, clinicians carefully checked the mare's body condition, administered the appropriate vaccines, and performed an ultrasound to evaluate fetal condition. Mona Lisa delivered a healthy foal, Picasso, about three months after arriving at EMC. To read more, visit vetmed.vt.edu/yearling. ■

MIKE CHIRLEISON, ROCK CREEK PRODUCTIONS



THE MED STUDENTS ARE IN: Students at the Virginia Tech Carilion School of Medicine volunteer at the Bradley Free Clinic in Roanoke on Thursdays.

MEDICAL AID BRIGADE

ON THURSDAY EVENINGS IN SOUTH-west Roanoke, a medical clinic partly staffed by Virginia Tech Carilion School of Medicine students opens its doors for patients.

It's the Bradley Free Clinic, where patients who, due to social and economic circumstances, come seeking free care for illnesses, minor injuries, and ongoing medical conditions.

"It's a wonderful chance to work with and learn from a diverse population of patients in our community," said Meyha Swaroop, a third-year medical student who started working at the clinic early in her first year. "I have learned so much about medical conditions, as well as ways in which we, as future physicians, can help improve access to care for our own patients."

Volunteering at the clinic is one of the most popular service opportunities at the

school, with available student slots filling a month in advance.

During the course of an evening, the students divide into two groups to see patients. Under the watchful eye of a physician preceptor, who is also a volunteer, first- and second-year students interview patients, discuss their symptoms, notate their histories, and take their vitals. Upper-level students discuss possible diagnoses and treatments. Everything is then presented to the preceptor, who oversees each patient encounter and makes the final decision on the course of treatment.

Fourth-year student Mira Tanenbaum is a regular volunteer at the clinic. "The Free Clinic is a pretty great place where you get to really use what you're learning to make a strong impact on the community," she said. "It's a service that I find really valuable, and I want to be able to contribute wherever I end up after medical school." ■

E-SCOOTERS ROLL ONTO CAMPUS FOR PILOT STUDY



THIS FALL, VIRGINIA TECH students and faculty are using electric scooters (e-scooters) to cruise around campus while also contributing to research.

The Virginia Tech Transportation Institute (VTTI) is partnering with Ford-owned micromobility company Spin to conduct a naturalistic driving study of scooter riders on campus.

Currently, 300 e-scooters are available at university ride-share stations and may be checked out for short commutes across campus.

As part of the pilot research initiative, VTTI is equipping 50 of the scooters with forward-facing cameras and other research equipment to record and analyze trends in rider behavior, interactions with other road users, and other valuable safety data. The cameras will record the area directly in front of riders. Also, with approval from the Institutional Review Board, up to 20 fixed cameras will also be placed in public places around campus to capture additional footage of scooter interactions.

The scooters will be operational for 12 months. ■

VIBRATION STUDY TARGETS FOOTBRIDGES



FOR MEHDI SETAREH AND HIS research team, the simple task of walking across a pedestrian bridge can help make future bridges safer.

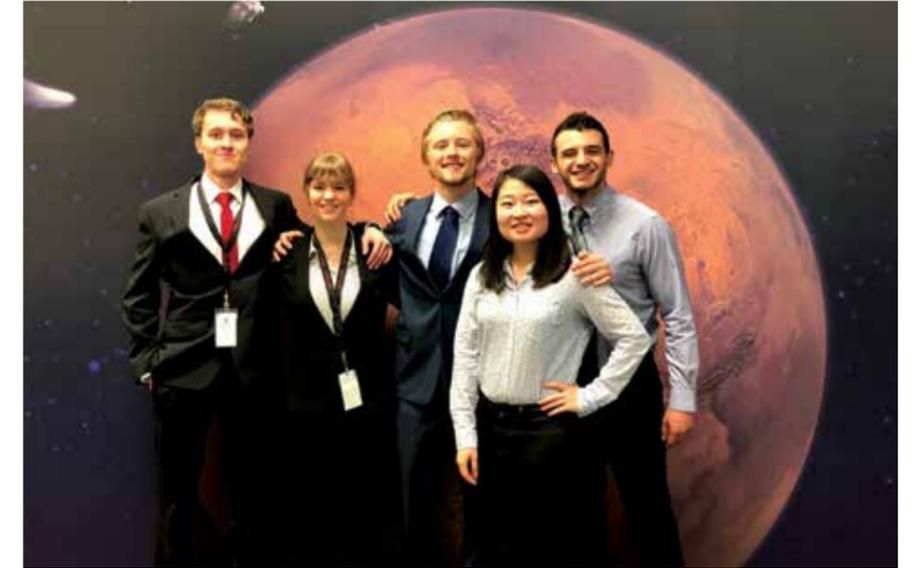
Setareh, a professor in the School of Architecture + Design in Virginia Tech's College of Architecture and Urban Studies and founder/director of Virginia Tech's Vibration Testing Lab, studies vibrations caused by footsteps. Excessive vibration makes a pedestrian bridge uncomfortable for the user, and it can be expensive to fix.

To collect needed data, Setareh monitors volunteers as they walk across a pedestrian bridge. For several years, he has used the footbridge at the University Gateway Center.

Researchers realized they also needed to have groups walk in unison across the bridge, comparing the vibrations created with the more random patterns of people walking normally. So, Setareh turned to the Virginia Tech Corps of Cadets.

Thirty cadets along with the Highty-Tighties, the corps' regimental band, made 72 passes across the footbridge this fall.

Setareh's research team used a series of vibration sensors mounted at the center of the bridge to map the cadets' actions. ■



OUT OF THIS WORLD: Members of the HokieNauts visited NASA's Johnson Space Center to present their ideas for new digital helmets to help astronauts communicate in space. The students are (left to right) Samat Imamov, Emily Harris, David Haas, Vina Shen, and Jimmy Singer. (Not pictured: Adam Caporuscio, Brady Blauvelt, Adi Sircar, and Lei Zhang.)

HOKIES DESIGN SPACE HELMETS

COMMUNICATION IS NOT ALWAYS easy on Earth, much less in outer space. A group of students—dubbed the HokieNauts—hopes to change that.

These Hokies, spanning a variety of majors, were among the 12 finalists in a national NASA-sponsored competition to design informational digital displays to fit inside an astronaut's helmet. The design challenge—NASA Spacesuit User Interface Technologies for Students—calls on student teams to create an information system using Microsoft HoloLens, a software that gives astronauts instructions both audibly and visually. It uses a virtual reality headset and a transparent lens for an augmented reality look, which enhances real-world objects.

Currently, all communication with an astronaut during a spacewalk is done by

voice with a crew member, according to NASA. But voice commands are not always effective. NASA wants to create helmet-based visual displays for better communication.

This is the second year of the challenge.

Samat Imamov, who developed the interface for the project, said he joined the group for the opportunity to work with NASA. "It's a good résumé-builder," said Imamov, a fifth-year senior who is majoring in computer science and minoring in music technology. "I had never done anything like this. I had to learn everything from scratch."

The HokieNauts aren't taking any time off soon. The team plans to participate in the 2019-20 NASA SUITS competition, and they are looking for more students to join the group. ■



FAMILY TIES: Valarie Johnson McCullar, a Fraction descendant, stands outside the Fraction Family House at Solitude.

FAMILY VISITS CAMPUS HOME DEDICATED TO ONCE-ENSLAVED RELATIVES

IN JUNE, VALARIE JOHNSON MCCULLAR was one of a handful of descendants to visit, for the first time, the land and structures her family, the Fractions, helped cultivate on Virginia Tech's campus while enslaved there in the 19th century. The family members toured the Solitude plantation house, which is beside the Duck Pond, and saw the restored nearby outbuilding that was recently set aside to honor the enslaved families who once lived there and in similar dwellings on the plantation.

"It's all cleaned up now, but there were probably 20 or 30 people functioning in there at a minimum, laying end to end to end," said McCullar, imagining the harsh conditions of the time. "So, it's heart-breaking; but on the other hand, I'm here, so we survived."

In April, Virginia Tech's Board of Visitors memorialized the tiny three-room building with a unanimous motion to name it the Fraction Family House at Solitude. The approved resolution was "in acknowledgement of the contributions of the Fraction family in the creation and emergence of Virginia Tech as a major land-grant university, and in accordance with the university's efforts to transform an historic location into a site for the interpretation of the African American experience on campus and the region."

Historical records indicate that the McNorton, Saunders, and Fraction families all resided on the site at some point, with the Fractions being the most numerous. The house is meant to acknowledge all three of the families. ■

INNOVATION CAMPUS LANDS PRIME LOCATION

VIRGINIA TECH'S NEW INNOVATION Campus has a home.

The university will partner with Lionstone Investments to build its Innovation Campus in Alexandria as part of a new mixed-use development in National Landing, just steps away from the future Potomac Yard Metrorail Station. The 1 million-square-foot graduate campus will be part of a 65-acre mixed-use district planned and developed by Lionstone and real estate investment trust JBG SMITH.

The campus's strategic location, on 15 acres just south of the Four Mile Run stream that separates Alexandria and Arlington, positions Virginia Tech and its future partners near the nation's capital, diverse industries, and leading tech companies, including Amazon and its HQ2 project.

The campus will include classrooms, incubator space for new startups and research and development, offices for industry collaboration, and convening space for alumni events. Also, the development plans call for public open space and ground-floor retail.

The first class of Innovation Campus master's degree students will enroll in the fall of 2020 in existing space adjacent to the site of the future academic buildings. In June, Virginia Tech's Board of Visitors approved the campus's first new degree. The degree, a master's of engineering in computer science and applications, was approved by the State Council of Higher Education for Virginia in the fall.

For more, visit vt.edu/innovation-campus. ■

VIRGINIA TECH RESEARCHER DISCOVERS LYME ARTHRITIS COMPONENT THAT COULD OPEN DOORS TO TREATMENT

VIRGINIA TECH BIOCHEMIST

Brandon Jutras has discovered the cellular component that contributes to Lyme arthritis, a debilitating and extremely painful condition that is the most common late-stage symptom of Lyme disease.

Jutras found that as the Lyme-causing bacteria *Borrelia burgdorferi* multiplies, it sheds a cellular component called peptidoglycan, which elicits a unique inflammatory response in the body.

"This discovery will help researchers improve diagnostic tests and may lead to new treatment options for patients suffering with Lyme arthritis," said Jutras, the lead author on the study. "This is an important finding, and we think that it has major implications for many manifestations of Lyme disease, not just Lyme arthritis."

Jutras—an assistant professor of biochemistry in the College of Agriculture and Life Sciences and an affiliated faculty member of the Fralin Life Sciences Institute—and his collaborators recently published their findings in the Proceedings of the National Academy of Sciences.

This research may provide a new way to diagnose Lyme disease and Lyme arthritis based on the presence of peptidoglycan in synovial fluid in patients with vague symptoms. ■



INTO THE WILD: Students majoring in wildlife conservation surveyed invertebrates as indicators of stream quality in Stroubles Creek.

WILDLIFE CONSERVATION STUDENTS TAKE ON REAL-WORLD PROJECTS IN CAPSTONE COURSE

AT THE TOP OF BUFFALO MOUNTAIN outside Floyd, Virginia, a team of Virginia Tech wildlife conservation students uses drones to map and monitor erosion impacts on the habitat of a rare insect.

In Buchanan County, another team works with the Virginia Department of Game and Inland Fisheries to monitor and study GPS data for the state's wild elk population.

Just west of the Virginia Tech campus, a third team surveys invertebrates to make determinations about the ecological health of Stroubles Creek.

These are examples of the work students do for their capstone class, a conservation biology course in the Department of Fish and Wildlife Conservation that asks seniors to synthesize what they've learned during their college careers and apply that learning to real-time field projects.

The project-oriented focus is the brainchild of Sarah Karpanty, professor of wildlife conservation in the College of Natural Resources and Environment, who took over the course in 2014.

Senior Erin Saylor, whose team researched elk habitat availability, said that the capstone experience echoes the careers wildlife conservationists will pursue. "What I appreciate about the capstone class is how it mimics a work setting, where you have projects thrown at you. You're given resources and a task to take on, but you have to figure it out for yourself." ■

EXTRA, EXTRA!
READ ALL ABOUT IT.
For additional details, images, and videos related to the stories featured in Drillfield, go to vtmag.vt.edu.



PILOT PROJECT: Some consumers living in Christiansburg, Virginia, may choose to have qualifying purchases delivered to their homes via drone as part of study that emphasizes community feedback.

DRONE DELIVERY TAKES OFF

IN OCTOBER, IN EACH OF THREE SUB-urban yards in Christiansburg, Virginia, a drone zoomed into view, hovered over the lawn, and lowered a package neatly onto the grass.

The residential flights marked the launch of a unique air delivery service from Wing, an offshoot of Google's parent company Alphabet. Wing has been working with the Virginia Tech Mid-Atlantic Aviation Partnership (MAAP) since 2016 to bring drone delivery to the U.S.

This trial service is unfurling under the aegis of a federal drone-integration program that emphasizes community feedback, giving Southwest Virginia a unique voice in the rollout of a transformative technology.

Wing's aircraft will take off from the company's new operations site in a commercial district of Christiansburg and

fly to homes in nearby neighborhoods, delivering goods on demand from Walgreens and local retailer Sugar Magnolia and select qualifying packages from FedEx. The typical time from order to delivery is less than 10 minutes.

"This is a pivotal moment in aviation," said Mark Blanks, MAAP's director. "Package delivery has been one of the most sought-after applications for unmanned aircraft, but doing it well requires solving some of the hardest problems in the industry. It's a privilege to partner with Wing to enable a service that we believe will transform the industry and bring real value to our communities."

Over the coming months, Wing and MAAP will continue to work with the community, seeking feedback on what's working well about the service and how it could be improved. ■

A FORCE FOR FIRST-GENERATION SUCCESS

GROWING UP IN A LOW-INCOME household in Rural Retreat, Virginia, JT Addair struggled to balance his studies with an unstable home life. He arrived at Virginia Tech in 2016 homeless, estranged from his family, and fretting over how he would pay for college.

"[Virginia Tech] was the first time I had structure in my life with a stable place to stay," he said. "I felt relief and determination to make my life better than it was."

Eventually, Addair found his niche as a public relations major, along with advisors, friends, and a path to graduation.

To help other struggling students, Addair and several classmates founded 1G@VT, a campus organization for first-generation Hokies. Last year, the organization grew to approximately 100 students, staff, and faculty members. Student Affairs honored Addair with the Aspire! Award for Courageous Leadership, recognizing his advocacy on behalf of first-generation Hokies. ■



FIRST-GEN: Khalia Ellis, JT Addair, and Maggie Turbyfill share information about 1G@VT during Gobblerfest.

LF, VT NEWS

SHUSHOK NAMED INTERIM VICE PRESIDENT FOR STUDENT AFFAIRS



Frank Shushok, senior associate vice president for student affairs at Virginia Tech, will serve as the university's interim vice president for student affairs when Patty Perillo departs for a position at the University of Maryland.

Shushok will work closely with Perillo to ensure a smooth transition in leadership before her departure at the end of the year.

A member of the Virginia Tech community since 2009, Shushok oversees several key student support areas in Student Affairs. He also is an associate professor in the higher education graduate program in the College of Liberal Arts and Human Sciences.

"For the past 10 years at Virginia Tech and throughout his career in higher education, Frank has been a respected student advocate who has demonstrated a commitment to student learning and success and a deep understanding of the student experience," said President Tim Sands. "I am grateful he will transition into this important interim leadership role." ■

CLAIRE CLINE, OC, OC, EW, LF

NEWS REEL

VIRGINIA TECH VIDEOGRAPHERS HAVE BEEN HARD AT WORK CAPTURING THE UNIVERSITY'S NEWS AND EVENTS. WATCH THESE VIDEOS AND MANY OTHERS AT VIDEO.VT.EDU.



"IN MY BAG" TOUR

Three Virginia Tech alumni—Kevin Stephenson '18, Danielle Jeffers '19, and Corey Hackett-Greene '17—organized a special event to share school supplies and appreciation gifts with students and teachers in their hometowns. The "In My Bag" Tour traveled to Danville, Virginia, and Philadelphia, Pennsylvania.



DATA ART ON DISPLAY AT MOSS ARTS CENTER

Daniel Canogar, an artist from Madrid, has created a site-specific sequence of dynamic, data-fed sculptural forms now on display at the Moss Arts Center. The exhibition, "Surge," responds in real time to incoming data, everything from internet traffic at Virginia Tech to regional wind speeds.



EMERGENCY RELIEF SHELTERS FOR DOGS

Virginia Tech veterinarians, veterinary technicians, and veterinary students worked with carpenters, contractors, and other volunteers to build 100 emergency shelters for dogs enduring substandard living conditions in rural areas.



A VIRTUAL LOOK AT SLEEP PARALYSIS

Virginia Tech student Tariq Harrison vividly recalls the day that he woke up unable to move. He had sleep paralysis. The experience inspired the creative technologies major to help others understand the condition using University Libraries' Virtual Environments Studio.



HOW TECH TICKS

ABOUT TOWN

CAMPUS CONNECT

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.

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

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

Phone: 540-231-6141



VIRGINIA TECH RESEARCHERS ARE exploring the cutting edge of data analytics through the Discovery Analytics Center, the Virginia Biocomplexity Institute, and countless other pursuits. Here in Blacksburg, the architects and experts who plan for traffic on campus work in much the same arena.

These planners oversee the comings and goings of students, faculty, visitors, sports fans, and others. Their efforts help safely move tens of thousands of people, using a variety of different transportation methods, on and off campus daily.

In addition to around 33,000 students and more than 13,000 employees, an estimated 60,000 alumni, parents, and community members visit the campus each year. Personal vehicles are a popular transportation choice, with around

14,000 cars on campus every day, and more than 2,000 individuals are members of Zipcar, an on-demand car share service.

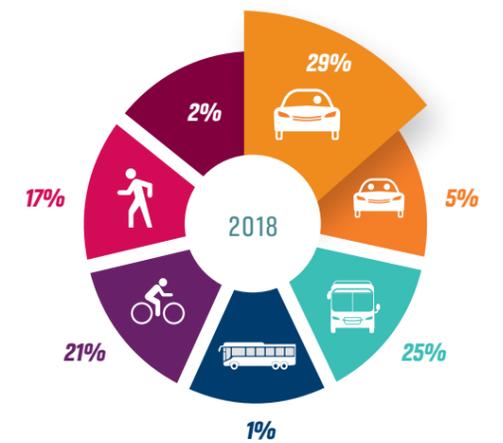
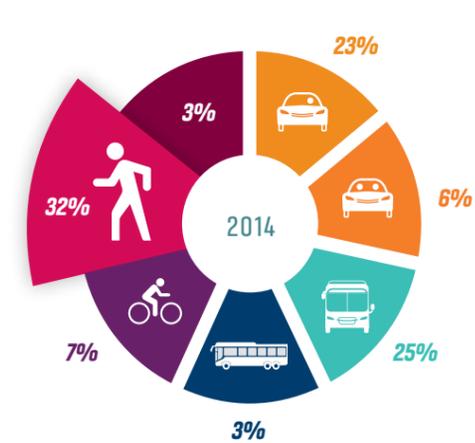
The university also supports programs that encourage car and vanpools.

Beginning in the 2019-20 academic year, students had access to another alternative transportation option: 300 e-scooters available at university ride-share stations across campus. Virginia Tech Transportation Institute researchers are partnering with scooter company Spin to conduct a naturalistic driving study on campus. ■ MA



ON THE MOVE

Learn more about campus transportation at vtmag.vt.edu.



BIKES

Students are increasingly biking to campus. There were 3,073 visits to the Hokie Bike Hub over the past year, and Roam New River Valley's bike share program recorded 8,337 trips taken in its first year.



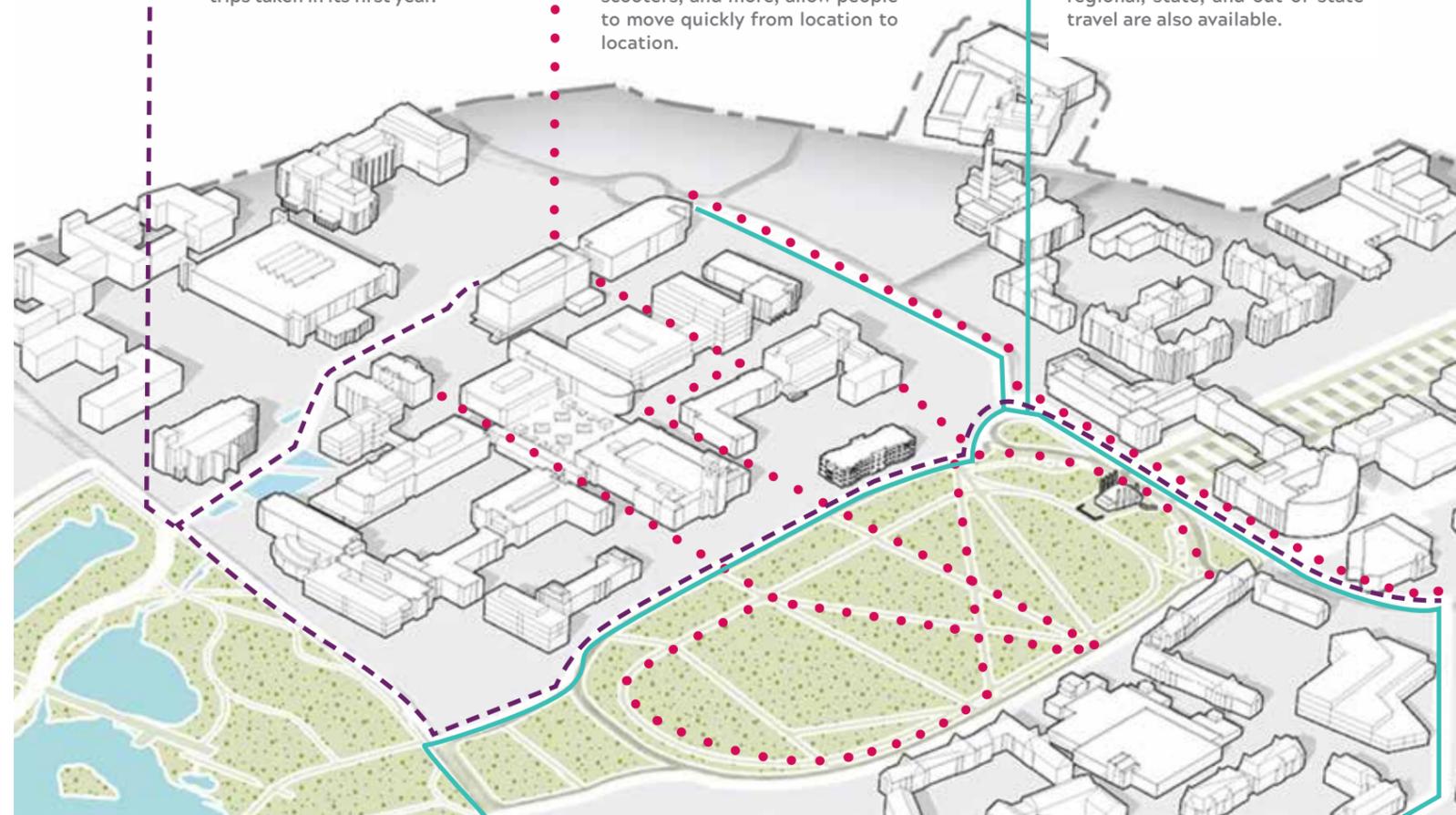
PEDESTRIANS

Although pedestrian traffic has declined since 2014, numerous walkers navigate campus each day. Alternatives, such as skateboards, inline skates, unicycles, scooters, and more, allow people to move quickly from location to location.

