

## Digital defenders

New cybersecurity major is bridging the business-technology gap.

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Ransomware

Malware



Phishing

DDOS

Vulnerabilities

Exploits

Exploits

Backdoors

Ransomware

Trojans



Rootkits



## NOTABLES

### VIRGINIA TECH BUSINESS

is published twice a year by:  
Pamplin College of Business  
Virginia Tech  
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880 West Campus Drive  
Blacksburg, VA 24061  
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In this magazine, alumni, with some  
exceptions, are identified by degree  
and the year it was received.

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### ABOUT

Virginia Tech's nationally-ranked Pamplin College of Business offers undergraduate and graduate programs in accounting and information systems, business analytics, business information technology, finance, hospitality and tourism management, management, marketing, and real estate. Pamplin emphasizes data analytics and decision sciences, entrepreneurship that leads to innovation and innovative companies, programs that promote sustainable global prosperity, and an inclusive, collaborative community. It is named in honor of two alumni: the late Robert B. Pamplin, retired chairman of Georgia-Pacific, and businessman, author, and philanthropist Robert B. Pamplin Jr.

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## Dean's message

▶ ROBERT SUMICHRAST

DEAN ROBERT SUMICHRAST  
addresses a meeting of the  
Pamplin Advisory Council.

**M**any things contribute to making a business school a great business school. Students and alumni, faculty and staff, resources – all contribute. One of the most important contributors and one that is not highlighted often enough is culture. Pamplin, like all of Virginia Tech, has a culture of people who love their university, regardless of their role. We are distinguished by the “Ut Prosim difference.” In addition, our students are as bright, well prepared, and ambitious as you will find anywhere. They graduate anxious for the future opportunities of a first job.

Pamplin continues to build on its past successes and culture. We are increasingly willing to change what we do and how we do it. This has allowed us to invest in improving services for students and alumni. Examples include creating a professional academic advising center, increasing career services, and better integrating these essential services for students. Our faculty are open to changing our curriculum in response to input from companies hiring our graduates and changing student demand. Recent examples include a cyber option from our business information

technology department and a fintech option in our finance major.

Part of our culture is embracing change while respecting tradition. We are using this principle as we move closer to the construction of Pamplin's new home, the Global Business and Analytics Complex or GBAC. We are designing these four buildings in partnership with the colleges of Engineering and Science. From the ground up, GBAC will encourage collaboration among the disciplines and active learning in the classroom and associated residence halls. Students will work on complex problems that have the promise of using businesses to improve the human condition and require the perspectives associated with business, engineering, and science. As we design these experiences and the buildings that make them possible, we keep in mind the value of our traditions in style and materials. GBAC will be cutting edge in functionality while fitting Virginia Tech's collegiate gothic architectural style. Thanks to support from many alumni, companies, the state, and the university, we expect to break ground on one or more of the buildings within a year. ■

ROBERT

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BRETT LEMON

**KEVIN LANE** (ACCT '95, MACCT '00), chair of the alumni engagement committee of the Pamplin Advisory Council, moderated a discussion with (from left) Shirley Edwards (ACCT '82), Kenneth Cooke (ACCT '92), and Negar Jamshidimehr (FIN '11, MACIS '13) on the alumni life cycle. The panelists talked about their individual motivations and experiences as alumni who are involved in board service, philanthropy, and other activities with Pamplin and Virginia Tech.

## Kicking off the future of alumni engagement

**O**n Oct. 11, the university launched a comprehensive fundraising and engagement campaign, Boundless Impact: The Campaign for Virginia Tech, with events that day and weekend that included a celebration at the Moss Arts Center, concerts on the Drillfield, campus tours, faculty-presented “HokieTalks,” and football.

As the university opened its doors to celebrate the results of its efforts to advance its modern land-grant mission around the state, nation, and world, alumni and friends came back to reconnect with the campus they love, see how it has grown, and participate in the experience with fellow Hokies.

At the same time, the Pamplin College of Business hosted the inaugural Pamplin Engagement Summit. The event brought together its senior volunteer leaders — members of all 20 Pamplin advisory boards — to discuss the future of alumni engagement with the college through volunteerism, experiential opportunities, and philanthropy, as it seeks to transform business education to meet the needs of the 21st century.

The spring 2020 Virginia Tech Business magazine will include a special focus on the Pamplin Engagement Summit and a philanthropy report. ■

### Global Business and Analytics Complex

The planned **Global Business and Analytics Complex** is one of six priorities in the campaign. Please join the college in its efforts to disrupt the status quo of business education and provide a transformative learning experience.

MAKE A GIFT TODAY TO MAKE A DIFFERENCE.  
[PAMPLIN.VT.EDU/GBAC](http://PAMPLIN.VT.EDU/GBAC)

## National rankings

No. 1

**Master of Information Technology**

(Cybersecurity)  
 Cyberdegrees.org

No. 1\*

**Business Information Technology**

(Management Sciences and Quantitative Methods/  
 Business Analytics)  
 College Factual

No. 2

**Master of Information Technology**

(Information Technology Programs for Veterans)  
 U.S. News & World Report

No. 3

**Master of Information Technology**

U.S. News & World Report

No. 3\*\*

**Business Information Technology**

(Management Sciences and Quantitative Methods/  
 Business Analytics)  
 College Factual

No. 4\*

**Real Estate**

College Factual

No. 5

**Hospitality and Tourism Management**

QS Top Universities

No. 14

**MBA**

(Evening)  
 U.S. News & World Report

No. 20

**Accounting**

College Factual

\* College Factual “Most Popular” category

\*\* College Factual “Top Ranked” category

# Digital defenders

Meeting the need for talent,  
bridging the business-technology gap



**THE DIGITAL LANDSCAPE** is teeming with malicious software, cybercrime, and cyberattacks. Pamplin's Department of Business Information Technology is now offering a cybersecurity program to equip students with the skills and knowledge to defend against these incursions.



**NICK HERMAN** and **ARPIT SONI** are juniors majoring in business information technology in the Pamplin College of Business. They are both pursuing the new academic option in cybersecurity management and analytics this fall.

**N**ick Herman once led a global corporate campaign to trick people into clicking on a fictitious link. He created fake websites and phishing emails in different languages.

Herman is no cyber fraudster — quite the contrary. Interning at a high-technology manufacturer in Charlotte, N.C., during his freshman year at Virginia Tech, he was put in charge of the phishing project to promote cybersecurity mindfulness throughout the company.

“The biggest issue in cybersecurity is the lack of awareness,” said Herman, who was self-employed as an IT consultant in high school. And lack of cyber education and awareness, he said, can lead to phishing attacks, which “are the number one way cyber criminals infiltrate a system.”

Arpit Soni wants to launch his own business to help organizations better defend themselves against cyber intruders. Network security, he said, is where vulnerabilities are being relentlessly exploited.

Soni values the part-time positions he has held at Apple, Home Depot, and Virginia Tech Dining Services. The sales and customer-service jobs were exceptional learning experiences that let him improve his problem-solving and communication skills, said Soni, who is already well versed in computer languages, some of which he taught himself.

Herman and Soni, both juniors majoring in business information technology in the Pamplin College of Business, leapt at the chance to pursue a new academic option this fall in cybersecurity management and analytics.

“When I saw that Pamplin will start offering cybersecurity, I immediately booked a one-on-one meeting with my advisor to make the switch from the decision support systems option,” said Soni, who has a second major in finance. The cyber option, he said, would equip him with the skills and knowledge “to protect systems from security threats and damages, as

threats to systems will never go away.”

Herman has set his sights on a career in cybersecurity and business. “The cyber option will allow me to take classes that are focused on my goal,” he said. “I want to learn how cybersecurity is important and relevant to business as opposed to being a computer science major who focuses only on the technical aspects and not also the business aspects.”

Herman and Soni can expect that the knowledge and skills they gain will be in great demand when they graduate.

As data breaches and cyberattacks continue to grow, employers — businesses, government agencies, and others — are seeking employees with the right skills to help them.

The tremendous need for such expertise prompted Pamplin to develop the cybersecurity option as part of the college’s business information technology major. The option offers undergraduates a field study with a sponsoring organization in the greater Washington, D.C., metro area.

The option fills a huge gap in cybersecurity education, said Robin Russell, head of Pamplin’s Department of Business Information Technology.

Citing workforce analytics research, Russell notes that the vast majority of cybersecurity education programs are at the graduate level — even though 84% of job postings in cybersecurity require only a bachelor’s degree — and are technically focused, originating in engineering or computer science.

“Our industry partners tell us there is a great need for problem-solvers who have business as well as technical skills,” she said. “They need graduates who understand the technical issues of data, IT, and cyberattacks — and also know how to use data to support business functions and management decisions, including how to articulate the risk and ramifications of alternative cyber strategies.”

## By the numbers

**80%**  
Percentage of U.S. companies experiencing serious cyberattacks annually

**5,000** ransom attacks  
Daily average number of ransom attacks on U.S. industry

**195** days  
Average number of days companies take to discover a data breach

**100** billion dollars  
Annual total economic cost of cyberattacks worldwide

**3.5** million  
Number of unfilled cybersecurity jobs estimated by 2021



Business information technology — the second largest major at Virginia Tech, with 1,200-plus students — deals with data, people, and technology.

Through two long established options for specialization — decision support systems and operations and supply chain management — students learn to build IT systems that help managers run their organizations and make decisions, or learn to use data and technology to manage operations across a global supply chain.

The new cyber option would help meet the tremendous need for talent in this field, Russell said. Given the dramatic increases in cyber threats and the continued shortfall of cyber-skilled professionals — 3.5 million cybersecurity jobs are estimated to be unfilled by 2021 — the need for more students educated in cybersecurity is a major priority for Virginia, as well as a matter of national security, she said.

## People, business, technology

Discussing how Pamplin's BIT-Cyber option is different from engineering and computer science programs offered at Virginia Tech, Robin Russell said that the other programs in general prepare students to design and create physical networks and software that are secure and to monitor and assess them for attacks.

BIT-Cyber emphasizes the use of business processes and data analytics in cybersecurity management. "Our students will gain proficiency in the business management of cybersecurity within an organization," she said, "including setting policies, managing risk and incident response, using data to understand attacks on business assets, and managing the overall cybersecurity function within a business." ■

**ROBIN RUSSELL** (left) and Pamplin business law professor Janine Hiller gave a joint HokieTalk on campus in fall 2018 on cybersecurity and privacy.



CHARLIE WHITESCRAWLER

In the D.C. area, where Virginia Tech will build its new, technology-focused Innovation Campus, the demand for such professionals is especially intense — more than double the need of the New York metro area, more than five times the Boston area, and almost seven times that of Silicon Valley.

In developing the option, Russell and her faculty have been guided by experts in the industry who also serve on the department's advisory board, including Deborah Golden of Deloitte & Touche and Baback Bazri of Ernst & Young (see pages 8–11).

Both Golden and Bazri have noted the need for more professionals who can bring valuable business and management skills and approaches to problem solving and decision making in cybersecurity.

An article in the WashingtonExec newsletter noted Golden's enthusiasm for bridging the gap between business and technology in her work. "It's my ability to bring technology and innovation [together] with business and the ability to execute on a problem — while at the same time considering risk and its impact on multiple stakeholders — that makes it exciting for me," she said.

Said Bazri: "Because there are so many bad actors out there, it is critical that businesses understand, assess, and manage third-party and supply-chain risks, and that includes a knowledge of mission-critical vendors and the risk they pose to their organizations."

Besides contributing new recruits with cybersecurity and business skills to the workforce, the program will also help fuel the pipeline of graduate student talent for the Innovation Campus.

The curriculum for the option comprises four required courses on networks and telecommunications in business, information security, cybersecurity analytics in business, and internet law, as well as six credit-hours of fieldwork. Students can choose electives from six courses, including a new course on data governance, privacy, and ethics.

The option, which reflects one of Pamplin's strategic focus areas, is among the ways the college seeks to contribute to Virginia's Commonwealth Cybersecurity Initiative. Its faculty are also conducting research, teaching courses in the nation's top-ranked online master's program in cybersecurity, and offering executive education programs on this subject in the D.C. area.

For Herman and Soni, thoughts of jobs and their professional futures can wait a while. For now, they're planning on making the most of all the learning experiences that the new cybersecurity option offers them, on campus and beyond, over the next two years. ■

—Saokhan Ho

## Working with the best and the brightest

Nick Herman finds it fun to solve problems. It's what drew him to the cybersecurity field.

"I would read about cybersecurity issues in the news," the business information technology junior said. "A company's computer systems would be taken down by a distributed denial-of-service attack, for example. It always piqued my curiosity why the company was unable to do anything to prevent it."

Protecting an organization's digital assets in an ever-changing technological landscape, he said, is full of challenges. "One of the hardest things about cybersecurity is keeping everything secure while maintaining business continuity."

Herman, who is vice president of the Cyber Security Club at Virginia Tech, is hoping to add the OSCP, or Offensive Security Certified Professional, to the information security certifications he has earned. It is an arduous examination process, he said, noting that "you have to root 5 boxes in 24 hours, followed by a penetration test report."

Through internships, Herman has acquired plenty of experiential learning about the field that has helped shape his aspirations and preferences in terms of employer size, industry, location, and nature of work.

He spent this past summer at Barings as a member of the security engineering team in the firm's Charlotte, North Carolina, office. The projects he has worked on have been very exciting, he said. "I have written PowerShell scripts to pull information from the domain controller to inform the team when an alert is triggered. I have written user/admin guides for an enterprise password manager solution, as well as administered it."

He was also tasked with producing a bul-

letin every month discussing major security events, vulnerabilities, and metrics.