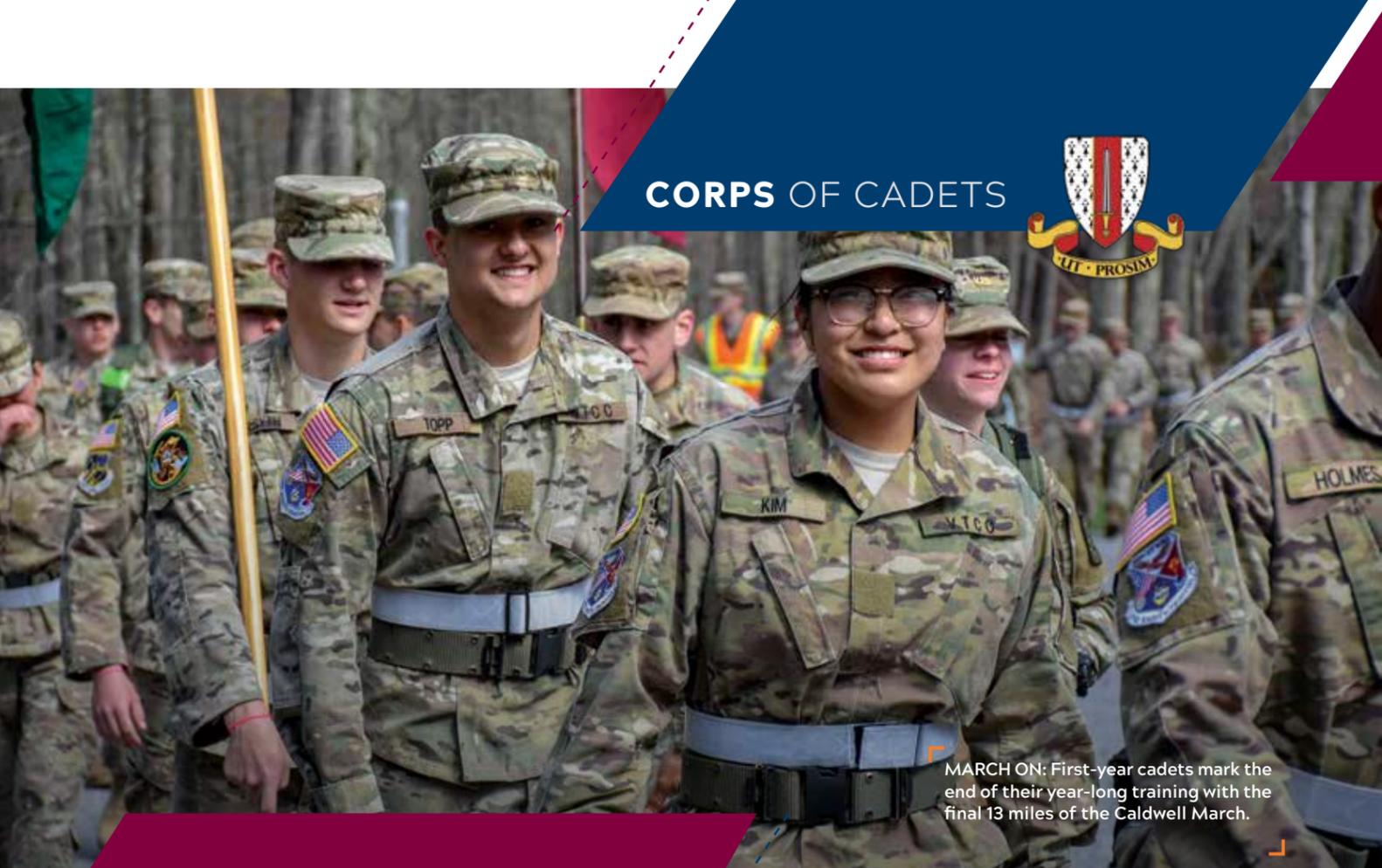


BUSES

During the 2018-19 academic year, Blacksburg Transit rides totaled 4,650,000. The number represents a 44 percent growth over four years. Mass transit options for regional, state, and out-of-state travel are also available.



DM, LOGAN WALLACE, RM



CORPS OF CADETS



MARCH ON: First-year cadets mark the end of their year-long training with the final 13 miles of the Caldwell March.

A GOAL FOR GROWTH

WHEN MATT MABUTAS PUTS ON HIS Virginia Tech Corps of Cadets uniform, he thinks of all those who did the same before him.

"I feel extremely humbled," said the sophomore, who is majoring in mechanical engineering in the College of Engineering, minoring in leadership studies in the corps, and is part of the Air Force ROTC. "The people who put this uniform on before I did, they were amazing. They built the corps into what it is now."

Mabutas may have been speaking figuratively. But to a great degree, what he said is literally true.

Mabutas was among those cadets working

summer orientation to explain the corps experience to the families of more than 400 first-year students, whose arrival boosted the corps' enrollment to 1,154. It's a far cry from the mid-1990s, when enrollment dropped below 500 overall, and the program's very future seemed in question.

The corps' inspiring resurgence is a credit to the perseverance and generosity of alumni who, decades ago, recognized the tenuous position the program was in and decided to do all they could to help. Together, they have raised tens of millions of dollars toward cadet scholarships and served as volunteers to help ensure the program's future.

Today, roughly 80 percent of cadets receive Emerging Leader Scholarships. Meanwhile, philanthropy is making possible a new Corps Leadership and Military Science Building near Lane Hall on the Upper Quad of Virginia Tech's Blacksburg campus. Approved by the Board of Visitors in June, the \$52-million, 75,500-square-foot building will bring together corps and ROTC programs now dispersed across several buildings. At the same meeting, the board also approved construction of a new residence hall for cadets, the third since 2015, which will allow the program's enrollment to reach 1,400. ■

Albert Raboteau is the director of development communications at Virginia Tech.

SHAY BARNHART



SOUND INSPIRATION

“**ONE THING I TRY TO EMBODY IS THE IDEA THAT LIMITATIONS CAN BE BROKEN THROUGH. I THINK IT'S A CONSCIOUS DECISION, AND I THINK EVERYBODY'S GOT IT IN THEM.**”

Andrew Young student

ANDREW YOUNG GREW UP SINGING in the shower, playing Guitar Hero, and listening to his dad, a retired U.S. Army colonel who played in military bands and community musician groups, bang loudly on a drum set in the family's basement. Young enjoyed dancing along to the beat.

Eventually, he decided to pick up an instrument, a bass guitar, but there was one challenge. Young had been born without a left hand or forearm, the result of a congenital amputation.

Young recalled announcing his musical intentions to his mom while holding a guitar, one of her hair ties, and a plastic spoon. "I'm going to give it a shot," he said, using the hair tie to attach the spoon to the nub of his elbow and strumming the guitar with the utensil.

Amy Young never doubted that her son would find a way.

"[Andrew's] whole life is a demonstration of creativity," she said. "We learned from a very early age that pretty much Andrew was going to figure out how to do what Andrew wanted to do."

When he was around 11 months old, occupational and physical therapists, along with family members began working with Young to help him. Those instructions didn't always stick. Young was determined to maneuver life with one hand his own way. "Most of the time it was [Andrew] guiding us," said Amy Young.

Young played baseball and football, and he ran cross country in high school. He also learned to ride a bicycle, benefitting from modifications that included transferring all brake controls to the right handlebar and adding a bar on which to rest his shorter arm.

Although Shriners Hospitals for Children provided a prosthetic hand with interchangeable ends for playing guitar or drums, Young, who taught himself to play acoustic electric guitar by watching YouTube, said he prefers a plastic spoon and a thick rubber band for strumming.

At Virginia Tech, Young discovered his place by performing at open mic nights with Virginia Tech Expressions, a student organization that encourages creative expression, and entering competitions sponsored by the Virginia Tech Union, a campus group that promotes social and educational entertainment.

A senior majoring in national security and foreign affairs in the College of College of Liberal Arts and Human Sciences, Young plays several gigs a week as a guitarist and singer at local restaurants and university events.

For Young, music is about more than playing notes. "One thing I try to embody is the idea that limitations can be broken through," Young said. "I think it's a conscious decision, and I think everybody's got it in them." ■ JB



NOTEWORTHY

Watch Andrew Young perform and learn more about his music at video.vt.edu/media/1_au5qos5m.

LF

FIELD STUDIES

HOKIES LIVE FOR GAME DAY.

Whether it's football in Lane Stadium, basketball in Cassell Coliseum, baseball at English Field, or any of Virginia Tech's 22 intercollegiate teams, fans love to cheer on the athletes in maroon and orange.

And, while thousands of students attend Virginia Tech athletic events every season, behind the scenes, a select few also are hard at work on game day. They support Virginia Tech Athletics and HokieVision as photographers, ticket sellers, and marketing interns, and assist the sports medicine and strategic communications staffs.

On the sidelines, in the locker rooms, and on the fields and courts, these students develop valuable professional skills and gain the exposure and experience that will help propel their future careers.

GRACIE SMITH, a senior studying public relations, has been a Virginia Tech Athletics photographer since 2016. She has worked with various sports teams, including football, basketball, and wrestling.

"This is my dream job, and if I could do this for a professional sports team, I would," said Smith, who interned with ESPN Radio in Richmond over the summer. "Even if I don't do photography in the end, what I'm doing right now is giving me experience in other aspects of media."

On a typical game day, Smith arrives at the event location up to five hours before game



Gracie Smith

time to plan with coworkers. She also captures images of pregame festivities, such as the Hokie Walk down Beamer Way, and forwards early photos to social media personnel. She covers warmups, works with colleagues to record game action from start to finish, and attends the two-hour post-game conference.

DAVID KELSEY, a senior studying multi-media journalism with a sports media and analytics concentration, shoots videos and photos for HokieVision.



David Kelsey

"Working for Virginia Tech Athletics has taught me more than I could have ever imagined," said Kelsey. "HokieVision has given me the confidence in myself to go

into the sports media field and know that I can succeed in my career on day one."

On a typical football game day, Kelsey arrives at the office three hours before kick-off, where he prepares for his assigned event, which may involve manning a camera or working the video board controls during the game. Later, Kelsey will work the post-game press conferences or post highlights and news to the athletics website.

Kelsey hopes to work for a professional sports team. During the summer, he served as a videographer and editor for the Chicago Red Stars, a women's professional soccer team.

MARY CATHERINE PENNINO, a senior studying marketing management, has been a marketing intern for Virginia Tech Athletics since 2018. Pennino works primarily with softball, women's basketball, Football Fan Day, and Maroon and Orange Memories, which is a fan experience program.



Mary Catherine Pennino

"In this job, they really expect you to take charge, create ideas, and take the position seriously," said Pennino. "When I am



looking for a full-time job, hopefully in athletics, I can say I've done this. I wasn't just running to get coffee."

As an intern, Pennino interacts with fans, works with players, deals with merchandise, and helps with events. Walking through the tunnel with members of the football team tops her list of memorable moments.

MIGUEL PACHECO, a senior studying human nutrition, food, and exercise, serves as an assistant to the head sports medicine trainer for the men's basketball



Miguel Pacheco

team, working to prevent player injuries and assisting with rehabilitating those who are injured.

A typical game day for Pacheco lasts

between eight and nine hours and involves tasks that range from setting up the taping section and offering hydration and towels to players to maintaining an emergency first aid kit.

"Virginia Tech has really taught me professionalism and maturity," said Pacheco, who will graduate this fall and intends to pursue a career in physical therapy. ■

Haley Cummings, a senior majoring in public relations, is an intern with Virginia Tech Magazine.



EXTENDING BEYOND THE FARM

Rooted in agriculture, Virginia Cooperative Extension (VCE) has grown into a valued resource for tapping into land-grant university research for all Virginians. With local offices in a combined 108 counties and cities, VCE provides needs-based programming and ample opportunities to connect with research-based solutions for a variety of issues that extend well beyond the realm of soil and livestock.

HERE ARE JUST A HANDFUL OF THE HUNDREDS OF ONGOING EXAMPLES:

ALBEMARLE COUNTY

Partnering with the Albemarle County Fair, Charlottesville Parks and Rec, and the Highland historic site, the Ag in the City program introduces youth to the agriculture community and helps develop the concept of where food comes from.

CULPEPER, MADISON, AND ORANGE COUNTIES

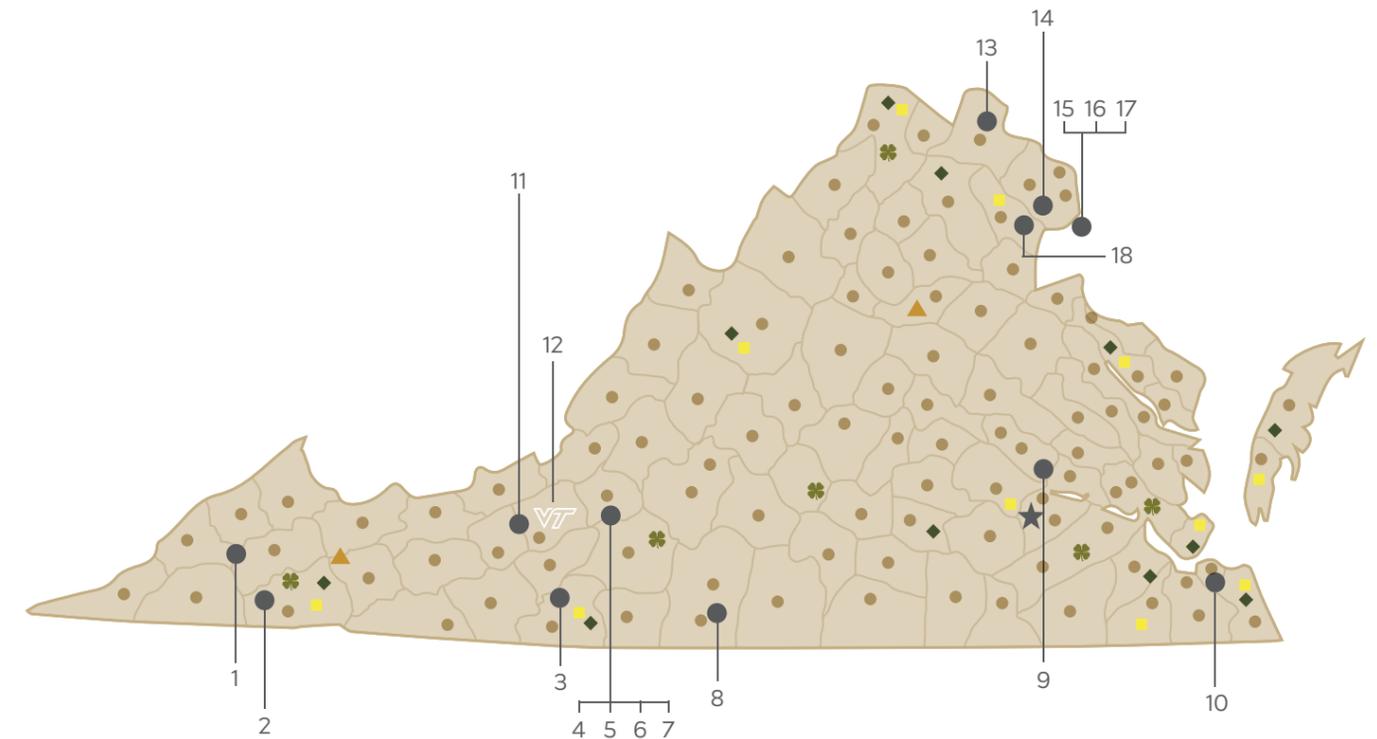
The Stone Soup Job Skills Training Program teaches food safety, nutrition, customer service, culinary, and shopping skills to low-income and developmentally and intellectually challenged individuals.

FAIRFAX COUNTY

The Master Food Volunteers program focuses on helping military families make healthy and affordable meals by providing recipes and nutrition education.

LEE COUNTY

A Farm and Land Transition workshop provided assistance for the process of making legal and personal decisions that protect farms, land, and resources.



- 1** The Powell River Project Education Center
- 2** Southwest Virginia Higher Education Center
- 3** Reynolds Homestead
- 4** The Hotel Roanoke & Conference Center
- 5** Virginia Tech Carilion School of Medicine and Fralin Biomedical Research Institute at VTC
- 6** Virginia Tech Roanoke Center
- 7** WVTF Radio
- 8** Institute for Advanced Learning and Research
- 9** Virginia Tech Richmond Center

- 10** Virginia Tech Hampton Roads Center
- 11** Whitethorne-Kentland Campus
- 12** Virginia Tech Blacksburg
- 13** Marion duPont Scott Equine Medical Center
- 14** Virginia Tech Northern Virginia Center; Language and Culture Insitute
- 15** Virginia Tech Research Center — Arlington
- 16** Washington-Alexandria Architecture Center
- 17** Innovation Campus
- 18** Occoquan Watershed Monitoring Lab

- ICON KEY**
- 107 Local Extension Offices
 - ▲ Two Departmental Research Centers
 - ✿ 4-H Educational Centers
 - ◆ Cooperative Extension District Offices
 - Virginia Agricultural Experiment Station
 - ★ Virginia State University, Petersburg

ROCKINGHAM AND FRANKLIN COUNTIES

A Risk Management Education Center grant has allowed for the development and implementation of curriculum and training related to mental health issues, stress, and suicide prevention for farmers.

4-H CENTERS

There are six 4-H Educational Centers located throughout Virginia. Each one serves a particular geographic region, providing camping experiences and a host of other unique learning opportunities.





FARM TECH: Brandon Bunn uses technology, like drones, to support pasture management on his family's farm. (at right) Halter sensors, mobile phones, and robots are joining more traditional equipment on farms across the commonwealth.

JEFF GREENOUGH, LEVEL 5, EW, TIM SKILES

SMART FARMMS

BY TRAVIS WILLIAMS



FIELD DAY: For 10-year-old Wyatt Bunn, using technology on the farm is a lot like gaming in the field. He is able to monitor cattle and view pastures remotely, helping his family manage daily tasks more efficiently.

Hovering between the clouds and the cows, Wyatt Bunn keeps a stealthy eye on his family's cattle.

"When I fly by, they don't notice it, but if I get down too low, they do," said the third-generation Pulaski County farmer as he guided a tiny quadcopter drone from hundreds of yards away.

"It's just fun," said the 10-year-old pilot.

Using a tablet connected to the drone's remote control, Wyatt surveys the herd, checking for injured or lost animals.

"Wyatt is able to do before school what usually takes us an hour to do," said Doug Bunn, Wyatt's grandfather. "He'll take the drone and check all the cattle. He'll do it in about 10 minutes, and he can even zoom in on them enough to read the ear tag."

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When I first got into farming, cabs on tractors and air conditioning were the big things, and we didn't have that. Now, ... they're coming out with drones that I think will eventually have sprayers on them and will go out and identify a weed on their own.”
Doug Bunn
farmer

Keeping an eye from the sky on 600-plus cattle is just one example of how the Bunn family uses advanced technology to manage their 1,000-acre farming operation in Dublin, Virginia.

Although tapping into the technology trend isn't a new concept for individuals and families in the agriculture industry, the opportunities for connectivity from the field directly to the research lab may lead to game-changing innovations for growers around the globe and right here in Virginia.

According to the Bunn family, deciding to add some sophisticated digital devices to the more traditional tools of their trade grew out of their relationship with the Pulaski County office of the Virginia Cooperative Extension (VCE).

"The Extension service lets us know about lots of things that we really don't know about," Doug Bunn said. "When I first got into farming, cabs on tractors and air conditioning were the big things, and we didn't have that. Now, you know, they're coming out with drones that I think will eventually have sprayers on them and will go out and identify a weed on their own."

ROOTED IN THE CAUSE

Bridging the gap between the latest research-based technology and the farmers in the fields fueled the mission of Virginia Agricultural and Mechanical Institute, today's Virginia Tech, when it launched in 1872. Early on, that meant educating growers on the science of planting and pesticides and teaching producers about higher-quality animal feeds and improved techniques for meat preservation. The addition of the Virginia Agricultural Experiment Station in 1886 and then VCE in 1914 bolstered these efforts.

In the 21st century, however, advancing the mission of the land-grant university involves tapping into innovations and technologies that improve sustainability, promote health and safety, and meet the food needs for a complex, rapidly changing population.

The Food and Agriculture Organization of the United Nations estimates the need for a 70-percent worldwide increase in crop production by 2050 on only about a 5-percent increase in farmable land. The impending need calls for intensifying crop produc-

tion, increasing stewardship of natural resources, and leaning on technology to produce those results.

On the local farm, that translates to providing opportunities to expand from cows and plows to drones, global positioning systems (GPS), and wearable exoskeletons. It means embracing tools that capture big data and leaning on skilled researchers to translate and communicate information across the commonwealth in real time. It means working hand-in-hand with producers of all levels to discover practical applications for innovations and research that will allow farmers to work smarter, longer, and with a better quality of life.

And it means developing the SmartFarm Innovation Network.

With about 120 interconnected locations that reach every corner of the state, the Virginia Tech-led SmartFarm Innovation Network will provide faster access to data; allow for real-time, geographically specific decision-making; and streamline statewide collaboration. The platform will allow researchers and industry leaders to weave together what happens in the fields and forests with emerging technologies in areas that range from biodesign and artificial intelligence (AI) to cybersecurity. And it provides a fertile ground for applying the advancements resulting from Virginia Tech's growth in the greater Washington, D.C., metro area and the historic launch of the Innovation Campus, as well as the revolutionary biomedical work of the Fralin Biomedical Research Institute at VTC in Roanoke.