In an earlier internship at Polypore International, "the coolest thing was traveling with my team to perform site-wide migrations," said Herman.

As a freshman, Herman was on a Virginia Tech team that won the Deloitte Foundation Cyber Threat Competition in 2018.

He and his team members had a "fantastic experience" at Deloitte University in Westlake, Texas, at "a wargame-like event where we competed against other top universities in a simulation of a security consultant incident response," Herman recalls.

"I was able to work with the best and the brightest like-minded students and to test my knowledge and skills against a real-life scenario designed by professionals in the cybersecurity industry." ■

**NICK HERMAN** recently interned with Barings' security engineering team in Charlotte, North Carolina. He has his sights set on a career in cybersecurity and business.

# Priming for cyber combat



**DEBORAH GOLDEN**, U.S. cyber practice leader and a principal in Deloitte Risk & Financial Advisory at Deloitte & Touche LLP, is an expert for the media on cybersecurity. She recently discussed the cyber risks of 5G technology on Bloomberg TV.

“Stretch yourself to explore and grow in ways you do not know or even think possible.”

—Deborah Golden

**D**eborah Golden (FIN '94) developed an early interest in technology. “My father was in the technology field, so we always had gadgets lying around the house, including many different versions of computers and radio frequency devices. But he never brought home the manuals,” said Golden. “So I would play with them until they worked, dinged, or launched video games.”

Her desire to creatively solve problems with such “toys” grew over the years, she said. It led her to the cybersecurity field and, ultimately, to “tackling the big challenge of how to protect technology and mission-critical applications.”

Finance and business also had appeal for Golden, who grew up in northern Virginia. Her older sister, Aimee, was at Virginia Tech, and she knew from the moment she first visited campus that she belonged there, too.

“While cyber in its current form did not really exist back then, Pamplin offered courses that pushed me outside of my comfort zone, expanded my perspective across the board, and definitely shaped the direction of my career,” Golden said.

Golden said she is thrilled that Pamplin has entered the cyber field and continues to evolve its programs to match the changing dynamic of this area of concentration.

She has championed the development of the business information technology major’s new option in

cybersecurity that Pamplin is now offering its students.

“A cybersecurity field evolving across a landscape that grows exponentially each day — both in diversity and complexity — is expanding the need for individuals trained across a myriad of skills,” said Golden. “Knowledge of cybersecurity is becoming as increasingly important as essential leadership, risk/regulatory, and managerial capabilities. All of these are foundational to this new option offered by Pamplin,” she said.

Golden’s 25 years of information technology experience spans numerous industries and includes an in-depth focus on government and public services, life sciences and health care, and financial services. A principal with Deloitte & Touche LLP, Golden serves as the U.S. cyber risk services leader for Deloitte’s risk and financial advisory unit. Based in Rosslyn, Virginia, where Deloitte’s Cybersphere is housed, she specializes in collaborating with clients on cybersecurity and technology transformation, as well as privacy and governance initiatives.

A recognized leader in cybersecurity, Golden is quoted frequently in national media and is an active speaker and author on top-of-mind issues, including the advancement of women in cybersecurity and technology. The increased participation of women and other underrepresented groups in the cybersecurity field should be encouraged through education, networking, and mentoring, said Golden. “Establishing

a more culturally and intellectually diverse workforce enables us to help clients address challenges in a variety of ways with different perspectives, which ultimately enables us to stay one step ahead of the adversary.”

In 2018, she was named one of WashingtonExec’s Top 10 Cyber Executives to Watch.

Golden landed at Deloitte about two years after graduation. “I was contacted by a recruiter and, while not necessarily looking for a new job, I decided to go ahead and interview. I just could not pass up the opportunity offered to me,” Golden said.

After joining Deloitte, she worked on a number of different projects. One of them focused on large-scale systems implementation, which rooted her in the cybersecurity area.

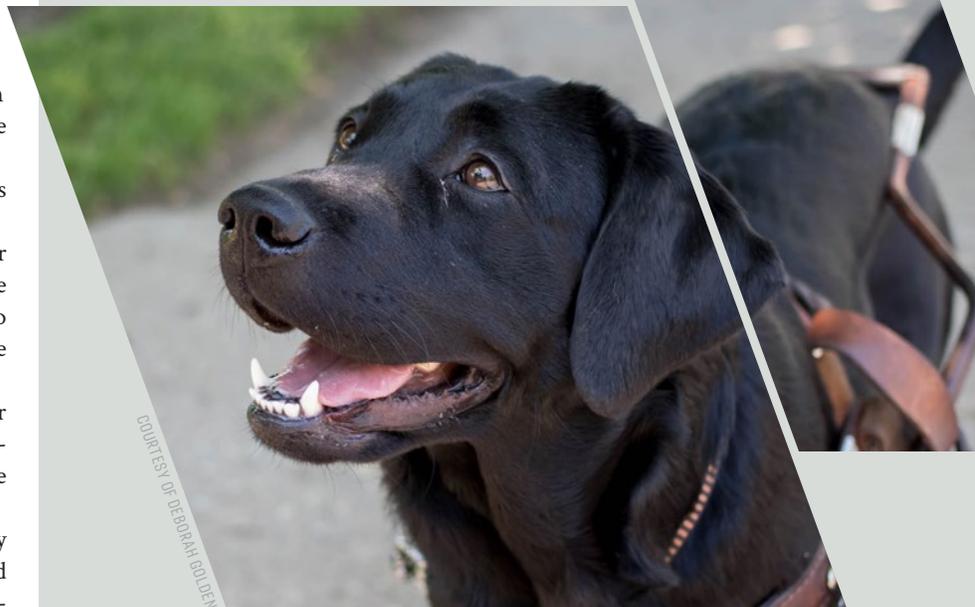
“Cyber threats today are very different. Cybersecurity used to be solely contained within a physical space and perimeter, which was largely inaccessible to the adversary,” said Golden. “Now almost every aspect of our personal and professional lives is stored in the cloud and dependent on connected systems, networks, and devices. This situation not only generates more data than ever before, but also creates a disparate and connected environment that is highly vulnerable to a variety of attacks.”

In spite of a demanding schedule, Golden finds time and energy to serve on the advisory boards of Pamplin’s business information technology department and Virginia Tech’s master of information technology program, where her experience and knowledge help to inform and guide the evolution of cyber-focused programs for undergraduate and graduate students.

“Over the past several years especially, I have reflected on how my Pamplin experience helped shape so many aspects of my life,” Golden said. “Supporting and inspiring the next generation of students is a meaningful way for me to give back to Pamplin and Virginia Tech.”

Golden has the same advice for Pamplin students that she gave her own daughter, Macy, a sophomore double-majoring in business information technology and management: “Do not be afraid to take a chance on experiencing different opportunities. Stretch yourself to explore and grow in ways you do not know or even think possible. Most importantly, believe in yourself.” ■

—Barbara Micale



## Priming for service

**Cedar**, a seven-week-old black Labrador, became an integral part of Deborah Golden’s busy life in January 2018. He was her first guide-dog-in-training after she volunteered as a puppy raiser for the Guide Dog Foundation in Arlington, Virginia.

She raised Cedar until he was 14 months old, at which point he “graduated” and went in for training at the foundation’s headquarters in Smithtown, New York.

“I am incredibly grateful for the opportunity to provide a visually impaired or disabled veteran with increased independence and enhanced mobility,” said Golden, “and equally grateful that this experience continues to teach me, as I learn so much from these puppies and the people in their lives.”

Saying good-bye to Cedar was not easy, but she is fully committed to the program, as well as their clients. “I know that Cedar’s mission in life is truly to help others,” Golden said.

While Cedar settled into “college” in New York, several other puppies “camped” at Golden’s home over several months. Recently, she eagerly welcomed a second full-time guide-dog-in-training.

“Adorably named Todd, he is a beautiful golden Labrador, and I am extremely excited by the adventures that await us,” said Golden. ■

**CEDAR** was Deborah Golden’s first guide-dog-in-training after she volunteered as a puppy raiser for the Guide Dog Foundation.



# Cyber education

## Evolving tools for evolving threats

“No challenge or day is the same as the last in this fast-paced industry.”

—Baback Bazri

**H**aving grown up in a close-knit Northern Virginia family, Baback Bazri (BIT '04) had no doubt that he would attend an in-state college.

Choosing Virginia Tech was easy. The deal was sealed during a campus visit on a beautiful fall weekend. “I could feel the energy on campus, and all the facilities were top-notch,” said Bazri.

But the road to Pamplin was not quite as straightforward.

“I was actually accepted into the College of Engineering, but after a few semesters, I knew engineering was not for me,” said Bazri.

He had always been interested in technology and how information systems interconnected with one another to solve real-world problems. “Once I switched to Pamplin and started taking core courses and business information technology classes, it all clicked for me,” he said.

Bazri, a partner in the government and public sector advisory services practice at Ernst & Young LLP, located in McLean, Virginia, has served a wide array of federal government agencies as well as Fortune 500 organizations in financial services, professional services, retail, telecommunications, and wholesale distribution.

He has led cyber security and information assurance engagements both in program management and technical disciplines, as well as cyber strategy, cyber risk management, audit readiness, and financial statement audit. He is a Certified Information Systems Security Professional and Certified Information Systems Auditor.

At the start of his career 15 years ago, Bazri said that businesses were focused on protecting the vast array of what were primarily legacy systems. “Today, the ‘internet of things’ and other smart devices inundate the workplace and our personal lives, driving concerns about cybersecurity right to the top of business agendas,” he said.

While he said it is generally best to prioritize cyber spending and controls around highest value assets, there are no cookie cutter answers to many cyber security concerns.

“No challenge or day is the same as the last in this fast-paced industry. I wake up every morning thinking about client service and what innovative solutions can help solve my client’s most complex problems,” Bazri said.

Throughout his career, Bazri said, he has had



MIKE GURQUISEY

**BABACK BAZRI** is a partner in the government and public sector advisory services practice at Ernst & Young LLP, in McLean, Virginia.

many mentors, coaches, and sponsors who have helped him achieve his professional goals. “This has made me passionate about paying forward to younger professionals.”

Bazri said he is also committed to giving back to Pamplin for the essential role the college has played in his success.

One of the most important things he learned as a student was how to work on teams and bring diverse sets of people together to solve problems. “Having challenging discussions and healthy conflict to ultimately achieve the best outcome for the problem you are trying to solve was not only a good model for class projects, but has been applicable to my career,” said Bazri.

And advice from one of his former management professors, Christopher Neck — to be goal-oriented and continually challenge yourself — guides him to this day.

To this guidance, Bazri has added some recommendations of his own for Pamplin students and recent graduates entering the cybersecurity field: “Your passion for learning needs to continue after you leave Pamplin. Digital technologies are evolving rapidly as are cybersecurity threats, so you have to invest in your career, and stay current with trends in the marketplace. What you learn at Pamplin gives you all of the tools you need to succeed, but staying current in your field, being open to new experiences, and being flexible and agile in the workplace are the keys

to sustaining success as you challenge yourself to take on new opportunities.”

Bazri has served on Pamplin’s business information technology advisory board since 2017. “Being on the board provides unique insight into big changes taking place for the university, Pamplin, and the department, so any little part I can do in shaping the future of the university is both exciting and humbling at the same time,” he said.

Also committed to public service, he is a member of the audit committee of Child Care Aware of America, a national, nonprofit organization working to advance child care affordability and accessibility, and the development and learning of children in child care. He has provided financial planning seminars to underserved youth in the Northern Virginia area.

Bazri spends most of his leisure time with his wife, Lauren, and their two daughters, Roya, 4, and Tala, 1, whom he enjoys chauffeuring to their various activities.

He is “a huge sports fan of the Hokies and all Washington, D.C., sports teams.” Last year, he took Roya on a daddy/daughter weekend to her first Hokie football game. “We are planning to make it a tradition and will be heading down for another game this fall,” Bazri said. ■

—Barbara Micale

**THE HELP** he received from many mentors, coaches, and sponsors has made Bazri “passionate about paying forward to younger professionals.”

MIKE GURQUISEY



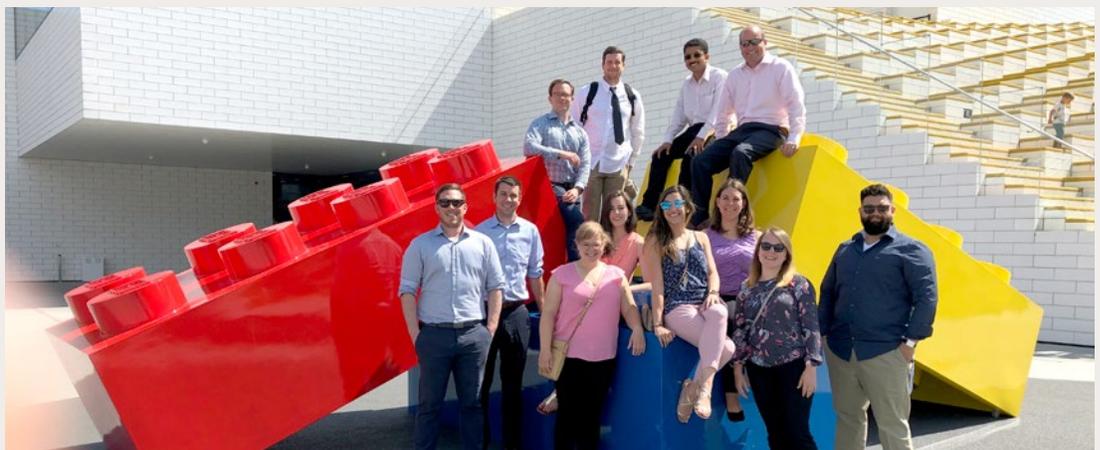
## MBA students explore Scandinavia

A dozen Evening MBA students explored the management of international business operations and logistics during two weeks in Finland, Sweden, and Denmark in June. The students visited companies — KONE, Suunto, Stora Enso, AstraZeneca, Volvo Trucks, Qlik, LEGO, Carlsberg, and Maersk — as well as UNICEF. The program included briefings from embassy representatives before departure and cultural outings while abroad. It was developed and led by Barbara Hoopes, associate professor of business information technology, who began such programs in 2003. Noting that it was the 10th time she had led the program, Hoopes said, “It is one my favorite things to do for Pamplin. Every trip I feel I learn as much as the students.”