"For years we have had in place an extensive network of people and programs around the commonwealth between our ARECs [Agricultural Research and Extension Centers], our local Extension offices, and the university," said Alan Grant, dean of Virginia Tech's College of Agriculture and Life Sciences. "The SmartFarm Innovation Network will collaboratively streamline and expedite our research, workforce development, and outreach in a way that will boost our largest industries—agriculture and forestry—and position them as global leaders in solving not only today's most pressing issues, but the issues of tomorrow as well."

"Once fully realized, the SmartFarm Innovation Network will bolster Virginia Tech's impact across the commonwealth," said Virginia Tech President Tim Sands during his State of the Uni-

versity address in September. Moving Virginia Tech's impact forward regionally, nationally, and globally is one of four priorities set forth in the university's newly approved strategic plan: The Virginia Tech Difference: Advancing Beyond Boundaries.

The SmartFarm Innovation Network is expected to push limits and challenge the status quo in order to leverage Virginia Tech's strengths in ways that empower the commonwealth's agricultural industries and farming communities, anticipating the needs of tomorrow and solving them today.

"When you think about what's happening around the world with climate change, urbanization, and related issues, you wonder, 'How do we help our producers evolve to address these issues?'" Grant said. "By working together, we're going to find ways to prepare people to deal with these emerging problems, while at the same time using the network as a resource for preparing students to go out into the real world and become global leaders in solving those problems."

GROWING OPPORTUNITIES

Agriculture and forestry combine to make up what is by far Virginia's largest industry, recording a joint annual economic impact of more than \$91 billion and sustaining more than 440,000 jobs, according to 2017-18 figures from the Virginia Department of Agriculture and Consumer Services.

In April 2018, stakeholders from across the commonwealth gathered at the Virginia Agriculture and Natural Resource Summit to discuss the challenges facing Virginia's agricultural industry. During the two-day event, participants endorsed a plan that would develop an infrastructure to access Virginia Tech's resources and expertise, as well as provide a platform for real-world utilization of data analytics and research findings. By streamlining the connections and programming on Virginia Tech's Blacksburg campus, as well as the 11 strategically located ARECs and the extensive VCE network, the SmartFarm Innovation Network will create a state-wide incubator for data collection and meaningful application.

Access to such information is important for companies like Novozymes Biological Inc. in Salem, Virginia, which is working

to develop microorganisms that will optimize a crop's ability to absorb nutrients, increasing both productivity and sustainability.

"This is really an application of big data and data science agriculture at home, just like we are developing in other parts of the world," said Chris McDowell '92, head of operations for Novozymes. "The SmartFarm Innovation Network will provide the infrastructure and methodologies to run really meaningful experiments, get even more data, and discover how to leverage it to best improve agriculture."

In addition to engaging researchers, the network will tap into the university's students who are skilled in global system sciences, AI, and data analytics. This strategy encourages diverse perspectives and transfers fresh ideas to the network while equipping students with the information-gathering and problem-solving skills required by employers.

One such project, officially announced in June, connects the Virginia Agricultural Experiment Station with weather-intelligence provider WeatherSTEM. The partnership, which includes each of the ARECs as well as the Urban Horticulture and Turf Grass Centers in Blacksburg, will produce real-time, geographically pinpointed forecasts. Automatically uploaded to the cloud, the information will be accessible both online and via a mobile app. This will provide producers, residents, researchers, and the public with up-to-the-minute weather information.

"For researchers who are involved in analyzing weather conditions and patterns through computer-simulated modeling, retrieving data from multiple sources in various locations across the state is critical to understanding those patterns," said Saied Mostaghimi, associate dean for research and graduate studies in CALS.

Mostaghimi, who also serves as the director of the Virginia Agricultural Experiment Station, is excited to collaborate with Virginia Tech's College of Natural Resources and Environment in the initiative. The WeatherSTEM site is expected to generate opportunities for students to assist with the installation and calibration of sensors and related equipment, among other learning experiences. It's the type of experiential opportunity that mutually benefits students looking to enter the workforce and employers seeking qualified candidates to fill positions.

CULTIVATING RESEARCH

Across the SmartFarm Innovation Network, Virginia Tech researchers recognize the potential impact of elevating and expanding their work across the state.

"It's the type of program that's kind of limitless," said Robin White, an assistant professor whose work has focused on the cross section of data and animal science for the past five years.

Working at the Middleburg AREC in collaboration with colleagues from the College of Engineering, White plans to merge data from radio-transmitting halters on horses and cattle with information from sensors planted in the animals' pastures. This sensor network collects authentic data without human or external interference, which is then transmitted to the cloud for use in animal behavior studies and to analyze the impact of herds on the environment in real time.

"This will help us better understand how livestock interact with their broader ecosystem," said White, adding that the information

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The SmartFarm Innovation Network will provide the infrastructure and methodologies to run really meaningful experiments, get even more data, and discover how to leverage it to best improve agriculture.

Chris McDowell '92
Novozymes

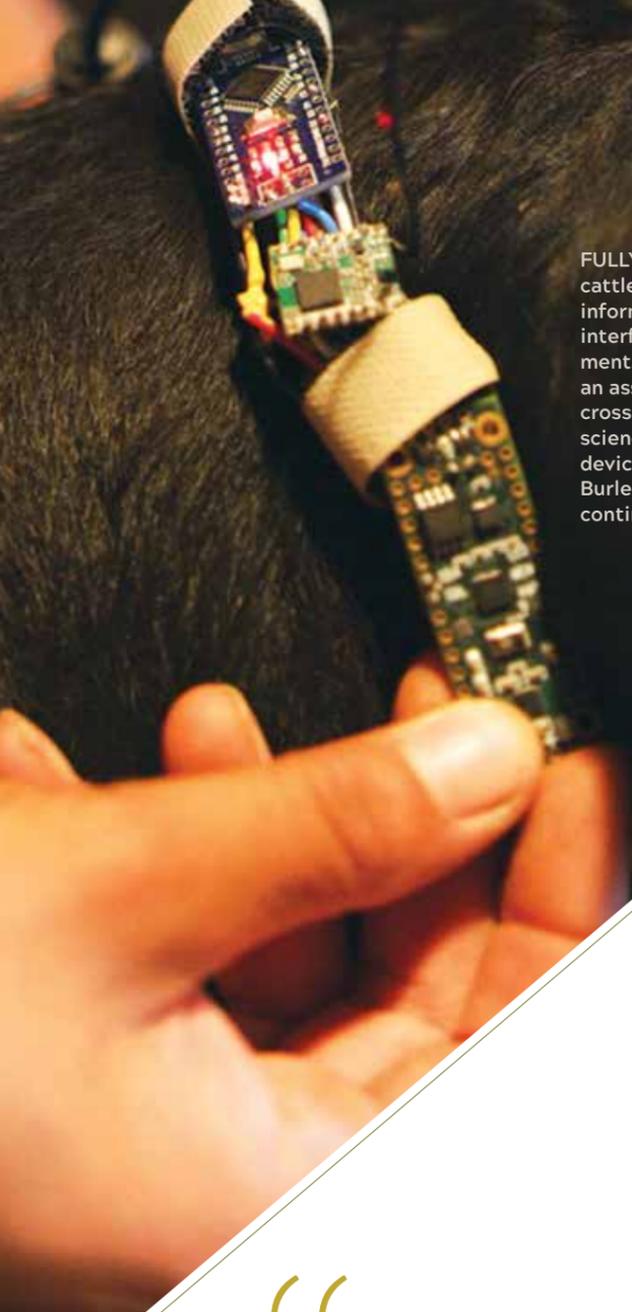
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PETER MEANS, TIM SKILES

LOCAL FORECAST: WeatherSTEM monitoring systems measure various weather conditions, record real-time imagery, and provide time-lapse visuals of associated weather patterns. (at left, top) Computer programs aid in the analysis of data to inform agricultural decision-making. (at left, bottom) Exoskeletons may allow farmers to prevent injuries and work more safely and effectively over longer periods of time.





FULLY SENSORED: Tiny sensors in cattle halters provide important information with little or no human interference in the animal's environment. (at right, top) Robin White, an assistant professor, works at the cross section of data and animal science. (at right, bottom) Assistive devices enable farmers, like Ron Burleson of Unionville, Virginia, to continue doing the work they love.



would help identify production practices that benefit producers, animals, and the environment.

Once fully operational, the SmartFarm Innovation Network will provide a platform for expanding such research to all ARECs. This will boost data collection, add the diversity of regional landscapes to the equations, and accelerate the timetable for turning research into working solutions for Virginia producers.

At the Eastern Virginia AREC in Warsaw, Virginia, Superintendent Joseph Oakes has already determined some early benefits of the SmartFarm Innovation Network.

The real-time, site-specific forecasting and monitoring from the collaboration with WeatherSTEM have increased the efficiency of certain projects, such as Oakes' research on the use of nitrogen as a fertilizer to maximize wheat and barley production.

Using drones, Oakes is able, in minutes, to inspect large sections of wheat and barley in the field that would take hours to observe on foot. A multispectral sensor on the drones, which collects visible and nonvisible wavelengths of light, is able to pinpoint specific nitrogen needs for a particular area of growth.

"In the past, a person would have to go out on foot and count the tillers to determine how much biomass was present," Oakes

said. "You would count a square foot and create an estimate for the rest of the field."

Surveying the entire field produces more accurate readings and results in a more environmentally and economically friendly use of nitrogen, with the added benefit of identifying pests that might otherwise go undetected.

"The sensors pick up bands from the infrared spectrum, so they have the potential to recognize a disease before it's visible to the human eye," Oakes said.

Like White's work, this project has the potential to be quickly disseminated through the AREC and VCE branches of the SmartFarm network. And while the heightened connection will benefit Virginia farmers, the expedited feedback from growers and producers will aid researchers concurrently.

"In a lot of ways, the technology then becomes a new tool for our Extension agents to do a better job of serving the stakeholders of the commonwealth, but this integration with stakeholders also helps our research," White said. "We can design the perfect sensor tool, but if it does something unexpected, like scare the animal, it's not going to work in real life."

Collecting real-life feedback is a primary charge of Kim Niewolny, associate professor in the College of Agriculture and Life Sciences and director of the AgrAbility Virginia program. For the past 17 years, Virginia Tech has housed the AgrAbility Virginia program, which is funded by the U.S. Department of Agriculture (USDA) and is a partnership program with Eastern-seals UCP to bring assistive technology and culturally appropriate education to farmers who identify with an injury, illness, or disability.

"My part of the work is to assess needs, provide education and assistive technology resources, offer trainings, and build organizational capacity across the rural rehabilitation network to ensure our farmers can farm safely and productively with a sense of hope," Niewolny said. "We have good ideas that involve the use of assistive technologies, but getting the farmers involved in the design and assessment of the technology is critically important."

Consider Unionville, Virginia, farmer Ron Burleson '81, who suffered a debilitating stroke while in his mid-50s. Teaming with the Blacksburg-based Torc Robotics and the university, AgrAbility helped equip Burleson with an all-terrain wheelchair that enables him to navigate his field and greenhouse.

Such devices are increasingly needed, as the average age of those working full-time in agriculture continues to rise. The most recent USDA census reported the average age of American farmers to be just over 59 years old, an increase of nearly 10 years over the 1978 census. But work to meet the need is for naught if the assistive technology is either too expensive or too cumbersome for farmers to actually use.

Recently, two National Science Foundation grants were awarded to Virginia Tech researchers to advance robotics and technology support for Virginia's agricultural workers. AgrAbility is involved with both projects. Mechanical engineering assistant professor Alan Asbeck is developing a lightweight exoskeleton to relieve pressure on farmers' backs and knees, and professor of mechanical engineering Alex Leonessa is generating a robotic glove to assist with gripping objects.

Asbeck and Leonessa collaborate with Niewolny and Divya Srinivasan, assistant professor of industrial and systems engineering, to ensure the resulting devices will be beneficial, and not harmful, for the wearers. AgrAbility helps link the university with the farming community to help design the robotic assistive technology.

"There's a trend for technology to get designed by technologists, and often in isolation from the users that it gets designed for," Srinivasan said. "We're trying to reverse that trend by saying we need the human piece right at the design stage."

According to Niewolny, VCE programs are an ideal conduit for information sharing and provide an access point for the feedback needed to implement useful, safe, and appropriate technologies. By expanding such programs across the commonwealth through the SmartFarm Innovation Network, data collection, and ultimately the delivery of better devices for the farming community, will be expedited.

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In a lot of ways, the technology then becomes a new tool for our Extension agents to do a better job of serving the stakeholders of the commonwealth, but this integration with stakeholders also helps our research.

Robin White
assistant professor

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LEVEL 5, ERICA CORDER

HARVESTING AN IMPACT

Virginia Tech senior Tori Kegley Alley understands the varying facets of the university's relationship with growers and producers on a personal level.

"I've seen how it goes on the farmer side, watching my dad work with [Extension] agents, but also from the agent's side and seeing all the research and information that's available," said Alley, who will graduate in December with a degree in agricultural leadership. "Extension really just bridges that gap between the land-grant university and the farmers and producers."

A third-generation Pulaski County farmer, Alley grew up heavily involved in her family's dairy and beef operations. She also actively participated in 4-H programs. During college, she interned with the VCE office in Pulaski County, and her hope is to one day teach agriculture at the secondary level, a decision heavily influenced by her experiences.

"I was always in 4-H and FFA, and we've always participated in activities on campus in Blacksburg, so I didn't even apply to other schools. I knew Tech was what I wanted," Alley said.

Alley has firsthand knowledge of the benefits of VCE and the advantages of new agricultural-related technology. Her family's 4,500-acre operation converted to an autonomous, or robotic, milking system in 2013.

The system includes a computerized milking apparatus that employs lasers to guide the teat cups after the udder has been automatically cleaned. Each heifer wears a collar equipped with transponders that not only trigger the milking process, but also identify each cow, record the amount of milk produced, and monitor the animal's health, activity, and feeding. Milking can continue around the clock—even when no human is present, and the comfort of the cows is central to the operation.

A decline in qualified personnel contributed to the family's decision to implement the autonomous system, but its success affirms the opportunities for technicians, nutritionists, financial specialists, and other supporting roles for those interested in agriculture, even if they are not traditional farmers.

"You have to see it to believe it. It's a little mind-boggling," Alley said. "Now we're milking fewer cows, but making more milk."

Exposure to innovation, access to research, and assistance moving from concepts to working applications are advantages that many farmers throughout the commonwealth glean from the amalgam of Virginia Tech, the ARECs, and local Extension offices.

"I've used them greatly since I started farming," said Jay Hundley, who has been producing some combination of corn, soy, wheat, and other products in Essex County since the 1970s. "Whether it's chemical research or identifying a weed species, you could call and talk with them to try to make a plan to deal with it. I've always learned a lot from them."

Hundley utilizes an array of precision agriculture technologies, including variable-rate fertilizers, section controls, GPS mapping, and auto-steer for tractors across his 9,000-acre farming operation. The devices are critical to pinpointing and managing specific needs across large chunks of land.

"It's much more economical because we're now farming by the acre and not by the whole field," Hundley said.

Hundley's experience with technology is common, according to Mike Broaddus '89, Caroline County Extension agent.

"If you're not using GPS, you're either overlapping, or you're not doing a good job covering," said Broaddus about spraying crops.

This is also true for planting, where overseeding an area can not only create waste on the front end, but will produce lower yields as crowded plants compete for limited nutrients from the soil and sun. GPS-guided planting prevents both problems.

"[The benefits] will more than pay for the equipment, but people don't realize it," Broaddus said.

Working with Broaddus to incorporate new farming techniques, Dennis Kish, a Caroline County farmer, has seen how technology can provide large returns. Kish said that the VCE proactively advocates for and promotes awareness about new techniques and technologies to keep farmers well-informed.

"There's meetings everywhere about all of this, weekly crop

health reports; it's a great resource, especially for younger farmers," Kish said.

Back in Pulaski County, the youngest farmer in the Bunn family, Wyatt, is already tapped into aspects of the SmartFarm Innovation Network through his ongoing participation in various youth programs. His grandfather, Doug Bunn, and father, Brandon Bunn, stay connected with Pulaski County Extension Agent Morgan Paulette to learn about new technologies and their applications. Recently, the trio helped Paulette gauge the usefulness of an unmanned drone capturing field images to study vegetation.

"I'm always asking, 'Is this practical and useful on the farm?'" said Paulette. "They help us answer that."

For the Bunn family, incorporating technology, such as GPS auto-steer on their tractors, has helped them recognize value of networking with Virginia Tech, the ARECs, and VCE.

"The first time I used it, I was sold on it. I tell you, it was the greatest thing since sliced bread," Doug Bunn said.

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[The benefits] will more than pay for the equipment, but people don't realize it.

Mike Broaddus '89
Extension

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GRASS ROOTS: From the cab of his pickup, Doug Bunn surveys the cattle grazing on his farm. (at left, top) Doug Bunn and his grandson, Wyatt, prepare to use a drone. (at left, bottom) Eastern Virginia AREC Superintendent Joseph Oakes' research uses drones to boost yields.

ZEKE BARLOW, JEFF GREENOUGH



TOOLS OF THE TRADE: Ph.D. candidates Kevin Yu and Yoonchang Sung work with senior undergraduate Tianshu Xu and master of science student Deeksha Dixit on the aerial and ground vehicles designed to autonomously monitor agricultural land. (at right) Various types of advanced technology offer applications that will benefit the agriculture industry around the world.



REIMAGINING ROBOTS

Wouldn't it be great if robots could handle the most monotonous or physically demanding tasks in the workplace?

That's often the aim of the precision technology being developed at Virginia Tech for farmers. Utilizing robotic systems to autonomously tackle arduous agricultural tasks can, theoretically, free farmers to move on to other duties and, in many cases, greatly increase productivity.

It's part of the same vision that was behind Virginia Tech becoming the first university east of the Mississippi River to provide an agricultural engineering curriculum in 1920, and it's the concept behind many futuristic projects today.

"We are not designing robotic systems to do the job of the farmers," said Alex Leonessa, a professor in Virginia Tech's College of Engineering. "What we are trying to do is make the job easier for the farmers."

AgBOT, a student team advised by Leonessa, leaned on this concept to develop robots that won first-place awards in the national agricultural competition, the agBOT Challenge, in back-to-back years.

In 2018, Virginia Tech's agBOT team took the top prize by designing an autonomous harvester that rolls through a watermelon patch identifying melons, picking them up, slapping them to tell if they're ripe, then harvesting them. This year, the team upgraded the autonomous ATV they used in 2018 by adding obstacle avoidance technology and a self-contained laboratory. As a result, the team took first place in the contest aimed at collecting, storing, and preparing soil samples for analysis.

Assisted harvesting is also a feature of the Department of Mechanical Engineering's autonomous grape-harvester, which can delicately pick table grapes. These grapes are so fragile they must be individually wrapped in paper to prevent overexposure to the sun.

Compounding the problems, the grapes' ripeness is difficult to discern for the human eye. Using cameras and computer vision algorithms, the robot can detect accurately when grapes are ripe, and human pickers can direct the robot to harvest.

Alleviating the farmer's workload is also central to the work of Pratap Tokekar, assistant professor of electrical and computer engineering. Tokekar, an expert in the realm of collaborative autonomous vehicles, is building a combination drone and ground vehicle system that can monitor and help control the height of vegetation—crucial for plant and soil health.

The drone scours the field, collecting data on plant height using on-board cameras and landing as needed on the ground vehicle to recharge its battery.

Autonomous advancements have been extremely helpful in the soybean research of Song Li, a Virginia Tech assistant professor of Department of Plant and Environmental Sciences. Working in partnership with the College of Engineering (to be specific, the Department of Electronic and Computer Engineering), Li is using autonomous robots that can move through crops and drones that hover above the field to measure plant height and canopy coverage. The data collected will be used for selecting better varieties for breeding and for identifying genetic markers associated with desired traits.

"Traditionally, people would use measuring sticks and hand-held cameras to measure these traits. Walking the whole field and taking measurements of hundreds of plots are very labor intensive, and the measurement is sometimes biased because each person may have a different way to measure the traits of interest," Li said.

Li is working with Assistant Professor Bo Zhang to use this technology to identify a variety of edamame that could be successfully grown in Virginia. Once it's found, Virginia farmers can reap the benefits of tapping into a market that is currently dominated by imports from Asia.

"The examples of autonomous machines in farm life are boundless, and that makes sense," said Tokekar, "because the challenge posed by agriculture is a perfect match for engineers seeking to bring helpful technology to the fields.