BARBARA HOOPES

**STEVE LALLY (LEFT) AND HARRISON WORTHEN** look at historical automotive racing exhibits at the Volvo Museum in Gothenburg, Sweden.



**TOURING LEGO'S FACTORY** in Billund, Denmark. Bottom row: David Ross, Harrison Worthen, Michele Hansen, Veronika Lantseva, Manar Khaskia, Sabrina Kramer, Amanda White, Steve Lally. Top row: Eric Good, Franz Szymanski, Rohit Mathur, John Dieter.



**AT SUUNTO IN HELSINKI, FINLAND**, from left: Michele Hansen, David Ross, Amanda White, Franz Szymanski, Eric Good, Sabrina Kramer, John Dieter, Teemu Suominen (Suunto), Matti Juntura (Suunto), Rohit Mathur, Veronika Lantseva, Harrison Worthen, Manar Khaskia, Steve Lally, Barbara Hoopes.



**THE GROUP TOURS UNICEF'S SUPPLY DIVISION** in Copenhagen, Denmark, led by warehouse supervisor John Roger Nielsen. Sabrina Kramer and Michele Hansen listen as Nielsen explains how UNICEF works with government and company partners to strengthen supply chains that deliver essential goods supporting child survival and development around the world.

## Back-to-school picnic

Pamplin welcomed students, faculty, and staff to the new school year with its annual picnic on the lawn of the Holtzman Alumni Center.



AMY TRAN/SUE



## Students study abroad in Dominican Republic

A group of 12 Virginia Tech students worked with small businesses and school children during a 10-day program in the Dominican Republic in May. The study abroad was led by Kimberly Carlson, assistant professor of practice, and Jack McDonald, adjunct professor, both of the management department. The activities were organized through Project Esperanza, a nonprofit service organization started as a student group in 2005 by Virginia Tech alumna Caitlin McHale. The activities included working with five Haitian entrepreneurs on business plans and marketing efforts; visiting a cacao farm, waterfalls, and other cultural and natural sites; and interacting with children in after-school programs.

The program was part of the activities of the department's Business Leadership Center, which is celebrating its 20th anniversary this year.

**CAITLIN MCHALE** (fourth from right) gets the group oriented at the Project Esperanza volunteer house and farm.



JACK McDONALD



ELIZABETH MITCHELL

## Inaugural conference on thought leadership

Hosted by the Pamplin Society at Freddie Mac in Tysons, Virginia, the Business Thought Leadership Conference featured a lively discussion on cybersecurity, data analytics, and artificial intelligence. Mehul Sanghani (ISE '98, PSYC '04), Octo Consulting Group founder and CEO and a member of the Pamplin Advisory Council and Virginia Tech Board of Visitors, gave the keynote address, "Building for Enterprise Value in Federal Consulting."

Other speakers were Janine Hiller (HIST '79), professor of business law at Pamplin; Nick Marinos (BIT '02, MBA '07), a director of the information technology and cybersecurity team at the U.S. Government Accountability Office; and Ian McCulloh, principal director and chief data scientist at Accenture.

**GAFFAR CHOWDHURY** (ECON '08), left, moderates a discussion on entrepreneurship with Trevor Halstead (BCHM '12, CHEM, '12), president of Cybrary, and Kyu Jung (CEEN '96, M.S., ARCH '99), CEO of ProCon Consulting, during the inaugural Business Thought Leadership Conference in June.



OLIVIA COLEMAN

**CARLA WINBUSH** (MKTG '84) takes to the dance floor.

## Black alumni network

More than 100 Hokies gathered in Arlington for a weekend of workshops, networking, and socializing at Virginia Tech's fourth biennial Black Alumni Summit in August. With the goal of forging student and alumni connections on and off campus, participants received updates from university administrators on new student initiatives and worked on plans and programs to strengthen the black alumni network and enhance student support and retention.



**TOMMY AMAL** (M.S., ALS '14), Pamplin assistant director of development for leadership gifts, chats with Paul Ampadu, professor of electrical and computer engineering at Virginia Tech.

## Women in Business celebrates 10 years

Women in Business celebrated its 10th anniversary with a program and cruise around New York City harbor in September. The event, sponsored by Tracy Castle-Newman (FIN '90), managing director of Morgan Stanley, comprised a panel discussion and a networking reception and drew about 80 attendees.



**PANELISTS, FROM LEFT:** Bridget Ryan-Berman (GBUS '82), Kim Shanahan (FIN '93), Tara Petrucci (MKTG '12, ARTF '13), Kristy Laughlin (ACIS '08, MACIS '09), and Tracy Castle-Newman (FIN '90) discussed the changes in Women in Business over the past decade and how Pamplin has supported the group.



DALE MINA

**TRACY CASTLE-NEWMAN** shares her views on making a difference.

## Discovering Chinese business and culture

The summer study-abroad program in China led by Jennifer Clevenger, director of global study abroad at Pamplin, took students to Beijing, Guilin, Hong Kong, Macau, and Shanghai. The group visited the Hong Kong Monetary Authority and facilities and offices of multinational companies such as Coca-Cola, Plug-n-Play, Yakult, and GM-SAIC, as well as major Chinese businesses: consulting firm Hejun, dairy manufacturer Bright Dairy, and start-up incubator Chinaccelerator. The schedule included historical and cultural sites such as Tiananmen Square, the Forbidden City, and the Great Wall.

**BELOW:** In Macau, the group visited Fisherman's Wharf, a waterfront complex with hotel, convention, dining, shopping, and entertainment facilities. The "Love" sign is a popular site for picture taking, while the "ruins" in the background are used for music performances, weddings, and other events.



ADRIENNE SABLE



**LEFT:** Kaela Kinder makes it through a trust-building exercise. **BELOW:** Students are instructed in harness installation. **BOTTOM:** Kevin Mendenhall makes his way across the course.



## Business Analytics ventures out

The 27 members of the latest cohort of master’s students in business analytics were shown the ropes at their orientation in August. The high ropes, that is, of Recreational Sports’ Venture Out Challenge Course on campus. The students represent a diverse group, holding previous degrees in environmental health, fashion merchandising and design, human development, molecular biology, music, public and urban affairs, and sociology, and in a range of business and engineering disciplines. The master’s program is run by Pamplin’s Center for Business Intelligence and Analytics.

## Celebrating Pamplin’s international community



TING-CHUN LI

Students, faculty, and local community representatives gathered at Blacksburg’s historic Alexander Black House in August for Pamplin’s annual welcome reception for international students. In informal chats with faculty members who included Stuart Feigenbaum, Tom Deutsch, and Howard Feiertag (all of the hospitality and tourism management department), Michelle Harding (accounting and information systems), and Reed Kennedy and Jack McDonald (management), incoming students discussed such topics as business courses and industries in the U.S., study abroad, and career opportunities.

## Kicking it up with fellow Hokies

Dan Lasik (ACCT ’86) and his band, “Silverline,” rocked the crowd of students, alumni, and faculty at Pamplin’s homecoming tailgate in September.

“We enjoy upbeat rock ’n roll music that keeps people jumping to the beat,” said Lasik, who plays the drums. “Our song lists cover multiple decades and a wide variety of artists.”

The band plays several gigs in the Greater Washington D.C. metro area throughout the year for fans both young and young at heart. “It’s always great fun to perform for friends. Nowhere is that more true than playing at Virginia Tech,” said Lasik.

Now a partner at Ernst & Young, Lasik recalls that, as a student, he had once joked to one of his professors that he should join a band “in case the accounting thing doesn’t work out.”



ELIZABETH MITCHELL

**PICTURED WITH THE HOKIEBIRD**, from left: Lasik; Jim Volpicelli (bass), a recently retired EY tax partner; Michael Novak (guitar/keyboards), president of 3rd Dimension Inc.; Mike Helget (lead guitar), a recently retired software consultant.



COURTESY OF CARILION CLINIC

## Pamplin leaders visit Carilion Clinic center

Several Pamplin administrators visited Carilion Clinic’s Transfer and Communications Center (CTaC) in Roanoke, Virginia in July. The command center facilitates patient admissions and transfers and spearheads policies that improve patient flow and communications through the clinic’s system.

The visit was an opportunity for Pamplin to see the Carilion center in action and to explore opportunities for working together as another natural extension of the ongoing Virginia Tech Carilion partnership, said Joe Simpson, a faculty member in the Department of Management and director of Virginia Tech’s Integrated Security Education and Research Center (ISERC).

Melanie Morris, senior director of CTaC, said collaborations with ISERC could include promoting job opportunities at Carilion for Virginia Tech graduates in such areas as business intelligence, data analytics, and fintech; creating and coordinating mock crisis scenarios with ISERC as learning opportunities for students and faculty; and sharing expertise that could help improve the command center’s operations.



**TOP:** Joe Simpson, ISERC director and Pamplin management faculty member, listens as Melanie Morris, senior director of CTaC, points to screens containing a variety of information viewed by CTaC staff.

**BOTTOM:** From left: Mark Lawrence, vice president, government affairs, Carilion Clinic; Cynthia Lawrence, partnership director, Virginia Tech Carilion; Melanie Morris; Pamplin Dean Robert Sumichrast; Joe Simpson; Shawn Safford, pediatric surgery provider and vice chair for research-general surgery, Carilion Clinic; Devi Gnyawali, Pamplin management department head; Ashley Quick, project consultant, technology services and health analytics, Carilion Clinic; Don Halliwill, Carilion Clinic executive vice president and chief financial officer; Lara Khansa, associate dean, Pamplin undergraduate programs.

## Finance Ph.D. alums gather in memory

The Department of Finance hosted the Dilip K. Shome Conference, a research conference and finance doctoral alumni reunion, in Blacksburg in September in memory of finance professor emeritus Dilip Shome, who died in December 2018. An award-winning teacher, Shome played a leading role in recruiting and mentoring doctoral students.

Debarati Bhattacharya (Ph.D., FIN '14), who teaches at Duquesne University, and Murali Jagannathan (Ph.D., FIN '96), who teaches at Binghamton University, received Best Paper awards named for Shome and the late Rob Hansen, who had also been a significant dissertation advisor during his service in the department in the 1980s and 90s before moving to Tulane University in 2001.

The conference was organized by finance professors George Morgan and Raman Kumar.



COURTESY OF GEORGE MORGAN AND RAMAN KUMAR

**MEMBERS OF THE FINANCE DEPARTMENT COMMUNITY** and their guests at the reception and dinner.



## Credit Corps Loan lessons with real stakes

**T**his fall, Virginia Tech students have a remarkable new learning opportunity: gaining experience in banking and risk management by participating in actual loans with their bank partners with real money from the Virginia Tech Foundation.

Known as the Credit Corps, the unique experiential learning program is aimed at enhancing students' skills in credit risk analysis, business analytics, teamwork, and portfolio management.

"Credit Corps will prepare students for jobs and careers across a wide range of finance career paths and offer financial firms a pipeline of credit-savvy recruits with hands-on experience," said finance professor George Morgan, who led efforts to develop the program.

At the same time, the program seeks to earn a competitive return for the Virginia Tech Foundation, Morgan said. The foundation is committing \$2 million over four years, or \$500,000 a year, to sponsor the program.

"Credit Corps will essentially operate as if in a loan syndicate led by the partner bank that provides funds to the borrower," he said. Atlantic Union Bank has signed on as the program's inaugural partner, providing loans Credit Corps may consider for participation.

Based in the Department of Finance, Insurance, and Business Law in the Pamplin College of Business, the program is a one-of-a-kind capstone experience, Morgan said.

Credit Corps students will be functioning as commercial loan officers, he said. Their responsibilities will include reviewing financial statements, interviewing management at the borrowing companies, identifying risk issues, and managing fund inflows and outflows, as repayments are made and new loans considered.

The program is a capstone in the finance major's risk management and banking option.

Morgan worked closely with senior banking executives and Pamplin alumni John Asbury (Atlantic Union Bank CEO), Mike Clarke (Atlantic Union Bank board member), and Mark Moore (Atlantic Union Bank commercial regional president) to develop the capstone experience and to revamp the banking option.

Credit Corps follows the footsteps of SEED and BASIS, two long-established programs the finance department pioneered to give students experience in stock and bond investing by managing two separate funds of \$5 million each for the Virginia Tech Foundation.

The plan for Credit Corps is to start small, Morgan said, with one team of half a dozen students in the first year, and to grow within two years to 20-plus students working in several "deal teams."

"We have more work to do on several fronts, including soliciting additional bank partners," said Morgan. "We are seeking at least two more partners for 2020 and beyond." ■

—Saokhan Ho

### FINANCE PROFESSOR

George Morgan and finance students Quillin Gaffey (left) and Tracy Christensen present the proposal for Credit Corps at a meeting of the finance department's advisory board in New York on April 4, 2019. Christensen is a member of Credit Corps. Gaffey graduated in May and now works at BB&T Capital Markets in Richmond, Virginia.

"Credit Corps will prepare students for jobs and careers across a wide range of finance career paths..."