"Agriculture has always been a very natural partner for robotics research because farms are not completely unstructured, like driving on the roads and so on. But they are not so structured that it's trivial from the robotics point of view," Tokekar said. "The semistructured nature of these farms gave a good opportunity for people to actually go and deploy robots in the real world." ■

PETER MEANS, EW

VIRGINIA TECH magazine



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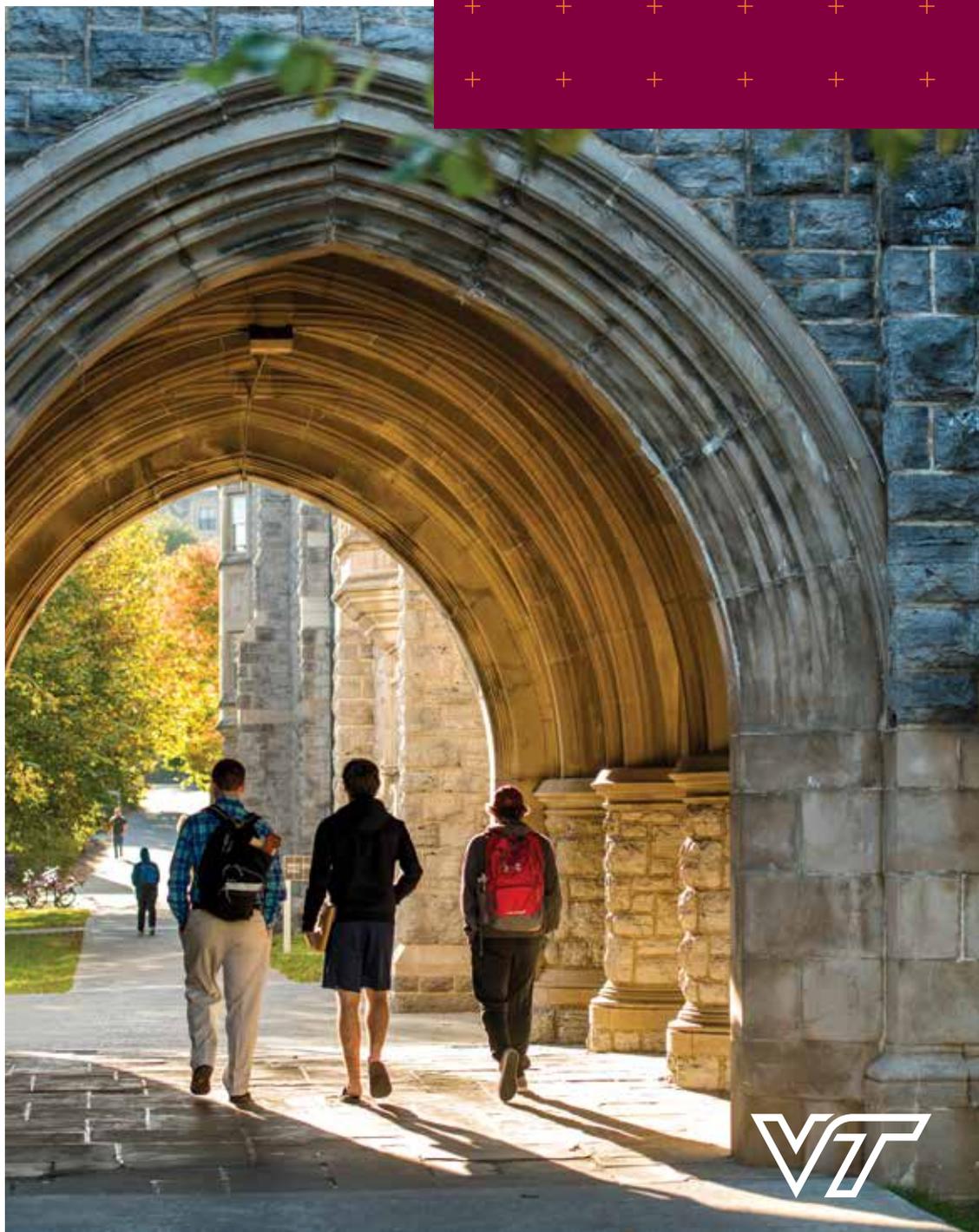
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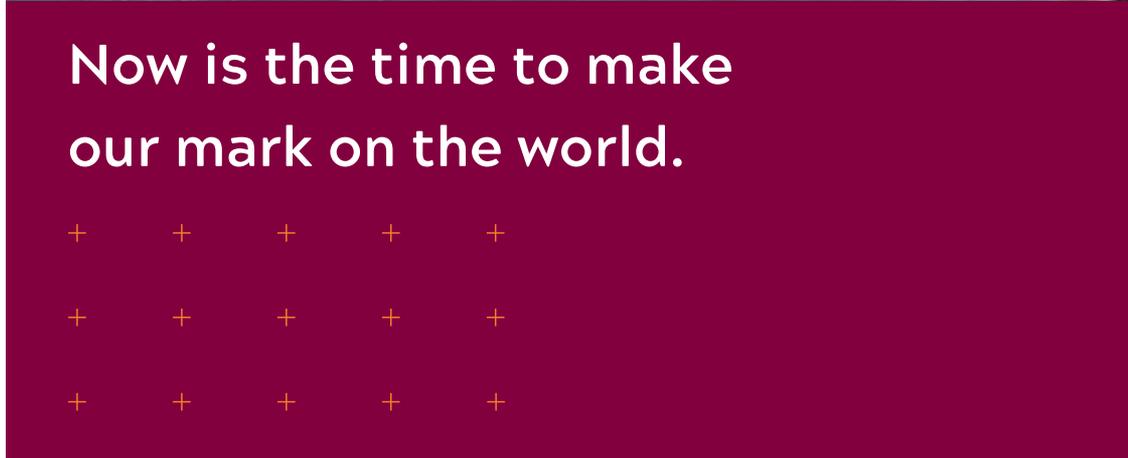
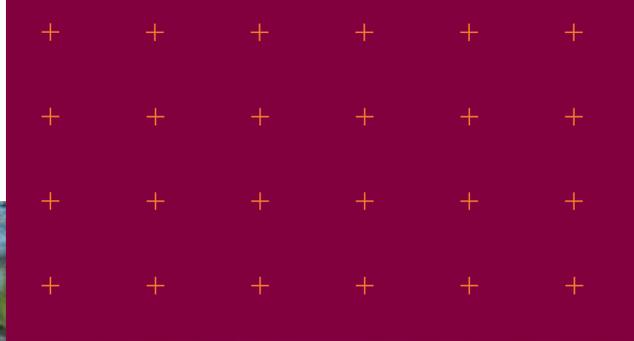
VIRGINIA TECH

BOUNIDLESS IMPACT

THE CAMPAIGN FOR VIRGINIA TECH



Now is the time to make
our mark on the world.





SEIZ



Institutions that stand the test of time must capitalize on moments of change and challenge.

Virginia Tech is in that moment.

Never before have the opportunities been greater nor the pressures as intense for an institution that promises to deliver today's solutions and tomorrow's leaders.

Through the most ambitious fundraising and engagement campaign in its history, Virginia Tech will raise \$1.5 billion and engage 100,000 alumni. Boundless Impact: The Campaign for Virginia Tech, will make it possible for the university to achieve once-unimaginable goals.



ING
THE MOMENT



Announced in October by university President Tim Sands, the Boundless Impact campaign will run through June 30, 2027. Its impact will echo for generations. By fueling university-wide priorities and the individual priorities of numerous colleges and programs, the campaign will propel Virginia Tech's ambitious trajectory for growth.

vt.edu/boundless

In Blacksburg, in the greater D.C. area, in Roanoke, and around the commonwealth, a growing Virginia Tech is seizing the opportunity put its bold vision into action and become a leading university on the world stage.

Years of strategic planning and ambitious moves have positioned Virginia Tech to play a major role in solving global problems and preparing uniquely qualified leaders for an increasingly complex and challenging world.

With the launch of Boundless Impact: The Campaign for Virginia Tech, the university is marshalling support from the entire Hokie Nation to fuel new programs, initiatives, and capital projects. Together, we will propel Virginia Tech to greatness.

Boundless Impact

"We are at a unique moment in our history, grounded by nearly 150 years of tradition and shaped by a steadfast mission to serve humanity and take our place in the world as a catalyst for innovation that affects everyday life," said university President Tim Sands, who on Oct. 11 announced the campaign's goals of raising \$1.5 billion and engaging 100,000 Hokies worldwide. "It's a challenging vision, the kind of challenge that always brings out the best in the Virginia Tech community."

Every Virginia Tech college and many of the university's major programs have ambitious campaign goals that align with strategic plans that were crafted with making a greater impact in mind. The campaign will also fuel major, university-wide priorities. These include fostering innovative new collaborations to solve complex problems, becoming a global leader in data science and analytics, maximizing the impact of the growing Health Sciences and Technology Campus in Roanoke and the emerging Innovation Campus in Alexandria, diversifying the student body and faculty, and going beyond the classroom to reimagine how students can best learn.

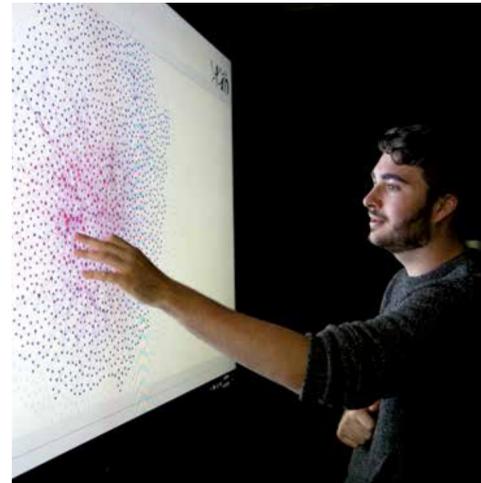
Complex Problems

A major goal of the campaign is to enhance the educational and research environments that allow faculty and students to solve complex problems that span academic disciplines.

Safe water is one example among many. Right now, Virginia Tech faculty and students are addressing the need for clean drinking water in remote areas by developing a device to harvest fog. They are raising awareness of lead contamination in water that flows from city taps. They are combining computer science, engineering, biology, chemistry, and social science in new ways to predict water-supply issues before they arise.

Every complex problem has many angles, not all of which are easy to see right away. As a result, the university is forging powerful connections between scientific disciplines and the humanities in order to ensure that technological innovation is done in a human-centered way.

"A shift is occurring in the tech world," said Sylvester Johnson, executive director of the university's Tech for Humanity Initiative and vice provost for the humanities. "New philanthropy is funding humanistic approaches to artificial intelligence (AI). The military is giving special attention to ethics in AI. Major tech corporations are hiring humanities experts. Virginia Tech is uniquely positioned to lead in this new era."



Global Business and Analytics Complex

Because data literacy is now required in the working world, the university is changing how it conducts research and teaches by integrating data analysis into every discipline. The Blacksburg campus will also change, literally, with the addition of a four-building Global Business and Analytics Complex. Known as GBAC, it's designed to bring together students, faculty, and industry partners to learn, work, and even live in an environment that fosters data literacy and places it in an international context.

The ability to collect, assess, and use data to predict results is altering business and society as a whole. No industry is immune, and there are implications for every academic discipline. Virginia Tech is at the leading edge of adapting to this new reality.

"This is work that transcends not just departments, but entire colleges across the university," said Naren Ramakrishnan a computer science professor who directs the university's Discovery Analytics Center, where researchers have used news and social media to forecast civil unrest, disease outbreaks, and mass migrations in countries of Latin America and the Middle East.

Inclusion and Diversity

As it fulfills its land-grant mission to welcome all prepared residents of the commonwealth to an accessible education, the university is taking major steps to deliver graduates who can thrive on diverse, collaborative teams.

To reflect the diversity of the commonwealth, the university has set a goal for 40 percent of the student population to come from underrepresented or underserved groups. Numerous universities have similar goals and are frequently able to offer much larger scholarship incentives, leaving Virginia Tech with a recruiting disadvantage. Campaign supporters will help to remedy this equation by funding scholarships and supporting programs that help retain students once they arrive.

Scholarships helped make it possible for Jesika McDaniel to study biological systems engineering. She shows her gratitude by devoting one Saturday each month to leading STEM activities for prospective students as part of the National Society of Black Engineers Pre-College Initiative.

"For a lot of kids from disadvantaged neighborhoods, college isn't even on their radar," McDaniel said. "I want to show them that higher education can be fun and is an option no matter where you come from or what you look like."



Health Sciences and Technology Campus

Virginia Tech's central role in a nationwide clinical trial treating infants with strokes is the first of its kind. Similarly, pioneering work on brain cancer treatments in dogs may one day help save human lives, too. The university's world-class researchers address health problems that affect millions, and their ability to move forward is enhanced by health sciences and technology collaboration that brings together experts from across the university with outstanding partners like Carilion Clinic, the leading health care system in Southwest Virginia, at an expanding Health Sciences and Technology Campus in Roanoke.

"The way we look at questions about how to improve health and the quality of life is influenced by this interdisciplinary framework" said Sharon Landesman Ramey, a leader of the nationwide trial focused on strokes, who is on the faculty of the Fralin Biomedical Research Institute at VTC, the Virginia Tech College of Science, and the Virginia Tech Carilion School of Medicine. "We are working actively with colleagues and partners across the U.S. and many other countries. Our work is immensely enhanced by the support and engagement of faculty, students, alums, and communities."

New Era in Greater D.C.

Virginia Tech's expansion in the D.C. area—which will include a 1 million-square-foot Innovation Campus for graduate education—fills a critical need. Across the commonwealth, and in industry in general, there is a shortage of talent in fields like cybersecurity and analytics.

The university's bold plan to address this need by dramatically increasing its presence in Virginia's largest population center has drawn significant support from the commonwealth and was a key factor in Amazon's decision to locate its second headquarters a short distance from where the Innovation Campus will rise. But maximizing the impact of the university's growth in the area will also take private support through donations that fuel this campaign priority.

When it comes to the potential for innovation and entrepreneurship, Silicon Valley executive Joseph DeSimone Ph.D. '90, said, "D.C. is probably a more important city than ever before. That's where a lot of things are going to happen, and so by having the presence there, to be on the doorstep of all of that, it allows Virginia Tech to be center stage in a way that no other university is able to."



Reimagining Education

Today's problems no longer fit nicely into one area of expertise. Solving them takes teams of people with different skill sets, experiences, and backgrounds. It takes a different environment than is found in a traditional classroom, which is why Virginia Tech is reimagining how to prepare tomorrow's leaders.

With support from the campaign, every college will strive to provide as many opportunities as possible for students to have meaningful experiences learning in action. Across the university, new ways of collaborative teaching are being introduced. These include the Calhoun Discovery Program, where Honors College students from nine different degree programs are working alongside industry partners to address real problems from the business world.

The Future of Virginia Tech

By marshalling support from Hokies around the world, the campaign will help fulfill the vision of Virginia Tech as a global leader—a university that inspires and empowers people to learn, innovate, and serve.

VIRGINIA TECH
BOUNDLESS
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+ + + + +

+ + **This is our time.**

+ + + + +

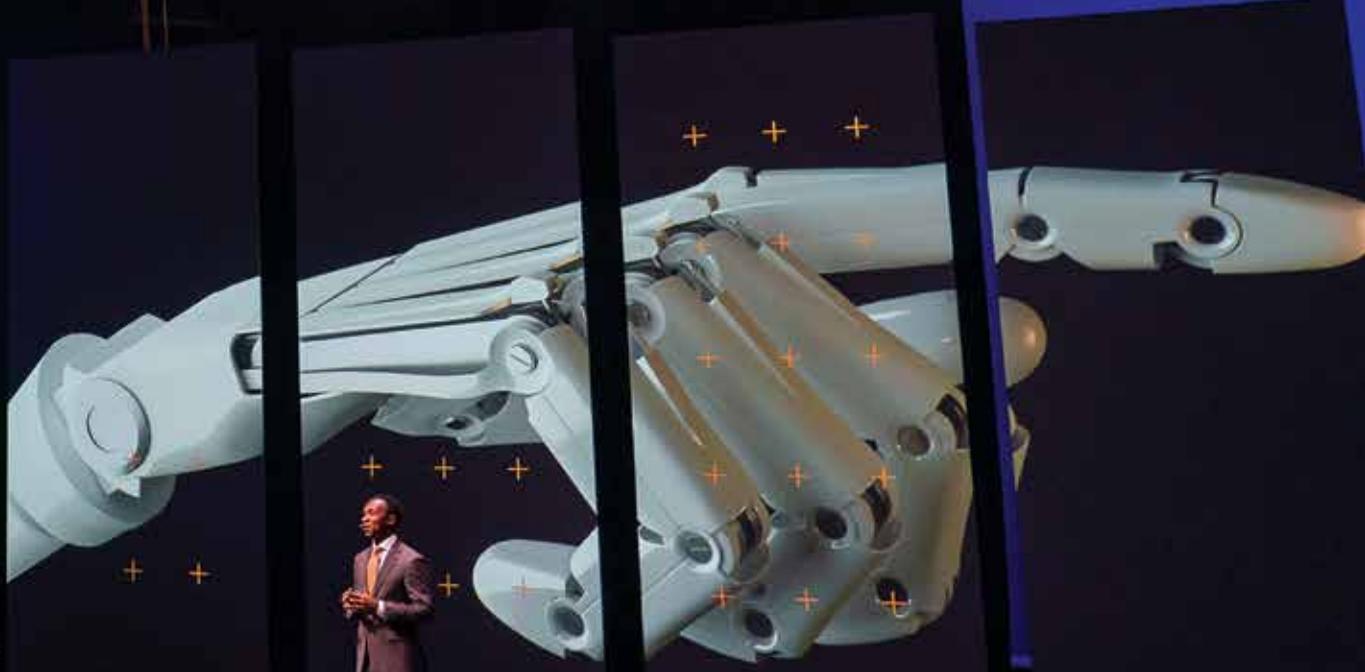
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+ + As we launch Virginia Tech toward
+ + its highest aspirations, as we invest
+ + in our faculty and students, each of
+ + us can make a truly boundless impact.

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INTERSECTING IDEAS: Award-winning scholar Sylvester Johnson speaks during the kickoff event for Boundless Impact: The Campaign for Virginia Tech. Johnson is the founding director of Virginia Tech's Center for Humanities and is the executive director of a new, university-wide initiative, Tech for Humanity. "Being at Virginia Tech at this moment in history is a grand opportunity to help prepare a new generation of students to guide our society through our technological challenges and yield a society most people will want to live in," said Johnson. For more about Johnson and these initiatives, visit vtmag.vt.edu.



LIVING, LEARNING,

Two years ago, Pablo Tarazaga and his family of six left their house in Blacksburg's Woodbine neighborhood to join 325 honors students in a residential hall on Virginia Tech's main campus.

Tarazaga, wife Vanessa '05, a son, three daughters, and a collie moved into a sunny, furnished faculty condo on the fourth floor of East Ambler Johnston Hall. The prolific researcher, associate professor of mechanical engineering, and Virginia Tech alumnus—M.S. '04, Ph.D. '09—hoped to use his new role as faculty principal in the Honors Residential Commons (HRC) to forge connections with students beyond the classroom.

"I never thought of the university as just a place for vocation and study," said Tarazaga, a John R. Jones III faculty fellow. "It's about the formation of the student as a whole, as a thinking person. My wife and I were really drawn to being part of these students' lives and helping them walk through this challenging, formative time."

Practically overnight, the Tarazaga clan morphed from a band of six into a tight-knit family of hundreds.



A FAMILY AFFAIR: Pablo and Vanessa Tarazaga and their four children live alongside hundreds of honors students in a residential hall on Virginia Tech's campus.

AND LOVING IT

BY MARYA BARLOW



JAW-DROPPING SCIENCE: During spring 2017, students work in the InVenTs lab, which is part of the Curie and DaVinci, or Curvinci, living-learning communities.

“They’re like parents away from home,” said Devon Barbour, a junior physics major who is spending her third year in the HRC because of the Tarazagas. “They welcome us into their home. They’ve made us such an intimate part of their lives. They give so much to this community and don’t ask for anything in return.”

Taking a break from manning the pancake grill, the Tarazagas observed the students congregating at their long dining table.

“It’s been a blessing,” said Vanessa. “The students really embraced our family. Our kids love it. They say they never want to leave.”

“We didn’t realize the extent to which those great relationships would develop,” added Pablo. “We do life together. It’s walking with the students in the formation of who they are. For me, this is very fulfilling way of being a professor.”

FROM CRAZY TO COVETED

When Frank Shushok introduced the residential college model at Virginia Tech in 2009, the reception was cautiously optimistic.

“People said the idea that faculty might want to live with our students was crazy,” said Shushok, senior associate vice president for student affairs and associate professor of higher education. “What we’re finding is it’s having as profound of an impact on faculty as it does on students. Many of our faculty are saying it’s the single most powerful and influential experience in strengthening the way they teach and their empathy and understanding of students. They love being invested in students’ lives in a longitudinal way.”

Today, 37 percent of the university’s on-campus students reside in living-learning programs (LLPs). Nearly 1,500 students live in the university’s three residential colleges: the HRC, led by Tarazaga; the Residential College at West Ambler Johnston, led by associate professor of history Danna Agmon; and the Leadership and Social Change Residential College, led by assistant professor of landscape architecture C.L. Bohannon MLA ’04, Ph.D. ’14.

Another 2,950 students live in living-learning communities (LLCs), student communities that unite residents in common interests and disciplines, like engineering, the arts, or the Corps of Cadets. Each offers ongoing opportunities for students and faculty to spend meaningful time together. For example, faculty and staff may join LLC students in the residential environment to teach a class, provide mentoring and advising, or participate in social and academic activities.

Students came by the dozens to join the Tarazagas for Tuesday dinners in the D2 dining hall, Friday Principal’s Teas, and Saturday ice cream socials. HRC residents and the Tarazaga children worked on homework assignments side-by-side. Spontaneous games of tag, hide-and-seek, kickball, and soccer with the kids became stress-relieving diversions for the college students. Tarazaga family movie nights swelled to 40-person affairs.

And the interactions continued to grow—in quantity, in attendance, and in creativity.

Over Tuesday night Spanish Coffees, students and faculty practiced Spanish conversation skills. Tarazaga family holidays expanded to include students who remained on campus during breaks. Using a secure messaging platform, the family created a group called “Tarazaga Family Happenings” to invite residents to participate in daily activities like walks with the dog, outdoor games, visits to the farmers’ market, or crafts in the apartment. In an elementary school parking lot before one of the children’s soccer games, the students even staged a surprise tailgate party—complete with a grill, music, and a large Hokie cheering section.

And on the night before final exams last May, 50 students lined up inside the Tarazagas’ apartment where the family served Breakfast for Dinner—pancakes, waffles, and mini-quiches—assembly-line style.

By 2025, Virginia Tech aims to provide living-learning programs for 65 percent of on-campus students. The university’s Master Plan includes the addition of eight new LLPs that will house 3,400 students over the next decade. In Virginia Tech’s Creativity and Innovation District, construction is underway for an LLP slated to accommodate 600 students with interests in the arts, technology, and entrepreneurship in 2021.

Shushok says living-learning programs not only blend academic and student life, but also enrich the university’s close-knit culture. “Residential environments on college campuses are often very underutilized resources,” he said. “When we move from sleep-eat environments to live-learn environments, this creates the groundwork for the kind of education that we espouse and deeply admire.”

Regarded as a pioneer in the field, Shushok successfully instituted residential colleges at Baylor University a decade before introducing them at Virginia Tech. He’s published numerous studies that affirm the benefits of living-learning environments—benefits that include improved student academic performance, co-curricular engagement, persistence toward graduation, and overall well-being—and he co-authored one of the first studies to examine the faculty benefits.

Virginia Tech remains relatively unique among peer land-grant research universities for embracing residential colleges. The Residential College Society, founded in 2014 at the university, has blossomed into a national organization of universities exchanging best practices.

In a 2011 report, “Students as teachers: What faculty learn by living on campus,” published in the Journal of College and University Student Housing, faculty principals overwhelmingly said their roles as LLP mentors made their work more rewarding and additionally enriched their family lives.

“The transfer of knowledge goes both ways. I learn a lot from the students,” said Bohannon. Bohannon leads approximately 300 students as faculty principal in the Leadership and Social Change Residential College, which focuses on integrating sustainability, social responsibility, food equality, and environmental justice into daily life.

“My interactions with the students make me a better teacher in the classroom and help me be the instructor and advisor I wish I’d had as an undergraduate,” he said.

A FAMILY AWAY FROM HOME

Students living in the Honors Residential Commons are universally effusive when it comes to their living-learning experience with the Tarazagas.

Nathan Schlundt, a junior from Los Angeles, said moving into the Honors Residential Commons improved his entire outlook. “My first year was kind of lonely because I was far from home and hadn’t found my niche yet,” said Schlundt, a computer science major, as he waited in line at the Tarazaga’s Breakfast for Dinner feast. “When I came to the HRC, it was a total 180. Dr. T and his family produce a great sense of community. They’re always bringing us together and inviting us into their home with events like this. Look at them—they’ll cook three hours just for us.”

Tyler Pugh, a junior double-majoring in industrial systems engineering and Spanish, said Tarazaga has become a mentor. “I really wish I had him as a professor,” said Pugh, who is also a resident advisor in the HRC. “Dr. Tarazaga is so invested in his students’ character. We get coffee every Saturday and talk about anything and everything. Sometimes I forget he’s an award-winning researcher. I wasn’t able to go back home for New Year’s with my family, which is a tradition we usually celebrate together. The Tarazagas invited me here. Another day over winter break, I had dinner with them. They bring the home into the dorm for us.”

Pugh said having kids and a dog around has also been a highlight.

“When I’m with them, I’m not a student anymore. I’m part of the family. I forget my tests and papers. This is my time to de-stress,” he said. “When you’re able to sit down and just color with them, it takes your mind off of being a student. You can enjoy just being a friend with these kids.”



BREAKFAST BUFFET: Students in the Honors Residential Commons enjoy a special meal hosted by the Pablo Tarazaga family.

ENRICHING FACULTY FAMILIES

After moving into Ambler Johnston, the Tarazagas noticed the positive impact on their children right away.

“It’s an immersive living-learning environment for them, too,” said Vanessa, who homeschools all four children. “The campus is a wonderful, lively place to grow up. There’s always something interesting going on that we can integrate into their schoolwork. And the students are great role models. They study with them, play with them, and welcome them into their lives.”

The faculty principal arrangement isn’t without its drawbacks—like when the fire alarm went off 22 times during the semester after the Tarazagas moved in with a new baby. Sometimes upstairs neighbors need gentle reminders to tread more softly in the common area above the couple’s master bedroom, and more often than not, a quick trip out to walk the dog can evolve into a half-hour conversation with passing students, staff, or faculty.

But the positives far outweigh the negatives, the family resoundingly agrees. Asked if he misses his neighborhood and backyard, the Tarazaga’s 11-year-old son is emphatic. “I have the biggest, best backyard right here,” he said, gesturing toward the Drillfield.

“PRETTY DARN TRANSFORMATIONAL”

The faculty principal position is a three-year commitment, which can be renewed just once. At the end of their first three-year term, the Tarazagas signed on again. The faculty principals in the other two residential colleges also chose to stay.

According to Shushok, more than 900 students chose to return to their living-learning programs this fall—and about 2,700 entering first-year students applied to join one. At least a dozen faculty members have scheduled appointments to discuss becoming a faculty principal.

Tim Baird, associate professor of geography and senior fellow of the Institute for Creativity, Arts, and Technology, is interested in applying to become a faculty principal in the Creativity and Innovation District. His wife and three children are equally excited about the prospect.

“We think it would be good for our kids and will strengthen our family,” he said. “For me, this is what it means to be a professor in its entirety. When you’re ensconced in academics, student life, facilities, and all the facets of the university, you can see it more clearly and be more effective in contributing.”

For Shushok, the growing interest is validation that Virginia Tech is on the right path.

“We should take heart that we have the most student-centered faculty that are also amazing, productive researchers and scholars,” he said. “That says a lot about the education you can get at Virginia Tech. In many ways, our residence halls are exemplars of transdisciplinary learning. Bringing together students, faculty, and staff of different acculturations and expertise to work together, think together, and dream together.”

“At the end of the day, that’s pretty darn transformational.” ■

TRANSFORMING BUSINESS EDUCATION

Students interested in global business, international affairs, entrepreneurship, and data and analytics will have a new place to call home on Virginia Tech’s campus in a few years.

Over the summer, the Virginia Tech Board of Visitors approved a request for \$84 million to build two additional living-learning communities.

These communities are included in the overall plan for a Global Business and Analytics Complex. The complex will fea-

ture two academic buildings to house the Pamplin College of Business and space for faculty offices, classrooms, and research areas for use by all disciplines involved in data analytics, specifically Pamplin, the College of Science, and the College of Engineering. The academic buildings, planned for the northwest corner of campus off Perry Street, are expected to open in 2024.

A pedestrian tunnel stretching under West Campus Drive will connect this complex with the two living-learning communities,

which will be constructed south of the Inn at Virginia Tech. They will house about 700 students.

One will be for students studying business and analytics, and it will feature entrepreneurship laboratories, faculty-in-residence apartments, and shared spaces for learning. The other building will be geared toward students interested in studying international business and policy. It will house the Cranwell International Center and related support programs for international students. ■

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Horacio and Amy Valeiras

AROUND THE HOKIE NATION

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- 65 Family

A JOINT VENTURE

HORACIO VALEIRAS DOESN'T MEASURE SUCCESS BASED ON LINES FROM BUSINESS LEDGERS, NUMBERS ON BANK STATEMENTS, OR TITLES IN BOARD ROOMS. INSTEAD, THE 1980 CHEMICAL ENGINEERING GRADUATE TALLIES SUCCESS THROUGH RELATIONSHIPS.

For Valeiras, connecting with people is a guiding principle for life, one that governs every decision big or small, personal or professional. He shares the axiom with Amy, his wife of 35 years.

"I think the most important quality is trust—whether it's with each other or in business partnerships," said Horacio. "I try to be as open with people as you can be and as direct as possible."

Horacio, who is a co-managing partner at Frontier Global Partners LLC, an investment management firm in La Jolla, California, even built his career on trust. And Amy, a respected San Diego artist, finds inspiration from the intimate moments and life experiences that shape people and places.

"In our investment philosophy we use behavioral finance, which is all about how people act and react. Emotions can get in the way of effectively managing money, so developing a trusting relationship with clients is essential."

FROM CHEMICAL ENGINEERING TO FINANCE

Never one to shy away from a challenge, Horacio admits he first pursued chemical engineering because of its reputation for being among the hardest disciplines. Yet, he found the long-term, detail-driven projects did not inspire a passion for the work.



AT THE INTERSECTION OF ART AND ENGINEERING

At a house party during graduate school, Horacio met Amy Threefoot.

“Amy attended Tufts, and she was dragged to the party by her brother,” said Horacio.

“It was exactly what you would think,” said Amy. “They literally had Rubik’s Cubes they were solving, and they were showing Three Stooges movies.”

Since neither Amy nor Horacio were fans of the available entertainment, they spent the evening talking together.

“I just went up and said, ‘I don’t know you.’ I wasn’t shy, and the rest is history,” said Horacio.

Amy, a clay artist, is the proprietor of Threefoot Clay. She works in porcelain and red stone clay, crafting functional and sculptural pieces.

“Texture is a bit of an obsession,” said Amy. “I find texture tools in hardware stores, cooking shops, and even from items my friends are discarding as junk.”

Life has taken the Valeiras family to many different cities in the U.S., and they’ve lived abroad. The exposure to different people, environments, and cultures has influenced Amy as artist and an individual.

“We’ve moved all over. We’ve lived in England. We’ve lived in San Francisco and Philadelphia and Bethlehem, Pennsylvania, and New York,” said Horacio.

“Everywhere we’ve lived, we’ve always looked for the good things. We’ve made it a point to get involved—to do something in that community to make it a better place,” Amy said.

Their partnership spills into every aspect of their lives.

“I intended to follow in the footsteps of my parents, who were both educators,” he said. “While I was in graduate school at MIT, I took some classes in the business school, and I really enjoyed them. I taught for a year, just long enough to figure out that it wasn’t my calling. I took an engineering position at Chevron, and I kept revisiting the idea of those business classes, so I applied to the MBA program at University of California at Berkeley. It was the early ‘80s. The stock market was just starting to boom. Japan was doing really well. I asked myself: ‘Do you want to work in a world where projects last, three, four, five years or one where every day is different?’”

A native of Argentina, Horacio moved to the U.S. as a child. Education was a priority for his parents. “They taught us that education was the one thing that no one could ever take away from you,” he said.

He transferred to Virginia Tech after a year at George Washington University, a decision, he admits, that involved a bit of culture shock. “I started out living in Lee Hall, which was interesting,” said Horacio. “There was a lot new to get used to. I came from GW, in downtown D.C., and had always lived in large cities, so Blacksburg was very different. But it was a lot of fun, and I got a great education.”

“**VIRGINIA TECH IS DOING A LOT OF GREAT THINGS.** FROM THE CAMPAIGN TO THE INNOVATION CAMPUS TO THE HEALTH CAMPUS IN ROANOKE TO MAKING SURE THAT WE GRADUATE STUDENTS THAT CAN GET GREAT JOBS TO THE ARTS. IT’S EXCITING.”

Horacio Valeiras '80

IN GOOD COMPANY: Horacio Valeiras and André Davis mingle with guests at a reception during the Reflections Dinner, which was held in the Commonwealth Ballroom at Squires Student Center on Oct. 10. (at right) Morgan Blackwood Patel '03, Horacio Valeiras '80, and Lynne Doughtie '85 are serving as tri-chairs of Boundless Impact: The Campaign for Virginia Tech.

“We’ve developed this approach that works for us. We do everything together. We bought this building, and we put our offices together. We value each other’s perspectives,” said Horacio.

“We talk about everything. Sharing makes our interests bigger. No matter the activity, it’s always both of us together, never one or the other,” Amy said.

So, when Horacio reconnected with Virginia Tech more than 20 years after graduation, Amy also became an integral part of Hokie Nation.

“From the time I’ve been introduced to Virginia Tech, I’ve been very impressed,” she said. “By all of the students, by the people I’ve met, by walking around the campus and seeing what’s happening. It’s exciting; it’s fun. I come back telling everyone I know about the autonomous car track, the drones. Even through association, there’s a sense of pride.”

The couple supports educational initiatives with their time and resources. Amy has served as the board chair of the San Diego Public Library Foundation and is now a member of the advisory board for the Smithsonian Libraries. Horacio is the rector of Virginia Tech’s Board of Visitors and is serving as a tri-chair for Boundless Impact: The Campaign for Virginia Tech alongside Morgan Blackwood Patel '03 and Lynne Doughtie '85. (Blackwood Patel was featured on page 46 of the summer issue of Virginia Tech Magazine, which is available online at vtmag.vt.edu. Doughtie’s story will appear in the spring edition.)

“Virginia Tech is doing a lot of great things. From the campaign to the Innovation Campus to the health campus in Roanoke to making sure that we graduate students that can get great jobs to the arts. It’s exciting. We need to get

a lot of people involved,” he said.

“There’s a lot of places to help out. There are ways to lend your expertise. There are students you can mentor. There are graduates you can hire.”

THE SKY’S THE LIMIT

When Horacio isn’t working, spending time with his family, or involved in a university activity, chances are he’s flying—a hobby that was inspired during childhood. His favorite book was “The Little Prince.” Written by Antoine de Saint Exupéry, the novella tells the story of an aviator who crashes his plane in the Sahara where he encounters the little prince.

But it was traveling by air with his father that really fanned the desire.

“My father was a math professor at the Air Force Academy in Buenos Aires,” he said. “Every time we got onto an airplane, he knew the pilots because they had been his students. So we would always go into the cockpit. I thought it was fascinating.”

Although Horacio always expected that he would learn to fly, what he didn’t anticipate

were the opportunities his pilot’s license would create for giving back.

“Everyone who flies an airplane has probably been pretty fortunate,” he said. “So sharing that good fortune is part of the flying culture. I am involved with a group, Veterans Airlift Command. We offer transport for wounded veterans for whom it can be hard to fly commercially. I’ve flown vets to Walter Reed for treatment, to Wisconsin for new prosthetics. I took a group of six to Mammoth Mountain to learn to ski. You meet them and realize how amazing they are. They’ve given so much, but they are thanking you for doing this small thing. It’s a humbling experience.”

And while he is passionate about flying, it is his partnership with Amy and his commitment to their three boys that keeps his life grounded.

Asked what’s next, he answered emphatically, “Spending the rest of my time, however long that is, with Amy. We still have places to see. We help each other find ways to be better people.” ■



CENTER STAGE: Morgan Blackwood Patel '03, Horacio Valeiras '80, and Lynne Doughtie '85 are serving as tri-chairs of Boundless Impact: The Campaign for Virginia Tech.

This is home.

1986



SANDRA WORLEY '78
GARY M. WORLEY '78, '94, '99
SARAH WORLEY MCDEARIS '08 '15
(in stroller, in retro photo)
ADALINE MCDEARIS 2040?

2019



Virginia Tech is home. Reconnect with friends, family, and campus during our four-day summer reunion.

Enjoy dinner on the Drillfield, behind-the-scenes campus tours, children's activities, happy hours, presentations from university leaders, and more.

Learn more:
alumni.vt.edu/reunion2020

VIRGINIA TECH.
REUNION 2020
WEEKEND

CLASS NOTES

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

'45

CAREER Christopher C. Kraft Jr., Houston, Texas, was inducted into the Texas Aviation Hall of Fame in April, three months prior to his death on 7/22/19.

'55

CAREER Mayer G. Levy, Seaford, Va., was inducted into the Virginia Tech College of Science Hall of Distinction.

'56

CAREER Malcolm A. Cutchins, Auburn, Ala., was presented with the Albert Nelson Marquis Lifetime Achievement Award by Marquis Who's Who.

Thomas T. Thompson, Hampton, Va., was honored with the Virginia Tech Corps of Cadets Distinguished Alumni Award.

'60

CAREER Richard T. Crowder, Alexandria, Va., was reappointed the C.G. Thornhill Professor of Agricultural Trade at Virginia Tech and received the Virginia Tech Corps of Cadets Distinguished Alumni Award.

'63

CAREER Albert B. Godfrey, Fuquay Varina, N.C., was inducted into the Virginia Tech College of Science Hall of Distinction.

'64

CAREER Roger H. Moore, North Palm Beach, Fla., was inducted into the Virginia Tech College of Science Hall of Distinction.

'67

CAREER William A. Aden, Blacksburg, Va., was inducted into the Virginia Tech Academy of Engineering Excellence.

Robert A. Boynton, Richmond, Va., was appointed chair for the American Institute of Architects National Ethics Council and was awarded the National Council of Architectural Registration Board's highest honor, the President's Medal for Distinguished Service.

'69

CAREER Ralph A. Lorenzetti, Harper's Ferry, W. Va., was elected to the Jefferson County, W. Va., Commission.

'70

CAREER Carlton B. Morgan, Bainbridge Island, Wash., had his "Nearly Newtonian" series exhibited at Bainbridge Arts & Crafts.

David O. Smith, Blacksburg, Va., was inducted into the Virginia Tech Sports Hall of Fame.

'71

CAREER Frederick E. Burton III, Marshville, N.C., was appointed state general program director for the Knights of Columbus in North Carolina.



Joe T. May

FINDING THE RIGHT PATH

When Joe T. May '62 was in high school, he wasn't exactly on a successful path. After a suspension for smoking cigarettes, May's principal allowed him to graduate only if he promised "to do something useful" with his life.

So, May joined the Army, where he was exposed to electronics. Later, he earned a degree in electrical engineering from Virginia Tech, but he had help along the way.

That's why May and his family—wife, Bobby, and two daughters, Virginia Tech alumna Elaine and University of Virginia alumna Beth—gifted the College of Engineering \$5 million from the May Family Foundation to establish a program to increase the number of first-generation students who enroll at and graduate from Virginia Tech. The Mays previously endowed two electrical engineering scholarships in memory of their son, Philip A. May '89.

For more about May, visit vtnews.vt.edu.

Gregory E. White, Chesterfield, Va., who died Nov. 9, 2017, was recognized posthumously by the Directorate of Public Works (DPW) of Fort Lee, Va. The DPW dedicated the building housing its headquarters to White, who was Fort Lee's first civilian director of DPW and Logistics; White worked at DPW for over 30 years.

'74

CAREER John F. Sparks, Warrenton, Va., was inducted into the Virginia Tech Academy of Engineering Excellence.

'75

CAREER James T. "Tom" Brown Jr., Blacksburg, Va., retired as dean of students at Virginia Tech.

William M. Cook, Eden Prairie, Minn., was appointed to the Board of Directors for Axalta Coating Systems Ltd. He will serve on the company's Audit Committee and Environment, Health, Safety, and Sustainability Committee.

'76

CAREER Gregory E. Aliff, Reston, Va., was elected to the New Jersey Resources Board of Directors.

Scott C. Erb, Alexandria, Va., invented a new type of recliner that will be sold by Creative Classics Furniture.

Stephen L. Herbert, Herndon, Va., retired from Saab North America Inc. as vice president and CFO.

Robert A. Saville, Boulder, Colo., received the Firefighter of the Year Award in 2016 and 2017 and the Member of the Year Award in 2018 from the Boulder Mountain Fire Protection District.

Bruce A. Sellars, Roanoke, Va., was elected president of the Virginia Academy of Clinical Psychology.

William D. Wray, Kingwood, Texas, was awarded a U.S. patent for "systems and process for producing polyether polyols."

'78

CAREER Christopher E. Mandel, College Grove, Tenn., was appointed to the George Mason University Chief Risk Officer Executive Development Program Advisory Board and faculty.

Richard G. Randa, Saint Louis, Mo., joined Capital Forensics Inc.

Hans C. Rott, Blacksburg, Va., was honored with emeritus status by the Virginia Tech Board of Visitors.

Peter B. Schultz, Virginia Beach, Va., was honored with emeritus status by the Virginia Tech Board of Visitors.

'79

CAREER Henry N. Butler, Huntly, Va., was inducted into the Virginia Tech College of Science Hall of Distinction.

David L. Calhoun, Sunapee, N.H., was inducted into GE Aviation's Propulsion Hall of Fame.

Ronald C. Daughtrey, Suffolk, Va., retired after 40 years as an agricultural education teacher with Suffolk, Va., schools.

'80

CAREER Raymond O. Cocke, Gretna, Va., retired from the U.S. Department of Agriculture after 39 years.

Wanda Hankins Dean, Blacksburg, Va., was honored by the Virginia Tech Board of Visitors with emerita status.

Linda K. Holt, Sterling, Va., was honored on the Reuters billboard in Times Square in New York by the Professional Organization of Women of Excellence Recognized.

'81

CAREER Douglas E. Atkinson, Xenia, Ohio, was selected as director of engineering for the U.S. Air Force Research Laboratories at Wright-Patterson Air Force Base, Dayton, Ohio.

Melanie Pearson Hurley, Alexandria, Va., was inducted into the Virginia Tech College of Science Hall of Distinction.

Judy S. Riffle, Blacksburg, Va., was honored by the Virginia Tech Board of Visitors with emerita status.

John L. Whitley, Williamsburg, Va., was presented the J. Blaine Blayton Award for Community Service at the 40th Annual NAACP Life Membership Banquet.

'82

CAREER Troy S. Kincer, Roanoke, Va., joined Mattern & Craig Engineers-Surveyors.

'83

CAREER Betty P. Chao, Albuquerque, N.M., was inducted into the Virginia Tech Academy of Engineering Excellence.

Jeffrey W. Farrar, Keswick, Va., was named executive vice president and chief operating officer of American National Bankshares Inc.



SAVE THE DATES

Black Alumni Reunion

April 17-19, 2020

Celebrate with friends old and new, commemorate milestones, meet students, and learn what's happening at our university. The reunion will feature opportunities to network, learn, and have fun during spring game weekend. Registration is now open.

alumni.vt.edu/bar2020

Old Guard Society of Golden Alumni Reunion

May 21-23, 2020

The Old Guard, alumni graduating in 1969 or later, will celebrate in Roanoke this year. Make plans to join us for tours of the Virginia Tech Carilion campus, updates from university leadership, and more.

alumni.vt.edu/og

Reunion Weekend 2020

June 4-7, 2020

We are celebrating milestone class anniversaries from 1975 to 2015, but all Hokies are welcome. Early bird registration will open in January.

alumni.vt.edu/reunion2020



Kathlene Hendon, Pittsburgh, Pa., is an advanced dietitian practitioner at UPMC Mercy Hospital.

Newton S. Lee, Tujunga, Calif., is chairman of the California Transhumanist Party, and his book, "The Transhumanism Handbook," was the No. 1 new release in preventive medicine on Amazon.com.

Laura L. Briggs MacMurdy, Herndon, Va., had her first book, "How to Start Your Own Freelance Writing Business," published by Entrepreneur Press. She also delivered two TEDx talks on the freelance economy.

'84

CAREER Michael C. Collins, Orange, Va., created the Rapidan Institute.

Thomas C. Terragno, Alpharetta, Ga., joined Korn Ferry as senior client partner.

Vernon R. Tinsley, Summerfield, N.C., was named to "The Best Lawyers in America" 2018 edition and to the "2019 Chambers USA: America's Leading Lawyers for Business" for his expertise in the environment.

'85

CAREER Karen Moser Coats, Cambridge, England, has been elected to a professorship of education and appointed director of the Centre for Research in Children's Literature at the University of Cambridge.

Douglas S. King, Wayzata, Minn., was named 2020 chair-elect by the board of directors of Certified Financial Planner Board of Standards Inc.

David J. Romola, Ashburn, Va., joined Citizant as senior vice president of operations.

'86

CAREER Kevin S. Crutchfield, Overland Park, Kan., was inducted into the Virginia Tech Academy of Engineering Excellence.

Eddie G. Dalton Jr., Geismar, La., was appointed as an expert in process safety for BASF Corp.

Dwight Holland, Roanoke, Va., received the Kent Gillingham Award from the Aerospace Medical Association for significant contributions to advancing the art and science of situation awareness and spatial disorientation over a career.

Sharon Fraser Holt, Stuart, Fla., was appointed to the Infinera Board of Directors.

Stephen J. Niezgodza Jr., Annandale, Va., was named chief operating officer of Cornerstone Defense.