—George Morgan

## Best Paper Award

# Tax benefit of debt financing



**JIN XU**, associate professor of finance, received a Best Paper Award for an article she co-authored that examines the effects of corporate taxes on corporations' market values.

**J**in Xu, associate professor of finance in the Pamplin College of Business, has received a Best Paper Award for an article she co-authored that examines the effects of corporate taxes on corporations' market values and provides important evidence for the tax benefit of debt financing.

The paper, "Taxes, Capital Structure Choices, and Equity Value," published in the *Journal of Financial and Quantitative Analysis* and written with Mara Faccio, of Purdue University, quantifies the market value of the tax benefit of debt financing for firms.

Xu said their research showed that the amount firms can save from corporate taxation is directly tied to the amount of debt financing in their capital structure.

"Corporations should take this into account in their decisions to raise capital, restructure, or conduct acquisitions," she said. "When the government implements a new tax reform, such as the Tax Cuts and Jobs Act of 2017, firms should also assess its impact on their financing policies."

Finance theory predicts that debt financing saves taxes, Xu said, but empirically identifying the tax benefit and estimating its magnitude have been challenging.

She and Faccio use data on tax reforms in the three dozen member countries in the Organisation for Economic Co-operation and Development (OECD) to estimate the market value of the debt tax benefit.

They found evidence that tax reforms are followed by large changes in the market value of corporate equity, but that the impact of the reforms is greatly mitigated by debt.

"The value of debt tax savings is greater among top tax payers, highly profitable firms, and in countries where tax laws are more strongly enforced," Xu said. "Importantly, the value of debt tax savings is in line with the benchmark implied by classical theory."

Xu teaches undergraduate and graduate courses in corporate finance. This is her second Best Paper Award. ■

—Soakhan Ho

CHRIS MARANO

# Best Paper Award Learning resources on analytics

Students entering the accounting profession today must be more proficient in data analytics. Now, they can hone their skills with the help of an award-winning paper.

Sarah E. Stein, assistant professor of accounting and information systems, and Lauren M. Cunningham, of the University of Tennessee, co-authored a case study on using visualization software in audits to identify anomalies.

The case received the 2019 Issues in Accounting Education Best Paper Award.

“We used realistic simulated data and workpaper documentation so that students can practice and enhance their analytical skills in a format comparable to real-world audit experiences,” Stein said.

The case materials are available to all accounting faculty through the American Accounting Association and Issues in Accounting Education.

This education trend, she added, “also aligns directly with Pamplin’s focus on being a leader in business analytics.”

Stein, who is the Deloitte Foundation Faculty Fellow in the Department of Accounting and Information Systems, noted that the case she co-authored can be used in undergraduate or graduate courses on auditing and internal auditing.

An important skill for auditors, Stein said, is the ability to identify anomalies and risk factors in the client’s data. “Our case provides students with experience in using visualization to identify anomalous transactions for further substantive testing, based on relationships between financial data, such as revenues, and nonfinancial data, such as weather patterns.”

Stein’s paper, “Using Visualization Software in the Audit of Revenue Transactions to Identify Anomalies,” was published in November 2018.

Stein, who has published other audit-related case studies in Issues in Accounting Education as well as in Current Issues in Auditing, worked as an audit manager at Deloitte in Denver before becoming an academic researcher and teacher. ■

“Our case provides students with experience in using visualization to identify anomalous transactions.”

—Sarah E. Stein

—Soakhan Ho

COURTESY OF AMERICAN ACCOUNTING ASSOCIATION



SARAH STEIN (center) and Lauren Cunningham receive their Best Paper Award from presenter Mark DeFond at the 2019 American Accounting Association annual meeting.

## Business analytics

# Predictive modeling of ER overcrowding

**T**oday, businesses and other organizations collect a staggering volume of data. This data is not useful, however, when they don't know what it means or how they can use it.

Helping organizations extract practical information and insights from mountains of numbers is what business analytics professionals do.

Business analytics can be used to monetize data through information and insights that can lead to action and results, including revenues and profits for companies, said Lara Khansa, professor of business information technology.

Khansa, who gave a campus talk on the topic earlier this year, does research in health care analytics and teaches graduate courses in Virginia Tech's highly ranked Master of Information Technology Program.

Analytics professionals, she said, are at the center of decision making today, helping to guide organizational policy, strategy, and operations, and enhance business competitive advantage.

Their roles go beyond the arenas of manufacturing, marketing, and sales. In sports, analytics is being used to boost game tactics and player training; in political campaigns, to model outcome scenarios and target voter groups; in health care, to evaluate physician performance, reduce waste, and improve patient care.

"Analytics is everywhere," Khansa said. "It's really about identifying a need for change, and analytics professionals are agents for change."

Khansa and her collaborators on a Virginia Tech-Carilion Clinic research team investigated overcrowding in the ER of a local hospital.

ER overcrowding occurs when patients are not processed within a given period, resulting in longer waits, care delays, and patients not receiving the required level of care, the research team wrote in an article in the *Journal of Operations Management*.

A better understanding of how emergency departments perform during disaster-level overcrowding would strengthen their resilience to such events — that is, their capacity to resist these events and recover from them more rapidly.

The researchers developed a modeling framework in collaboration with the emergency department at

Carilion Clinic's Roanoke Memorial Hospital.

The hospital provided data from actual disaster-level overcrowding events over a one-month period.

"With only a single month's worth of data, we were able to identify the most impactful root causes of the problem, which were, in this scenario, high patient throughput and insufficient staff to triage and care for this many patients."

Their research project identified other contributing factors to overcrowding. It resulted in a predictive model to determine when overcrowding is likely to occur and to quantify the impact of each contributing component.

Their model can help hospitals everywhere assess the effectiveness of various intervention strategies and determine what changes they can make that would have the greatest impact on improving overall resilience. Their ability to manage or cope with overcrowding would be strengthened, and patient outcomes improved.

At its core, business analytics is about people, Khansa said. "If you don't take people into consideration, you won't be a good analytics professional." ■

—Sookhan Ho



**LARA KHANSA** gives a talk on campus on how companies can use business analytics to gain market insights and profits.

**"If you don't take people into consideration, you won't be a good analytics professional."**

—Lara Khansa

# The biggest threat: **YOU**

## Privacy risks of uninformed users

**T**hat people find it hard to make choices in their own self interest, to protect their online privacy and security, troubles Idris Adjerid, an associate professor of business information technology whose research focus is on the intersection of behavioral economics and privacy decision making.

“It’s particularly shocking,” Adjerid says, “given the extent to which users of technology platforms in this country are asked to manage their own privacy risks.”

And there’s more bad news: “People often and consistently underestimate the extent to which their personal information is being collected and used, and the importance of the implications.”

The human struggle to manage personal privacy and security risk has a lot to do with knowledge and time constraints. “I think a big part is that most of us don’t really know how to make these choices and are uncertain about our preferences,” Adjerid says.