Erik M. Rosen, Vienna, Va., received the Institute for Defense Analyses 2019 Larry D. Welch Award for Best External Publication.

Susan J. Vandewoude, Fort Collins, Colo., was selected to join the National Academy of Sciences.

'87

CAREER Michael B. East, Angier, N.C., was appointed by President Donald Trump to be the U.S. marshal for the Eastern District of North Carolina.

Peggy A. Valentine, Winston-Salem, N.C., was named interim chancellor at Fayetteville State University.

BIRTH Michael W. Tompkins, Herndon, Va., a daughter, 3/16/19.

'88

CAREER Gajanan V. Gandhe, Canton, Mich., joined Dana Inc. as country leader of Dana India.

Nigel A. Greene, Elkins Park, Pa., will be speaking at the annual Arkansas Trucking Seminar.

'89

CAREER Jodi Barry, Duluth, Ga., traveled to Peru to host a teen drug prevention program.

Catheryn M. Hockaday, Ames, Iowa, traveled to Peru to host a teen drug prevention program.

Michelle L. Hoff Attreed, Manassas, Va., received the 2019 Lifetime Achievement Award from the Virginia Women in Public Finance.

Robert W. McKinney, Washington, La., has been elected as a regional director of the National Council of Architectural Registration Board.

Frank L. Moeller, Troutville, Va., was hired to expand mechanical, electrical, and plumbing services in the Roanoke office of Dewberry.

'90

CAREER Bonnie Kerrigan Snyder, Lancaster, Pa., wrote "Finding Your Voice: A Free Speech Comic" for the Foundation for Individual Rights in Education.

Brian J. Walter, Blacksburg, Va., was named to the 2019 class of the Virginia Tech Sports Hall of Fame.

'91

CAREER Scott A. French, Carmel By The Sea, Calif., has been appointed president of the Land Mobile Radio Division of Codan Communications.

Theodore S. Hanson, Richmond, Va., was appointed as the CEO of ASGN General.

Clementina M. Perez-West, McLean, Va., was recognized by Continental Who's Who in the field of medicine as a dentist.

'92

CAREER William D. Hall, Springfield, Va., a colonel in the U.S. Air Force, retired in July.

'93

CAREER Geoffrey S. Pierce, Ashburn, Va., was appointed chief information security officer of Centauri.

Deborah A. Hersman, Barrington, Ill., joined the NiSource Board of Directors.

Steve M. Mollenkopf, San Diego, Calif., received Virginia Tech's University Distinguished Achievement Award for 2019.

Patrick K. Murphy, Arlington, Va., was named the superintendent of schools for Berkeley County, W. Va.

William D. Tyrrell Jr., Leesburg, Va., received the Virginia-Maryland College of Veterinary Medicine's Lifetime Achievement Alumni Award.



Colleen Kraft

CHAMPION FOR CHILDREN

Colleen Kraft—a leading authority in pediatrics and 1981 Virginia Tech chemistry alumna—practices medicine with a healthy dose of *Ut Prosim* (That I May Serve).

Kraft is a forceful advocate when fighting for the welfare of patients and families. As the 2018 president of the American Academy of Pediatrics (AAP), she brought attention to numerous children's issues and fought to ban sales and marketing of e-cigarettes to youths.

"The greatest reward is seeing progress made in the general public recognizing the inherent value of children," Kraft said. "Virginia Tech was my foundation for science, problem-solving, innovation, and service. My career has been remarkable because I have had the privilege to work in a profession that uses science to promote innovation through service and solutions."

Learn more at vtmag.vt.edu.



PADDLE ON

“

UT PROSIM IS VERY IMPORTANT TO US. WE WANT TO HELP THE PEOPLE IN OUR COMMUNITY. WE WANT TO IMPROVE THEIR QUALITY OF LIFE IN A WAY THAT TO A LOT OF PEOPLE MAY SEEM SMALL, BUT TO THEM IT COULD MEAN THE WORLD.”

Zackory Biggers
club president

THREE YEARS AGO, DENISE GORONDY-Toderico '95, DVM '99, was out for a Sunday morning run when she was struck by an SUV traveling at 60 mph. More than an hour passed before she was found and flown to a trauma center.

Denise spent 40 days in the hospital and is still recovering from resulting medical issues, including traumatic brain injury and broken vertebrae in her neck and back, among other orthopedic and internal injuries.

“When Denise left physical therapy, she was walking,” said her husband, Benjamin Toderico '97, M.S. '99. “Now she’s running. She’s swimming. She can carry a 75-pound weight across the gym, and so she can carry our kids. It may not look the same, but we’ve learned that you can do whatever you want to do.”

In April, the Todericos returned to campus to pass the wisdom earned along their journey to a new generation of Hokies, while in turn being served by the Quality of Life Plus (QL+) club.

QL+ is a student organization that improves the quality of life of community members and those who have served through innovation in prostheses, medical devices, and assistive technologies.

The Virginia Tech chapter of the national organization began as a senior design

project but has blossomed into a student organization that regularly takes on “challengers,” or individuals for whom the QL+ team designs and builds devices to enrich their lives.

“*Ut Prosim* is very important to us,” said club president Zackory Biggers, a senior mechanical engineering major. “We want to help the people in our community. We want to improve their quality of life in a way that to a lot of people may seem small, but to them it could mean the world. In working with doctors and hospitals, you don’t necessarily get these types of devices that assist in recreational activities or things that aren’t understood as well.”

The Todericos connected with QL+ in 2018 when they returned to Blacksburg for a nephew’s graduation. During commencement, they attended a presentation about a device the club had designed for Dawn Halfaker, an Army veteran who had lost her arm, to enable her to do push-ups and planks. Benjamin approached the club, and it agreed to take on Denise as a challenger.

Denise’s injuries had left her right arm immobile and in a sling. Although she had been able to adapt for many activities, she missed being able to canoe. The club designed and built a device that would enable her to paddle using only her left arm and her feet. ■ *MA*

Florenz Plassmann, Vestal, N.Y., was named dean of the College of Arts and Sciences at Ohio University.

Sanjay Sama, San Francisco, Calif., joined Kingsley Gate Partners.

’94

CAREER Teyu Chou, Puli, Taiwan, was inducted into the Virginia Tech College of Science Hall of Distinction.

Todd W. Rowley, Tysons Corner, Va., was named Capital Region market executive of Old Dominion National Bank.

Stephanie Jackson Watts, Alton, Va., served as an instructor with Kids Kollege, a summer arts program in South Boston, Va.

’95

CAREER Kelly M. Dickerson, Alexandria, Va., graduated with honors from the Army War College in Carlisle, Penn.

John M. Ennis, Great Mills, Md., assumed command of Rotary Wing Test and Evaluation Squadron Two One (HX-21) at Naval Air Station Patuxent River.

Paul E. Martin Jr., Columbia, Md., joined Facet Wealth as the chief technology officer.

Jennifer R. Wayne, Chantilly, Va., was appointed head of the Virginia Tech Department of Biomedical Engineering and Mechanics in the College of Engineering.

’96

CAREER Alan W. Estes, Avondale, Pa., is director of data science practice at DecisivEdge.

Brian E. Gittens, Waunakee, Wis., was named vice chancellor for diversity, equity, and inclusion for the University of Arkansas for Medical Sciences.

Brian S. Manley, Wake Forest, N.C., was named the head of field development for GreenLight Biosciences Inc.

Dennis P. Reilly, Skillman, N.J., was appointed chief financial officer at Agile Therapeutics.

’97

CAREER Steven N. Bathiche, Bellevue, Wash., launched the Microsoft Surface Hub 2.

Geoffrey K. Waldmiller, Prospect, Ky., was appointed vice president of revenue optimization at Roomlt by CWT.

’98

CAREER John R. Freeborn, Newport, Va., was named director of employer relations for Virginia Tech’s College of Natural Resources and Environment.

Matthew J. Lenihan, Baltimore, Md., is vice president of leasing with St. John Properties.

Lori M. Lyons-Williams, Menlo Park, Calif., was appointed to the board of directors at Five Prime Therapeutics.

Lisa M. Thorne, Stafford, Va., was named director of financial services for Prince William County Public Schools.

Christopher S. Vandergoot, Huron, Ohio, was named director of the Great Lakes Acoustic Telemetry Observation System—as part of this appointment, he will be an associate professor at Michigan State University.

’99

CAREER Susan D. Day, Indianapolis, Ind., was honored by the Virginia Tech Board of Visitors with emerita status.

Matthew S. “Kernal” Griswold, Severna Park, Md., was inducted into the Virginia Tech Sports Hall of Fame.

Melissa D. Kidd, Coral Springs, Fla., is senior vice president of electrical raceways sales for Atkore International.

Crystal McCoy Price, Christiansburg, Va., is an associate director in Thalhimer’s Roanoke office.

’00

CAREER Susan K. Learn, Haddon Township, N.J., was named the 2019 Delaware Valley HR Person of the Year for medium-sized companies.

Jaime M. O’Keefe, Arlington, Va., was named senior director of communications for the Technical Solutions Division of Huntington Ingalls Industry.

Bryan W. Wender, Ashland, Ore., was named chief of natural resource management at New River Gorge.

’01

CAREER Michelle E. Meadows, Richmond, Va., was named Longwood University’s director of athletics.

’02

CAREER Christy H. Betz, Rancho Cordova, Calif., was hired as the assistant executive director for the Eastern Shore of Virginia Tourism Commission.

Zeynep K. Erdal, Irvine, Calif., was named integrated solutions leader in Black & Veatch’s water business.

Abbi Leinwand Haggerty, Richmond, Va., was named the executive director of the Richmond Performing Arts Alliance.

Heidi S. Leming, Brentwood, Tenn., received the 2019 John Jones Award for Outstanding Performance as a Senior Student Affairs Officer.

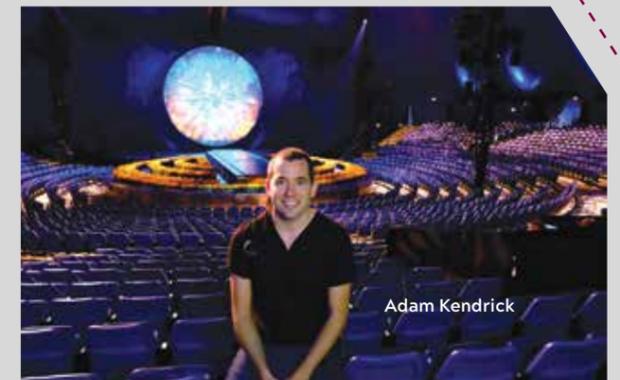
Matthew J. Ormsby, Annapolis, Md., was promoted to associate at Moseley Architects.

Thomas B. Ross, New York, N.Y., was named Young Architect of the Year by the Architect Institute of America.

Erin L. Surprise, Minneapolis, Minn., was named senior vice president of professional services at Provation.

Mark E. Williams, Virginia Beach, Va., was hired by Liebherr USA as a regional sales manager.

BIRTH Coreen R. McGrann Carraway, Alexandria, Va., a daughter, 07/17/19.



PEAK PERFORMANCE

Adam Kendrick’s workplace is often a circus—literally.

The former HokieBird and the 2018-19 Outstanding Recent Alumnus for the College of Liberal Arts and Human Sciences is a stage manager for Cirque du Soleil’s North American Tour of “Luzia.”

Kendrick ’10, who has degrees in theatre arts and marketing management, also performs at Walt Disney World Resort in Orlando and has side gigs in New York City at the Tony Awards, the Stars in the Alley Outdoor Concert in Times Square, and Broadway Cares/Equity Fights AIDS.

Kendrick learned early about the magic of making people happy, whether it was as the HokieBird or behind the scenes.

“You can make people smile and laugh. You can have an impact.”



FROM THE BOW SEAT

Read the full story and watch a video about the Todericos at vtmag.vt.edu.

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Julia S. Wolff Hatmaker, Catonsville, Md., a daughter, 05/06/19.

Rhonada K. Rusmiser Weaver, Roanoke, Va., a daughter, 06/27/19.

'03

CAREER Carrie L. Heizer Kiser, Middlebrook, Va., was appointed as senior vice president of First Bank & Trust Co.

Diana Lyn C. McGraw, Virginia Beach, Va., joined Fox Rothschild LLP as an associate in the litigation department.

David M. Wong, Blacksburg, Va., is the department head for large animal clinical sciences at Virginia Tech.

BIRTH Paul A. Carlson, Washington, D.C., a daughter, 05/12/19.

Kelly J. Corace, Charlotte, N.C., a son, 05/27/19.

Gregory H. Reif, Wayne, Pa., a son, 09/06/18.

'04

CAREER Harsha K. Rajasimha, Herndon, Va., founded the Organization for Rare Diseases in India.

BIRTH Aaron M. Teitelbaum, Newtown, Conn., a daughter, 5/04/19.

John Winstead and **Ashley Godroe Winstead '08**, Hayes, Va., a son, 5/16/19.

'05

CAREER MaryBeth A. Farquhar, Sterling, Va., has joined the American Urological Associates as executive vice president of research, quality, and scientific affairs.

Isaac C. Rickman, Cleveland, Ga., was promoted to vice president of operations for Atlanta Hardwood Corp. and was elected vice president of the Southern Cypress Manufacturers Association.

BIRTH Erin Hawkinson Bracken and **Morgan Levi Bracken**, Arlington, Va., a son, 5/23/19.

Jennifer Carty, Salem, Va., a son, 4/18/19.

Matthew R. Frengs, Lincoln, Neb., a son, 6/24/19.

'06

CAREER Randall E. Cone, Salisbury, Md., earned the University System of Maryland's highest faculty accolade: the Regents' Award for Excellence.

Kristian E. Spannhake, Baltimore, Md., was named the chair of Mission Advancement for the Urban Land Institute, Baltimore District Council.

BIRTH Mark C. Helton, Virginia Beach, Va., a son, 10/11/17; a daughter, 7/14/2019.

Ethan A. Lavery, Haymarket, Va., a son, 3/22/19.

'07

CAREER Nikeshia Womack Arthur, Christiansburg, Va., was named director of Services for Students with Disabilities at Virginia Tech.

Daniel J. Lentz, Newbury Park, Calif., developed Aqua Paw and was featured on Shark Tank.

'08

CAREER Albert E. Brown Jr., Montclair, N.J., was featured in a CBS segment on the Clothing Boutique Center at Berkeley College.

Bryan C. McVey, Chicago, Ill., is vice president of mechanical engineering at Incredible Technologies.

Brandie M. Schaeffer, Warrenton, Va., is town manager of Warrenton.

Christopher B. Stacy, Bluefield, W. Va., is superintendent of Tazewell County, Va., Public Schools.

Kathryn G. Thomas, Winchester, Va., joined Coldwell Banker Premier as a sales associate.

BIRTH Lindsey Woodburn Brown and **Christopher M. Brown '10**, Henrico, Va., a daughter, 10/29/18.

Ashley Myers Hood, Richmond, Va., a daughter, 4/17/19.

Tiffany Francis Reaves, Williamsburg, Va., a daughter, 5/17/19.

'09

CAREER Tasmin S. Fanning, Crozet, Va., was inducted into the Virginia Tech Sports Hall of Fame.

Melissa A. Brown Stefaniak, Astoria, N.Y., founded the company Single Baked Sweets.

Andrew W. Weaver, High Point, N.C., was inducted into the Virginia Tech Sports Hall of Fame.

Sheneeta W. White, Cottage Grove, Minn., was appointed associate vice provost for student achievement at the University of St. Thomas.

BIRTH Jeremy A. Davis and **Amanda Gurtis Davis**, New York, N.Y., a daughter, 5/10/19.

Emma Lee Katherine Melson Gilbert and **Scot S. Gilbert '10**, Mooresville, N.C., a daughter, 5/30/19.

Rachelle P. Walker and **Ben Walker '10**, Arlington, Va., a son, 5/16/19.

'10

CAREER Sarah H. Glass, Richmond, Va., was named the Revere Scholar at the VCU School of Dentistry.

Adam T. Kendrick, Hopewell, Va., was named Outstanding Recent Alumnus for the Virginia Tech College of Liberal Arts and Human Sciences.

Shannon M. McCabe, Toano, Va., received the Young Forester Leadership Award from the Appalachian Society of American Foresters.

Claire M. White, Blacksburg, Va., contributed to the fourth edition of the "Land Development Handbook."

Caroline L. Wilhoit Eschenbach, Virginia Beach, Va., won the Milken Educator Award.

WEDDING Collins Mehfoud and **Kathryn Slaughter Mehfoud '13**, Champaign, Ill., 5/31/19.

BIRTH Michael D. Curling, Roswell, Ga., a daughter, 6/06/19.

'11

CAREER Grant T. Bischof, Cambridge, Mass., received his MBA from Harvard Business School and is working at Bain & Company in Atlanta, Ga.

Joshua A. Hartsel, Lake Forest, Calif., was named chief science officer at Chemos International Inc.

Claire A. Simeone, Sausalito, Calif., the first veterinarian to become a TED Fellow, received the Virginia-Maryland College of Veterinary Medicine Outstanding Recent Alumni Award.

WEDDING Nathan M. Postman and **Kelsey Lynette Lund '12**, Blacksburg, Va., 7/12/19.

BIRTH Ian K. Barnes and **Caitlin Anne Boyle Barnes**, Toano, Va., a son, 4/23/19.

Tiffany P. Ritchie and **Ross Loyal Ritchie**, Mount Pleasant, S.C., a son, 5/06/19.

'12

CAREER Amanda R. Belyea, Quicksburg, Va., was named assistant county administrator in Shenandoah County, Va.

Saurav Kumar, El Paso, Texas, joined the Texas A&M Agrilife Research Center at El Paso as a water specialist and associate professor.

Brooke M. Leonard, Washington, D.C., joined WSLS-TV as a sports reporter.

WEDDING Gregory J. Sullivan and **Lauren Gorman**, North Providence, R.I., 6/26/19.

BIRTH Brittany L. Quigg, Kailua, Hawaii, a son, 6/19/19.

'13

CAREER William A. Forbes, Charlotte, N.C., joined the Siegfried Group as a senior associate in the Charlotte market.

W.E. McAllister, Blacksburg, Va., created Skyphos Technologies.

Dana K. Stevens, Goodview, Va., was named principal at Mount Pleasant Elementary School by the Roanoke County School Board.

BIRTH Catherine "Cassie" Wedd Wagner, Blacksburg, Va., a daughter, 6/21/19.

'14

CAREER Ashley R. Taylor, Blacksburg, Va., was named a 2019 Bouchet Honor Society Scholar.

Kristen F. Wereszynski, Blacksburg, Va., joined Savannah Animal Hospital as a veterinarian.

BIRTH Nicholas B. Warren, Dexter City, Ohio, a son, 3/17/19.

'15

CAREER Juvenal E. Abrego, Glen Allen, Va., was named principal of Greene Elementary School by Richmond Public Schools.

Laura E. Balis, Lander, Wyo., joined the Cooperative Extension Service of Arkansas as a health specialist.

'17

CAREER Gabriel J. Pent, Crewe, Va., was named superintendent of Shenandoah Valley Agricultural Research and Extension Center.

'18

CAREER Brandon L. Flowers, Blacksburg, Va., was named to the Virginia Tech Sports Hall of Fame.

Camille T. Schrier, Newtown, Pa., won Miss Virginia 2019.

Mary E. "Libbie" Sonnier-Netto, New Orleans, La., became the executive director of the Louisiana Policy Institute for Children.

'19

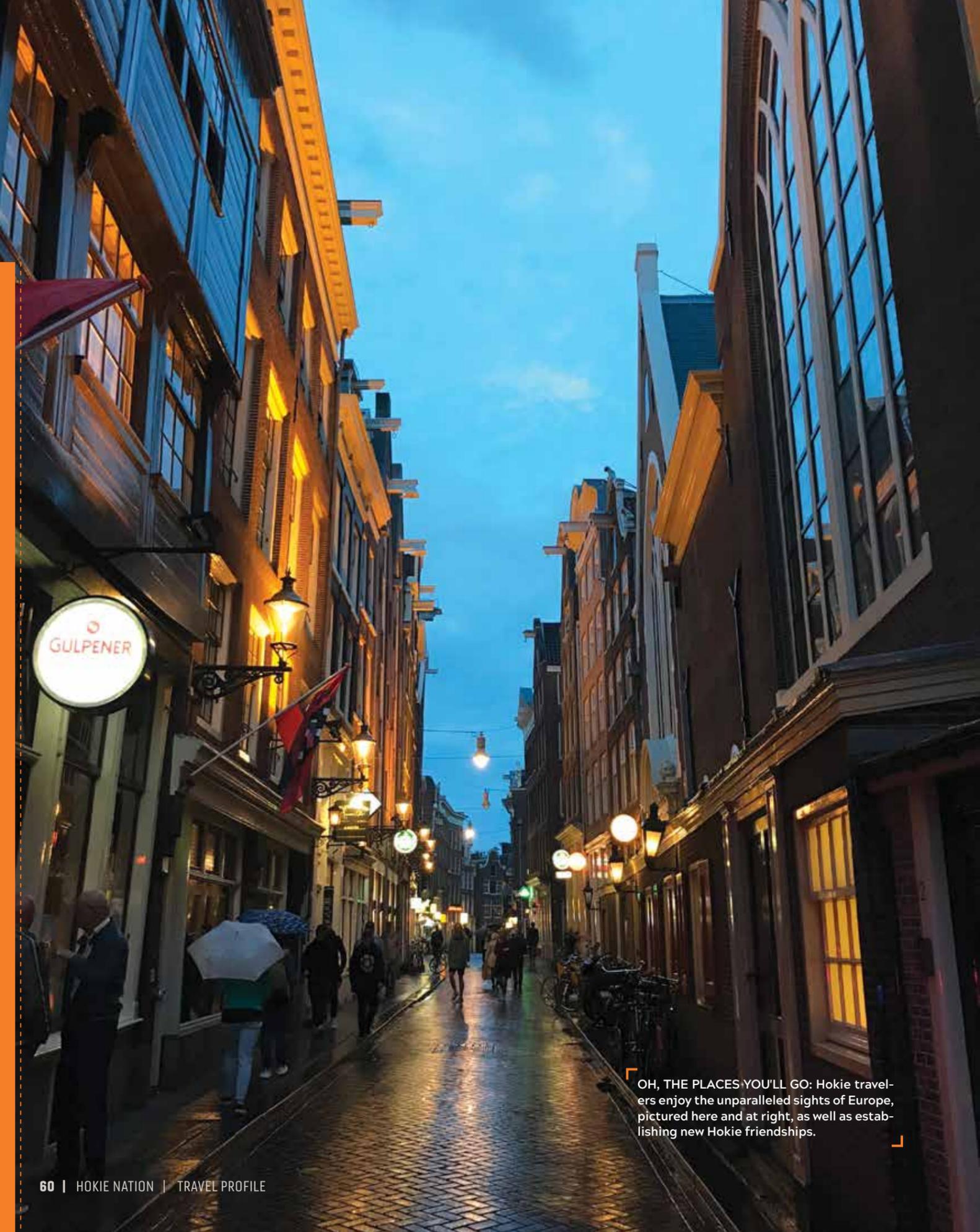
CAREER Clayton C. Terry, Blacksburg, Va., is a generalist with Farm Credit of the Virginias.

CELEBRATORY SEND-OFF

Hundreds of incoming Hokies are welcomed each summer at student send-off events hosted by alumni chapters across the country. Victor Mukora was among 20 first-year Hokies the Richmond Chapter celebrated. The chapter also raises money to fund student scholarships, which are awarded at its send-off each year. Mukora was one of 10 recipients who received \$2,500 each.



FAMILY MATTERS: First-year student Victor Mukora and his mother Donatilla Mwandawiro.



DOWN THE RHINE

"I AM THE END OF EVERY BEGINNING and the **Beginning** of every Seashore."

That's the first of several lines in a riddle that Scott Young '88 gave his wife, Marjorie. He told her they were taking a vacation, but he wouldn't say where.

Give up?

You see, the end of "beginning" is the letter "g" and the beginning of "seashore" is an "s," and both letters were clues to destinations. In July, the Youngs joined about a dozen Hokies on an Alumni Association travel tour cruising down the Rhine River, beginning in Amsterdam, making multiple stops in Germany, and then France, and ending in Switzerland.

On the cruise, Gary Armstrong '82 was quick to respond when asked for a singular memory from his undergraduate days at Virginia Tech: "Unlimited food and drink in the dining hall." Fitting that he should say that in the dining room of the Scenic Opal cruise ship, where it's always time to eat on board, and the experience was delicious.

For Armstrong, who traveled with his wife, Sherrie, the trip reminded him of the fall of 1978, and how fortunate he felt to discover the beautiful fall weather and beautiful campus in Blacksburg. Better yet, Armstrong was delighted when he first spotted a familiar name on the trip's roster of alumni: Byron Yost '61. In 1985, Armstrong became a credit analyst at Dominion Bank in Roanoke, where he learned how to underwrite community business loans under the leadership of Yost, who headed the department. "I was really excited, because I hadn't seen Byron in 27 or 28 years," Armstrong said. Yost was a "gentleman banker and a mentor," said Armstrong, who now consults for banks. "Everybody loved Byron. He took an interest in us."

Yost and his wife, Nancy, traveled to Europe with Warren Ferguson '61 and Gail Browning. Yost and Ferguson, who both transferred to Virginia Tech after two years at Bridgewater College and Ferrum College, respectively, commuted to campus from Salem each day. "We'd hang around the student center, waiting for our rides home," Ferguson said.

Ferguson, a retired insurance adjuster who's gone on seven or eight Virginia Tech alumni tours, appreciated the chance to see multiple countries on a single trip—all from a cruise ship, where there's no need to move suitcases from hotel to hotel, and where an all-inclusive journey means travelers know the exact cost up front.

And the camaraderie among new Hokie friends was the icing on the cake. If your trip happened to be just days before the 50th anniversary of the Apollo 11 moon landing, you would have been happy to find yourself within earshot of Bill Piland '62, traveling with his wife, Ann. Piland took a civilian assignment with NASA as an aerospace engineer in 1962 and worked there for 39 years alongside a good number of other Hokies.

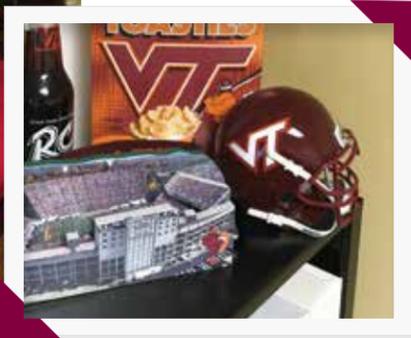
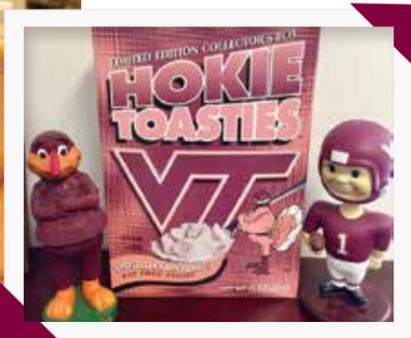
Young, who put on his class ring for the trip and then needed "soapy water and some creative twisting" to remove it once he reached home, summed up the cruise with one word: relationships. Unlike a class ring, those strengthened bonds—with local tour guides, cruise ship staff, fellow Hokies, and his wife—won't come off. ■ *JT*



OH, THE PLACES YOU'LL GO: Hokie travelers enjoy the unparalleled sights of Europe, pictured here and at right, as well as establishing new Hokie friendships.

ALUMNI TRAVEL

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



EVERYTHING VIRGINIA TECH: The Hokies' shot at the national title in 1999 introduced the university to the country.

HOKIE MANIA

TWENTY YEARS AGO, THE VIRGINIA Tech football team marched to an 11-0 regular season, a No. 2 ranking in the final Associated Press poll, and to the national title game against No. 1 Florida State in New Orleans.

The Hokies ultimately lost to the Seminoles, 46-29, but along the way, they won the affection of many across the nation and positioned the university in the national spotlight in an unprecedented manner.

The team, their special season, and the Hokie mania sweeping the country

were highlighted in a story by Su Clauson-Wicker and Clara B. Cox in the spring 2000 edition of Virginia Tech Magazine, which is excerpted below:

Hokie Toasties popped up in cereal aisles; RC Cola bottles sported the Tech colors; a Northern Virginia high-rise office building spelled its Hokie Pride in lighted windows nightly; and legions of vehicles proudly bear the Tech logo. Hokie mania swept the country during the fall, gathering steam as the undefeated team headed to New Orleans.

Sales of orange and maroon Hokie paraphernalia at the campus bookstores—both in Blacksburg and at the Northern Virginia

Center—zoomed up more than a third over last year. When an estimated 54 million people tuned to ABC television and watched Tech take on top-ranked Florida State at the Sugar Bowl, Tech also got an opportunity to showcase its reputation as a top research institution. ESPN, which broadcast its Game Day pregame show from Blacksburg last fall, cast the university in an especially positive light and made an unprecedented return to Blacksburg for a second show. The network praised the football team and also raved about Tech's academic reputation and the campus scenery. The show drew record crowds both times. ■ TW

JIM STROUP, COURTESY OF VIRGINIA TECH MAGAZINE

CHRISTINA FRANUSICH



HOW DO YOU SAY IT?

PERHAPS SINCE THE DAWN OF TIME people have debated the pronunciations of certain words.

Is it “po-TAY-toe” or “po-TAH-toe?”

Is it “to-MAY-toe” or “to-MAH-toe?”

Virginia Tech doesn't have a stake in either of those debates, but there is a pronunciation conundrum that hits close to home.

Hokies pronounce our university motto, *Ut Prosim* (That I May Serve), in very different ways. The word *Ut* might rhyme with “but,” “boot,” “foot,” or even something completely different. A similar issue arises with *Prosim*; some pronounce it with an “s” sound, while others use a “z” sound.

After conferring with dozens of Hokies and reaching no clear resolution, we turned to Associate Professor Andrew Becker, who teaches Latin and ancient Greek in Virginia Tech's Department of Modern and Classical Languages and Literatures, for guidance.

“I've heard people go all the way from saying, ‘Ut,’ as the ‘uh’ sound in ‘but,’ to the ‘oo,’ as in ‘boot.’ And actually, where you want to land is halfway between those. You want to land on the ‘u,’ as in ‘put.’ So, there's a little bit of lip rounding, as in

‘foot,’ not a lot like ‘oo,’ not flat like ‘uh,’” Becker said.

Becker also weighed in on, *Prosim*.

“Most people make the mistake of making a ‘z’ sound. *Prosim* would be ‘pro,’ as in ‘professor,’ or ‘protest,’ and ‘sim,’ like ‘simple’ or ‘simulate,’” Becker said.

Becker is, however, quick to provide a disclaimer and a possible explanation for the variety of pronunciations out there.

“Latin was spoken as a native language for over a millennium and used across much of the Mediterranean, North Africa, Middle East, and Western Europe during the Roman Empire. It was then used as an international language in the church and in education in Europe for another millennium or so. There was a lot of variation, from time to time, place to place, town to town, social class to social class, and person to person, so we can't be too pedantic and precise about how people would have said *Ut Prosim*.

“But a standard pronunciation became settled, modeled on the Classical Age of Rome—about 200 BCE to about 200 CE—when our most well-known authors were writing, such as Vergil, Ovid, Catullus,

Caesar, Cicero, and Horace. In this standard pronunciation, *Ut* would have been more like ‘foot’ or ‘put,’ and this is the way we teach it now.”

But Becker cautions that spelling, unlike pronunciation, isn't up for debate. “I do a lot of consultation on ancient Greek and Latin tattoos, many incorporating *Ut Prosim* into them. In that case, no matter how you pronounce it, it's crucial to get the spelling right for whatever Latin or Greek you add. It's sad to see a mangled internet translation inked on someone's ankle.” ■ TW



HOKIE HELPERS: Students, faculty, and staff demonstrate their commitment to *Ut Prosim* (That I May Serve) by volunteering during move-in days each fall.



SAY WHAT?

Learn more about how Hokies pronounce *Ut Prosim* (That I May Serve) at vtmag.vt.edu.



CHAPTER AWARDS 2018-19

OUTSTANDING CHAPTER AWARDS

GOLD

- Atlanta
- Baltimore
- Central Florida
- Charleston
- Charlotte
- Dallas/Fort Worth
- Denver
- First State
- Jacksonville
- Middle Tennessee
- National Capital Region
- NC Triad
- Palmetto
- Richmond
- Roanoke Valley
- Shenandoah
- Tidewater

SILVER

- Alleghany Highlands
- Central Pennsylvania
- Central Virginia
- Chicago
- Cincinnati
- Columbia
- Fauquier
- Fredericksburg
- Minnesota
- New England
- New River Valley
- Orange County
- Peninsula
- San Antonio
- Triangle
- Williamsburg

BRONZE

- Charlottesville
- Houston
- New Jersey
- Philadelphia
- Pittsburgh
- San Diego
- Southeastern Michigan
- Tideneck

SUPERLATIVE AWARDS

OUTSTANDING CHAPTER EVENT

Tidewater Chapter, Virginia Tech vs. Old Dominion University Pregame Tailgate

OUTSTANDING COMMUNITY SERVICE PROJECT

Tidewater Chapter, The Big Event 2019 (Surfrider Foundation Beach Cleanup)
 Denver Chapter, The Big Event 2019 (Denver Urban Gardens Cleanup)

OUTSTANDING CHAPTER NETWORKING EVENT

Denver Chapter, Young Alumni Pub Crawl 2018

OUTSTANDING CHAPTER MARKETING PROGRAM

National Capital Region Chapter

HONORABLE MENTION

Jacksonville Chapter

INNOVATION AWARD

Middle Tennessee (Nashville) Chapter, Virginia Schools Mixer and Predators Game

BROADENING ALUMNI ENGAGEMENT AWARD

National Capital Region Chapter, Wag and Brew Event

MOST IMPROVED CHAPTER

Charlottesville Chapter

OUTSTANDING "RENEWED" CHAPTER

Cincinnati Chapter

Philadelphia Chapter

OUTSTANDING CHAPTER VOLUNTEER

Lynell Barta Helms '01, Tidewater Chapter

OUTSTANDING CHAPTER OFFICER

Eric Eley '85, NC Triad Chapter



1

CHELSEA ROSE PHOTOGRAPHY



2

SKYRDER PHOTOGRAPHY



3

HAPPY ACRES PHOTOGRAPHY



4

MELLOW DAISY PHOTOGRAPHY



5

CAITLIN BOYLE BARNES '12

FAMILY

1 "Our little Birdie is snug as a bug with her big brother, Quart." — Tiffany Anne Francis Reaves '08, Williamsburg, Virginia, who welcomed a daughter, Crewe Sparrow "Birdie," 5/17/19.

2 "We met in 2009 at Virginia Tech's Western equine riding team tryouts. Ten years later, we got married in Keswick, Virginia, surrounded by friends, family, and Hokies." — Kathryn Slaughter Mehfoud '13, Champaign, Illinois, who married Collins Mehfoud '10, 5/31/19.

3 "Big sister Waverly was just as excited as mom and dad to meet her new baby brother." — Ashley Goodroe Winstead '08, Hayes, Virginia, who, along with John Winstead '04, welcomed a son, Brooks Harrison, 5/16/19.

4 "Maroon and orange are already Benjamin's favorite colors." — Ethan Lavery '06, Haymarket, Virginia, who welcomed a son, Benjamin Lavery, 3/22/19.

5 "Natalie loves teaching her new brother, Cole, how to cheer on the Hokies." — Ian K. Barnes '11, Toano, Virginia, who, along with Caitlin Boyle Barnes '12, welcomed a son, Cole, 4/23/19.



FAMILY TIES

See more family photos to vtmag.vt.edu.

MODERN-DAY MAN OF STEEL

LOUD NOISES EMANATE FROM A workshop on top of a hill on Blacksburg's Harding Avenue. Inside, Eric Collins is forging new opportunities in an age-old profession—blacksmithing.

"It seems like there is this idea that blacksmiths are big, burly guys with huge hammers that are just going to town," said Collins, who graduated from Virginia Tech in 2007 with a degree in industrial engineering. "But that's not how it is at all. Most of the time, you don't need a huge amount of physical strength to do it, you need manual dexterity. It's a perfect craft for people who have use of their arms and hands and who want to make stuff."

The art of blacksmithing is documented as early as 1350 B.C. in Egypt when men used the techniques to craft tools from iron. Modern blacksmiths still forge their creations the old-fashioned way, heating the steel to around 2,000 degrees to make it malleable enough to shape or cut.

Collins, who has been blacksmithing since the mid-1990s, promotes a 21st-century vision for the craft. Traditionally, blacksmiths begin with a bar of metal and use heat and tools, such as hammers and anvils, to shape the desired product. Collins' methods rely on patterns and sheet metal to build similar products faster.

The workshop houses an array of his designs, such as a forged HokeBird wearing a cadet uniform, crafted leaves and frogs, and various tools. To create these pieces, Collins uses state-of-the-art technology, including a 3D printer and microprocessors. His workshop also includes

a computer numerical controlled (CNC) plasma cutter.

Collins built the CNC, which took about three months. The machine consists of a plasma cutter, a gantry, a stepper motor driver, and a computer. The plasma cutter can be controlled manually or via the computer. The gantry carries the torch head while it cuts, using a process similar to an Etch-a-Sketch. The stepper motor driver pulsates to cut the metal into specific shapes. A Mach 3 program operated by the computer guides the CNC's cutting pattern.

In February, Collins debuted "Blacksmithing Magazine," an online publication. The magazine features articles about building and using a plasma CNC and also provides cut files—outlines that can be printed as patterns for products. The magazine targets those interested in blacksmithing with resources for all experience levels, from beginning to advanced.

Collins' interest in smithing was sparked in middle school when a substitute teacher shared a steel dragon he had forged and explained how metal can be as malleable as clay when it gets hot. Recognizing the middle schooler's interest, the teacher invited Collins and his parents to learn more about forging at his workshop. Collins was hooked.

"The things you make now can last, with care, 100, 200, 300 years. As long as they are taken care of, they will last forever," said Collins. "How many things can you do that are that permanent?"

Professionally, Collins designs custom products for industrial manufacturing, noting that he has a design process he can apply to any type of problem. Also, he sells art, ranging from blacksmithed products to paintings and wood creations.

"I've always made, designed, and created stuff," said Collins. "That is who I am. My mind grinds on issues. If there is a problem, I always try to find out how to fix it."

Collins actively participates in the Southwest Virginia Blacksmith Guild, and this summer, he taught a blacksmithing class at Blue Ridge Church camp for children, perhaps inspiring yet another generation of smithys. ■

Haley Cummings, a senior majoring in public relations, is an intern with Virginia Tech Magazine.

HAMMER IT OUT: (at right) Eric Collins, uses traditional tools, like a hammer and anvil (below), but also incorporates modern technology into the craft of blacksmithing.

DM, COURTESY OF JOHN HERZOG PHOTOGRAPHY



“**I’VE ALWAYS MADE, DESIGNED, AND CREATED STUFF. THAT IS WHO I AM. MY MIND GRINDS ON ISSUES.**”

Eric Collins '07

SCIENCE ON STAGE

CAMILLE SCHRIER DIDN'T GROW UP singing, playing piano, or dancing.

She played sports, primarily swimming, equestrian, field hockey, and track and field, and dreamed of becoming a meteorologist or a marine biologist—anything in the science field.

Since then, the Virginia Tech alumna, who was one of the first Hokies to graduate with a systems biology major in 2018, hasn't strayed too far from science.

Wearing a lab coat, goggles, and high heels, she performed an exploding chemistry demonstration as her talent in the Miss Virginia competition—and she won.

During her year-long reign as Miss Virginia, Schrier plans to raise awareness of drug safety and abuse prevention and promote science, technology, engineering, and math education and careers in schools throughout the state, with a focus

on attracting girls to the path. "I want to be that role model for them," said Schrier, who chose a chemistry demonstration for the competition to showcase what she could bring to schools during her reign.

Her victory is no surprise to her professors at Virginia Tech, who remember Schrier, also a biochemistry major, as one of the brightest students in their courses.

"She definitely made the best presentations in my class," said Jing Chen, an assistant professor of biological sciences who taught Schrier in several courses. "She was very good at explaining the background information and her results."

The pageant demonstration, called elephant toothpaste, was a reaction of hydrogen peroxide and potassium iodide that produces a big stream of steaming foam. Pageant staff had to wear thermal gloves while cleaning up the stage afterward, Schrier said. ■ JB



IN HER ELEMENT: Camille Schrier performed a chemistry demonstration known as elephant toothpaste during the Miss Virginia competition in June.

IN MEMORIAM

Listing includes notices shared with the university Jan. 1 through April 30, 2019.

'38

Edwin Allen Myrick, Daleville, Va., 1/21/2019.

'40

Mary Hagaman Saylor, Johnson City, Tenn., 3/20/2019

'42

John T. Chamberlain, Bainbridge Island, Wash., 12/3/2016.

Paul J. Winfield, Largo, Fla., 12/21/2018.

'44

Charles P. Powell Jr., Hampton, Va., 12/8/2017.

Charles E. Shenberger, Salem, Va., 1/10/2019.

John F. Spangler, Harrisonburg, Va., 12/18/2018.

'45

Benjamin Thomas Cullen Jr., Crozet, Va., 3/20/2019.

Alice George Decker, Stanardsville, Va., 12/5/2018.

Rush M. Forquer Jr., Atlanta, Ga., 3/1/2019.

John Tyler Hanna, Williamsburg, Va., 12/11/2018.

Irvin R. Holmes Sr., Odessa, Fla., 1/12/2019.

T. Freeland Mason Jr., Richmond, Va., 2/5/2019.

Louise Pratt Pearson, Dickinson, N.D., 1/13/2019.

'46

Dodson Hill Felton Sr., South Boston, Va., 12/6/2018.

Charles K. McCracken, North Bergen, N.J., 1/13/2019.

John M. Rasnick Jr., Richmond, Va., 12/12/2018.

'47

Dorothy Jane Looney Barnes, Clinton Township, Mich., 3/2/2019.

Lawrence D. Garrett, Bowling Green, Va., 1/20/2019.

Thomas L. Phillips, Weston, Mass., 1/9/2019.

'49

Lauren F. Corr, Camden, S.C., 3/3/2019.

Frederick F. Jewett Sr., Richmond, Va., 3/10/2019.

Wallace E. Smith, Chesapeake, Va., 1/15/2019.

'50

William T. Borthwick Jr., Mount Pleasant, S.C., 3/2/2019.

Samuel J. Felton, Urbana, Ill., 3/22/2019.

William Granville Batte, Williamsburg, Va., 1/21/2019.

Charles Lowell Hall Jr., Salem, Va., 1/16/2019.

Harold R. Kaufman, Wimberley, Texas, 3/17/2019.

Elizabeth Tribble Kennedy, Kilmarnock, Va., 1/21/2019.

Charles E. Smith, Boone, N.C., 3/18/2019.

Charles E. Sutton Jr., Richmond, Va., 12/31/2018.

James H. Taylor Jr., Baton Rouge, La., 3/4/2019.

Andrew Gordon Thornton, Jr., Roanoke, Va., 4/5/2019.

Marshall R. Webb Jr., Colonial Heights, Va., 2/10/2019.

Carroll Aubrey Williams, Virginia Beach, Va., 3/8/2019.

Hugh Churchill Young, Millbrook, N.Y., 3/21/2019.

'51

Richardson B. Cartwright Sr., West Point, Va., 12/17/2018.

Leonard Neal Ford Sr., Richmond, Va., 3/6/2019.

Marion Billy Hitt, Richland, Wash., 2/17/2019.

Muhamed Y. Yassine, Sterling, Va., 3/13/2019.

'52

Wyatt Beasley Haney Jr., Greenville, S.C., 1/20/2019.

John S. Haydon, Mayfield, N.Y., 1/27/2019.

Dolph E. Henry Jr., Fairlawn, Va., 12/19/2018.

Joseph Willard Holcomb, Columbus, Ohio, 1/4/2019.

James Riley Kee, Richmond, Va., 3/28/2019.

Charles Donald King, Clintwood, Va., 1/24/2019.

Glen D. McLaughlin, Winchester, Va., 3/1/2019.

Donald Brigstock Powell, Stevens Point, Wis., 2/5/2019.

Bransford A. Smoot, Athens, Tenn., 1/8/2019.

W. Guy Williams Jr., Richmond, Va., 3/14/2019.

'53

William Horatio Brown IV, Surgoinsville, Tenn., 3/6/2019.

David Samuel Perry Jr., Richmond, Va., 2/28/2019.

Floyd Wendell Williams, Watkinsville, Ga., 1/22/2019.

'54

William T. Hoeck, Cotuit, Mass., 3/20/2019.

'55

G. Carter Kitts, Moneta, Va., 1/12/2019.

John Bertram Murphy Jr., Henrico, Va., 1/23/2019.

Hughey Allen Woodle Jr., Midlothian, Va., 1/7/2019.

'56

James Townley Alvey, Solomons, Md., 2/6/2019.

Robert F. Boxley Jr., Winchester, Va., 12/19/2018.

James E. Morris Jr., Chapin, S.C., 4/1/2019.

Averett S. Tombes, North Chesterfield, Va., 3/10/2019.

'57

James Melvin Allen, Henrico, Va., 1/11/2019.

Virginia Hawley Butler, Blacksburg, Va., 12/29/2018.

Larry B. Hall, Virginia Beach, Va., 3/6/2019.

Joanne Brickey Hedeman, Salisbury, Md., 2/25/2019.

Sara "Lee" Richardson Sendelbeck, Palo Alto, Calif., 3/9/2019.

H. Hoover Thomas, Raleigh, N.C., 4/2/2019.

'58

Joyce W. Dallas Clark, Charlotte, N.C., 2/15/2019.

Billy B. Cross, Lebanon, Va., 3/26/2019.

George Dragas Jr., Delray Beach, Fla., 3/21/2019.

Donald E. Graves, Cumberland, Md., 3/4/2019.

Herman William Hess Jr., Williamsburg, Va., 3/1/2019.

James Carroll Lovin, Brevard, N.C., 3/15/2019.

Cecil H. Maynor Jr., Mooresville, N.C., 12/18/2018.

Joe B. Wightman, Edinburg, Va., 3/23/2019.

'59

Bruno R. Aimi, Schenectady, N.Y., 1/14/2019.

George Lawrence Eitel Jr., Hurricane, Utah, 3/21/2019.

Harry Franklin Geib Jr., McLean, Va., 1/29/2019.

James R. Hiers, Merritt Island, Fla., 1/29/2019.

Thomas Nathaniel Hunnicutt III, Hampton, Va., 4/3/2019.

James A. Rayburn, North Fort Myers, Fla., 2/5/2019.

Dwight Lonzo Speeks, Bluefield, Va., 12/20/2018.

Glen S. Waldrop, Jensen Beach, Fla., 2/2/2019.

'60

Daniel Whitney Ferry, Hooksett, N.H., 2/3/2019.

Edwin Cline Gillenwater, Falls Church, Va., 1/23/2019.

Buddy O'Neill Mann, Jamestown, N.C., 12/28/2018.

Charles Edwin Neal, Mobile, Ala., 2/12/2019.

Frank David Porter III, Roanoke, Va., 2/19/2018.

Charles Edwin Shelton, Fernandina, Fla., 12/14/2018.

'61

Arthur William Claussen Jr., Blacksburg, Va., 12/13/2018.

Hubert Hinote, Fairhope, Ala., 12/15/2018.

Wilburn Lee Moore, Springfield, Va., 2/9/2019.

T. David Siegle, Zillah, Wash., 2/11/2019.

James William Willard Sr., Rural Retreat, Va., 2/21/2019.

Roy A. Williams, Daleville, Va., 1/3/2019.

'62

Creed Collier Absher, Norton, Va., 12/18/2018.

Joel Barnett Bloom, Mount Airy, Md., 12/13/2018.

Roy Alan Brogan, Lynchburg, Va., 12/22/2018.

Gerald Gene Gallimore, Dallas, Texas, 3/5/2019.

William Lee Hodson Jr., The Villages, Fla., 11/8/2018.

Phillip F. McClung, Pittsford, N.Y., 3/12/2019.

George Edward Washington, Purcellville, Va., 2/26/2019.

'63

Georg Otto Bergemann Jr., Richmond, Va., 2/13/2019.

Donald C. Fritz, Bluff City, Tenn., 2/5/2019.

Roger Woolford Hall, Bradenton, Fla., 1/3/2019.

Curtis Dean Hanks, The Villages, Fla., 3/15/2019.

Brandon Lee Shelton, Scottsville, Va., 3/20/2019.

Harpal Singh, Morgantown, W. Va., 1/18/2019.

John William Webb, Ruckersville, Va., 12/1/2018.

'64

Michael Lee Campbell, Salem, Va., 2/7/2019.

Paul A. Carr, Chesapeake, Va., 2/15/2019.

Dwight Morrison Pemberton, Spartanburg, S.C., 1/19/2019.

Stella Shen Sun, Raleigh, N.C., 1/17/2019.

'65

Deroy C. Campbell, Rocky Mount, Va., 1/19/2019.

Robert Ellis Casey, Roanoke, Va., 3/5/2019.

Charles K. Curry, Midlothian, Va., 3/18/2019.

Thomas Stockton Fox Jr., Christiansburg, Va., 2/21/2019.

David L. Gardner, Floyd, Va., 3/6/2019.

David Stewart Grant, Bedford, Va., 2/7/2019.

Donald Leigh Howell, Lynchburg, Va., 12/25/2018.

Ronald Hastings Miller, Fort Myers, Fla., 2/4/2019.

Billy Keech Peele, Greensboro, N.C., 3/15/2019.

'66

Laurence William Enderson Jr., Hampton, Va., 12/1/2018.

Van Douglas Frasher, Talbott, Tenn., 12/6/2018.

Leslie Edward Hanly, Morrow, Ga., 3/29/2019.

Shan Loganathan, Miamisburg, Ohio, 2/21/2019.

David Oliver Turner Jr., La Crosse, Va., 12/28/2018.

'67

Edward Stephen Ferguson, Hardy, Va., 2/26/2019.

Garland Grammer Jr., Jackson, N.J., 1/30/2019.

Robert Layne Hodges, Newport News, Va., 12/1/2018.

Wayne Lynwood Jackson, Little Rock, Ark., 1/26/2019.

Charles B. Johnson, Purcellville, Va., 3/27/2019.

Lewis William Leffel, Eagle Rock, Va., 12/4/2018.

Marvin Leroy Luther, Normal, Ill., 2/24/2019.

Freelyn V. Stanley Jr., Williamsburg, Va., 12/1/2018.

Frances Graham Hilt Trent, Roanoke, Va., 3/16/2019.

'68

Billy Russell Quesenberry, Sheffield, Ala., 2/22/2019.

Roger H. Tumlin, Stokesdale, N.C., 12/1/2018.

'69

John Bill Brooks, Woodstock, Ga., 3/9/2019.

Richard John Glowinski, Dillwyn, Va., 2/16/2019.

Jack Samuel Kirby, Roanoke, Va., 3/29/2019.

William H. Mason, Blacksburg, Va., 3/27/2019.

William Franklin Moore, Rocky Mount, Va., 3/5/2019.

Jackson Marshall Raines Jr., McGaheysville, Va., 3/4/2019.

William Edward White, Yorktown, Va., 1/25/2019.

'71

Richard Wills Anderson, Port Republic, Va., 3/5/2019.

Stephen Domenick D'Adamo, Mechanicsville, Va., 2/16/2019.

Howard Lee Grove, Bealeton, Va., 3/2/2019.

Robert E. Helme, Oak Island, N.C., 2/25/2019.

John Knott Jr., Mobile, Ala., 12/15/2018.

'72

Gloria Bardsley, Salt Lake City, Utah, 12/31/2018.

Robert Alvin Creech III, Arlington Heights, Ill., 12/23/2018.

Ronald Eugene Holsinger, Harrisonburg, Va., 3/15/2019.

Robert Charles MacIndoe Jr., Upton, Mass., 12/23/2018.

'73

Theodore Ernst Hervey, Bertram, Texas, 1/15/2019.

Robert Bruce Wright, Winchester, Va., 3/21/2019.

'74

Alpheus Nathaniel Angle II, Union Hall, Va., 3/5/2019.

John Ellis Keen, Vansant, Va., 3/17/2019.

Charles Richard Parilla, Fairfax, Va., 12/13/2018.

Robert H. Taylor, Frederick, Md., 12/17/2018.

'75

Mark Alton Bragg, Mechanicsville, Va., 2/24/2019.

Frank Allen Pleva, Mathews, Va., 3/22/2019.

Peter Van Vleet, Waynesboro, Va., 1/14/2019.

OBITUARIES

'76

Mary Riege Laner, Tempe, Ariz., 12/16/2018.

Mary C. Voglewede Peterson, Youngsville, N.C., 2/17/2019.

'77

Sylvia Hensley Cunningham, Charlottesville, Va., 1/21/2019.

Katherine Black Decker, Chesapeake, Va., 1/16/2019.

Jan McClaugherty Denson, Mechanicsville, Va., 11/11/2018.

Louise Ryan Grimm, Pounding Mill, Va., 3/21/2019.

Betty Furrow Hines, Blacksburg, Va., 3/14/2019.

Rosemary Trueblood McDonald, Reston, Va., 2/1/2019.

Robert Larry McGuire, Roanoke, Va., 1/30/2019.

Prince E. Parham, Macon, N.C., 2/24/2019.

'78

William Hearin Babb, Grants, N.M., 12/31/2018.

Carl Sinclair Hood, Christiansburg, Va., 3/29/2019.

James Alan Roomy, Plantation, Fla., 11/23/2018.

James Keith Thompson, Hanover, Va., 1/4/2019.

Walter Lewis Young Jr., Roanoke, Va., 2/14/2019.

'79

Benny Ray Bell, Knoxville, Tenn., 1/10/2019.

'80

H.H. Herdey, Yorktown, Va., 1/12/2019.

James Harrison Kelly, Wake Forest, N.C., 10/6/2015.

Alan Lee Matthews, Chester, Va., 2/3/2019.

Andrew Robert Messner, Christiansburg, Va., 1/1/2019.

Karen Terstappen Morr, Marco Island, Fla., 1/24/2019.

Walter Herbert Peake III, Roanoke, Va., 4/3/2019.

Jean Orion Smith Siler, Virginia Beach, Va., 11/30/2018.

'81

Doris Kay Feldmeyer Bohan, Englewood, Fla., 2/3/2019.

Douglas Derek Campbell, Boston, Va., 2/22/2019.

Perry "Lloyd" L. Hipkins, Newport, Va., 3/30/2019.

John Theodore Tisdale, Ocean Grove, N.J., 2/25/2019.

'82

John Christos Daoulas, Chesterfield, Va., 1/28/2019.

'83

Carol Ann Baker, Portage, Mich., 1/29/2019.

Betty Beall Brown Beard, Covington, Tenn., 10/28/2018.

'84

Michael Gordon Booth, Christiansburg, Va., 1/6/2019.

Joseph William Gormley, Newport, Va., 1/17/2019.

Patra Ellen Moss Janney, Crab Orchard, W.Va., 2/21/2019.

Joseph William LeFevre, Oswego, N.Y., 1/10/2019.

Gregory Alan Myers, Burlington, N.C., 3/19/2019.

Theresa Howard Robertson, Midlothian, Va., 1/11/2019.

'85

Joseph Watson Carter, Salem, Va., 3/20/2019.

'86

Michelle Renee Overstreet Bragg, Springfield, Va., 2/4/2019.

James Michael Doherty, Washington, D.C., 12/28/2018.

'87

Robert Allen Briggs, Gainesville, Va., 1/10/2019.

Lisa Anne Abercrombie Byler, Broad Run, Va., 3/9/2019.

'88

Jeffrey Scott Darrach, Mason, Ohio, 3/14/2019.

John Augustine Moore, Norfolk, Va., 2/6/2019.

Joseph John West, Tallahassee, Fla., 1/10/2019.

'90

Tamarlane J. Hamilton, Natural Bridge, Va., 2/28/2019.

'91

Raymond Lance Becker, Venice, Fla., 1/1/2019.

Kelley Garrett Brown, Roanoke, Va., 1/1/2019.

'93

Alireza Mehrabian, Vienna, Va., 1/31/2019.

'94

Angela Constance Brownley, Kensington, Md., 3/11/2019.

Theodore Alfred Kerpez, New Paltz, N.Y., 12/23/2018.

'95

David Andrew Fisher, Herndon, Va., 3/8/2019.

Thomas Lynn Kelley, Fort Mill, S.C., 1/18/2019.

Amy Marshall Robbins, Morgantown, W.Va., 1/26/2019.

'96

Cynthia C. Jarvis, Glasgow, Va., 1/11/2019.

Philip Edwin Mann Jr., Hinton, W.Va., 1/8/2019.

'98

Jacqueline Eola Bryant, Norfolk, Va., 2/19/2019.

Karen G. Evans, Gary, Ind., 12/10/2018.

Jonathan E. King, San Francisco, Calif., 2/21/2019.

'99

Gregory Todd Bowyer, Roanoke, Va., 12/12/2018.

'00

Thomas Lee Edwards, North Tazewell, Va., 12/12/2018.

'01

Juliette Powers Rainero, Bristol, Va., 2/13/2019.

'02

Brittney Leigh Cason, Blacksburg, Va., 1/23/2019.

'03

Joshua Alexander Brown, Roanoke, Va., 1/22/2019.

Christopher Stephen Dula, Johnson City, Tenn., 1/8/2019.

'05

Natalie Garland, Fairfax, Va., 12/19/2018.

'06

Paul Waites Youmans, Roanoke, Va., 12/3/2018.

'07

Rye Daniel Lemons, Arroyo Seco, N.M., 11/7/2018.

'10

Erik Steven Santmyer, Lovettsville, Va., 3/2/2019.

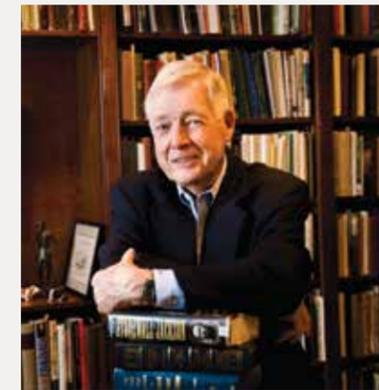
FACULTY/STAFF

James I. "Bud" Robertson Jr., Alumni Distinguished Professor Emeritus of History at Virginia Tech, died on Nov. 2.

Robertson used vivid stories to bring the American Civil War to life for generations of Virginia Tech students, and for millions across the world. During the 100th anniversary of the Civil War, President John F. Kennedy asked Robertson to serve as executive director of the United States Civil War Centennial Commission.

In 1967, Robertson joined the faculty of Virginia Tech, where his course on the Civil War attracted an average of 300 students each semester and became the largest class of its kind in the nation. During his 44 years at the university, he taught more than 25,000 Virginia Tech students.

In 1999, Robertson became the founding director of the Virginia Center for Civil War Studies. The center has established a tribute page in Robertson's honor. Visit civilwar.vt.edu/tributes-to-james-i-bud-robertson-jr to contribute remembrances.



Read more about Robertson at vtmag.vt.edu.

Benjamin S. Blanchard Jr., former assistant dean of the College of Engineering and professor emeritus of industrial and systems engineering at Virginia Tech, died July 11.

William L. Conger, former department head and professor emeritus of chemical engineering, died July 26.

Robert Lowell, a research professor in the Department of Geosciences, died June 24.

Walter F. O'Brien Jr. '60 '68, the J. Bernard Jones Professor of Mechanical Engineering and a Virginia Tech faculty member for more than 52 years, died July 25.

Lawrence N. Sewell M.S. '82, a retired Virginia Tech computer engineer who helped design and build the computer systems for the Department of Mathematics' Math Emporium, died May 27.

Gary Paul Swank, associate professor of internal medicine at the Virginia Tech Carilion's School of Medicine and medical director of Carilion's Cardiac Catheterization Lab, died on June 23.

ALUMNI LEADERS

Christopher Kraft '44, NASA's first flight director and a pioneer who led multiple space missions, died July 22.

After earning a bachelor's degree in aeronautical engineering, Kraft joined the Langley Aeronautical Laboratory of the National Advisory Committee for Aeronautics, the precursor of NASA. In October 1958, he was one of the original members of the Space Task Group, the organization established to manage Project Mercury. As NASA's director of flight operations in the 1960s, Kraft was instrumental in landing an astronaut on the moon. In 1972, he was named director of the Johnson Space Center.

In 2002, Virginia Tech awarded Kraft the William H. Ruffner Medal—the university's highest honor.

Read more about Kraft at vtmag.vt.edu.



JOHN MCCORMICK, NASA



STILL
LIFE

REFLECTIONS: The beauty of Virginia Tech's campus, like this view from beneath Torgersen Bridge following a midday rainstorm in autumn, can be awe-inspiring.

Michael Moyer
and Angela Hayes



END NOTE

STANDING AT AN INFLECTION POINT IN HISTORY

STAYING CONNECTED TO AND involved with Virginia Tech makes the university—and our bonds as Hokies—stronger.

That's why your engagement is such a crucial part of Boundless Impact: The Campaign for Virginia Tech.

This comprehensive campaign is the university's fourth, but it's the first with an engagement goal. We are connecting with more Hokies than ever before, and our goal is to continue growing that number—expanding from 40,000 engaged alumni and friends to more than 100,000 over the course of the campaign.

There are ways for all Hokies to remain active in the life of the university.

When you volunteer, come to an event, or make a gift, you are making a difference. You are making our community stronger and the campus experience more relevant for current and future Hokies.

Give back by mentoring an undergraduate student. Shape the university's future by serving on a board. Help Hokies reconnect by pitching in as a reunion

volunteer, or share your enthusiasm as a Giving Day ambassador.

Stay connected to Hokies and our campus by attending events. Expand your professional community by attending a networking event. Rekindle friendships at a reunion or meet Hokies in your neighborhood at a chapter event. Purchase season tickets to the Moss Arts Center, men's or women's basketball, or football.

Being a Hokie is a part of who you are—and Hokies help the causes that matter most to them. With your help, we will move Virginia Tech forward.

We are poised to become an even greater force for positive change in the world. With an active network of alumni, we can seize this moment.

Join us to make this bold vision a reality.

Mike Moyer, the associate vice president of development for colleges, and Angela Hayes, the chief of staff for the vice president of advancement, are leading the Boundless Impact campaign.

IN OUR NEXT ISSUE

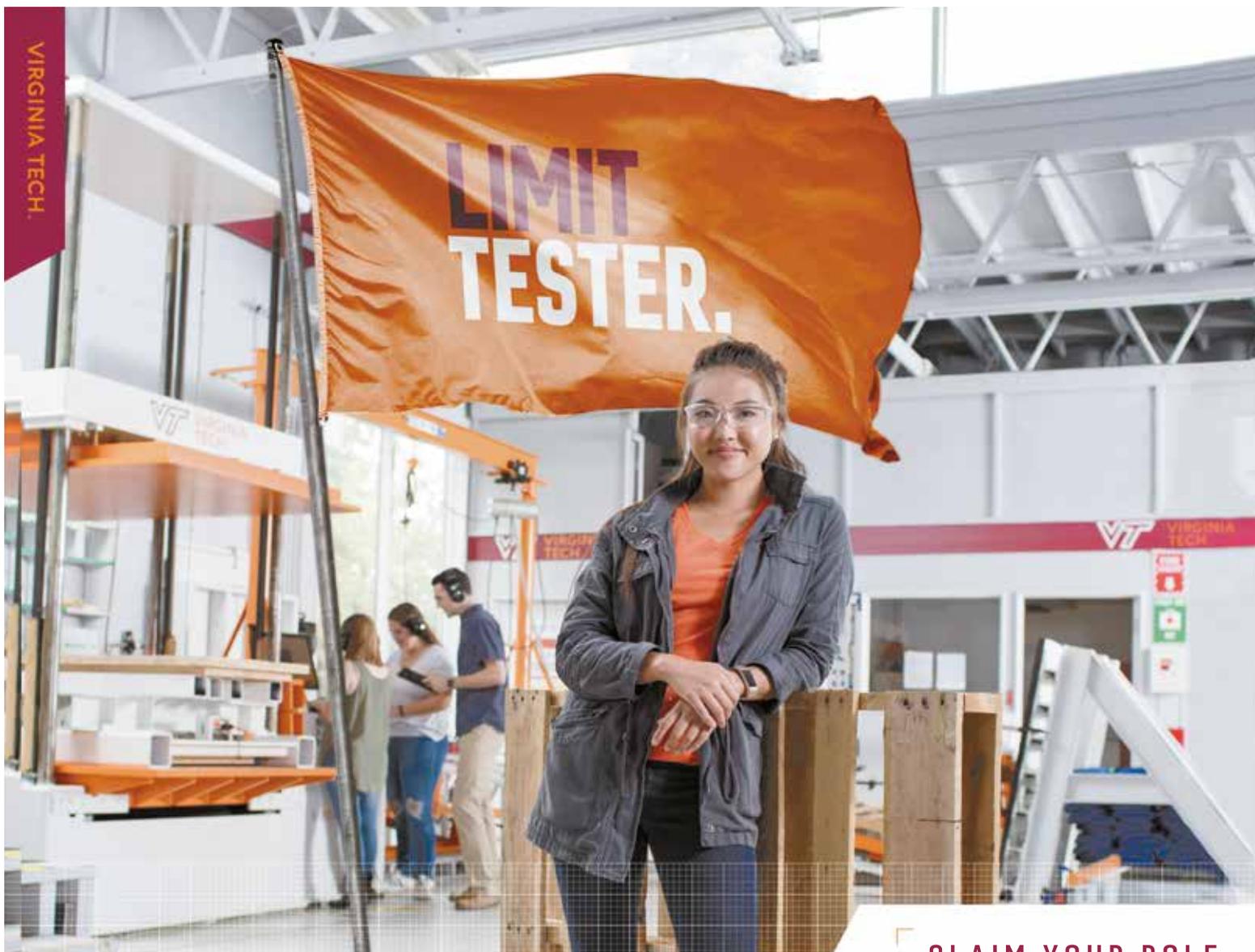
Data are individual units of information that can be analyzed and measured to aid decision-making in virtually every organization or activity, from research and business management to finance and governance. Virginia Tech inventively interweaves data science into its curriculum to inform students of its value across disciplines. In our spring edition, read about several graduate students who are analyzing data for athletics.

You can be a part of our next addition, too. We welcome story ideas from our readers and always enjoy passing along your career and family news in our Class Notes section. Don't forget to update your contact information and let us know what's happening in your life. Visit vtmag.vt.edu to learn how.

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Virginia Tech is home for the curious, the bold, the insatiable.
A thirst for knowledge propels us, a call for service unites us.
Research. Discovery. Impact.

That's our role. Discover yours... vt.edu