“For example, how much is our data worth? How bad are the potential downsides? Will they impact us or someone else? All of this uncertainty results in us having to use heuristics to simplify the choices.”

Such mental strategies or processes — trial and error, intuition, or guessing — can lead to flawed decision making, he says. “In addition, it is taxing, time-wise and cognitively, to make all these choices for the many different services that use our data.”

Privacy and security aside, Adjerid’s research interests are in the realm of health care: information technology, analytics, information exchanges, and how it all affects patient outcomes and health care costs.

He received the Young Researcher Award at the 2017 Conference on Health IT and Analytics for his work on health-care economics, including a co-authored study, when he was on the faculty at the University of Notre Dame, that found that a health information exchange could potentially save billions of tax dollars if implemented nationally.

“The potential cost savings and quality improvements from technology are astounding,” Adjerid says. “Because the health care system is so large, even a few percentage point change can mean dramatic improvements for society.”

Adjerid is teaching two courses that he developed in a new academic option in cybersecurity management and analytics that his department began offering this semester (see cover story): cybersecurity analytics in business; and data governance, privacy, and ethics.

As a researcher, Adjerid has a new privacy and security project under way that holds promise for greater social good; he and his research team are evaluating the potential of machine learning for addressing security vulnerabilities more efficiently.

They will be making their practical approaches publicly available for use by organizations seeking new ways to manage security risk. ■

—Sookhan Ho

“People often and consistently underestimate the extent to which their personal information is being collected and used.”

—Idris Adjerid

SHAWN SPROUSE

**IDRIS ADJERID**, associate professor of business information technology, researches how people make online privacy decisions.



# Honors & Awards

## UNIVERSITY AWARDS



### Wine Award for Teaching Excellence

**GREG KADLEC**, the R.B. Pamplin Professor of Finance and the Russell V. and Arlene F. Oliver Professor in Investment Management Research, received one of the university's three 2019

William E. Wine Awards. Kadlec has played a key role in enhancing the department's educational environment for students.



### Willis Blackwood Real Estate Director

**KEVIN BOYLE**, director of Virginia Tech's Program in Real Estate and professor of agricultural and applied economics in the College of Agriculture and Life Sciences, has been named the Willis

Blackwood Real Estate Director. Boyle was named the founding director of the Program in Real Estate in 2012.

## PAMPLIN AWARDS



### Mentoring Award

**TIM CHASE** (IEOR '86, MBA '91), a principal with Deloitte Consulting, is a member of the MBA Advisory Board and leads the student engagement committee. Chase has been instrumental

in the development of a mentoring program for Virginia Tech MBA students.



### Rising Young Alumni Award

**RISHAV KHANAL** (BIT '18) is a business solutions consultant at LinkedIn. He co-authored the book "Experience Over Degrees" and is the co-host and creator of the "Practically

Passionate" podcast. Khanal is building a community to help young professionals become more resourceful.



### Ut Prosim Award

**MATTHEW L. OGBURN** (FIN '04, PSCI '04) is an executive and business development lead in Accenture Finance & Enterprise Performance and a principal with Mustin Capital

Management & Consulting Group. He serves in the Pamplin Undergraduate Mentoring Program and on charitable boards, including for the Ronald McDonald House and the American Cancer Society.



### Ut Prosim Award

**MALLORY TUTTLE** (M.S., HTM '14) is associate director of the Virginia Tech Hampton Roads Centers. She serves on the Portsmouth Service League Executive Board and the Portsmouth Museums

Foundation board, and as an executive board member of tHRive, the Hampton Roads Chamber's Young Professionals Organization.



### Corporate Ambassador

**EY** is a global leader in assurance, tax, transaction, and advisory services with operations in more than 150 countries. At Virginia Tech, EY is one of the top five employers of Pamplin graduates.

EY has sponsored workshops at Virginia Tech discussing the role of diversity and diversity education in the company.

## COLLEGE AWARDS



### William S. Gay Senior Faculty Fellow

**ROBERT DAVIDSON**, an assistant professor of accounting and information systems, was named the William S. Gay Senior Faculty Fellow for teaching and research excellence. His research

examines issues such as income statement and balance sheet fraud, insider trading activities, and executive equity compensation.

## NEW FACULTY MEMBERS



### Assistant Professor

**ANDREW ACITO** joined the faculty as an assistant professor of accounting and information systems.

Previously, he was an assistant professor at Michigan State University. His research examines the materiality of accounting errors and the effects of Public Company Accounting Oversight Board inspections on auditor-client relationships.



### Assistant Professor

**AYENDA KEMP** joined the faculty as an assistant professor of management. Kemp's research interests

focus on understanding how firms may structure intrafirm and interfirm relationships to enhance organizational learning, innovation, and performance outcomes. Previously, Kemp worked as a forecasting analyst in the energy industry.

## ON THE MOVE

**Marketing Department Head**

**RAJESH BAGCHI** has been appointed head of the Department of Marketing. His research interests focus on the psychological processes that underlie consumer and managerial decision making.

Bagchi, who had been serving as the department's interim head, succeeds Paul Herr, who is returning to full-time teaching and research after leading the department since 2014.

**Virginia Board of Accountancy**

**NADIA ROGERS**, an associate professor of practice in the Department of Accounting and Information Systems, has been appointed by Gov. Ralph Northam to serve on the Virginia

Board of Accountancy. Rogers is the educator member of the seven-member board, which provides consumer protection and regulates certified public accountants in Virginia.

**Executive Director of the Center for Business Intelligence and Analytics**

**JAY WINKELER**, former Leidos executive, has been appointed executive director of the Center for Business Intelligence and Analytics.

Winkeler will lead the center as it enters a new phase of growth and contributes more broadly to the university's critical data and decisions initiative.

**Collegiate Assistant Professor in the Department of Management**

**JOSEPH J. SIMPSON** has been appointed collegiate assistant professor in the Department of Management, and director of Virginia Tech's

Integrated Security Education and Research Center. Simpson's research interests focus on strategy, organizational security, innovation, and corporate governance.

**Director of Communication and Marketing**

**BECKY FREEMAL** has joined Pamplin as director of communication and marketing. Freemal comes to Pamplin after two years as the director of communication and creative services at the Biocomplexity

Institute of Virginia Tech. Freemal will lead an integrated communication and marketing program to accelerate progress on building the Global Business and Analytics Complex.

**Assistant Director of Development for Leadership Gifts**

**TOMMY AMAL** has been appointed assistant director of development for leadership gifts. Amal will engage with Pamplin alumni, focusing on fund-

raising for Beyond Boundaries Scholarships and the Global Business and Analytics Complex. Previously assistant director of the Student Success Center, Amal helped establish the Ujima living-learning community.

**Professor Emeritus**

**KENT NAKAMOTO**, retired professor of marketing, has been conferred the title of professor emeritus. Nakamoto joined Virginia Tech in

1997. He served as head of the Department of Marketing from 1999 to 2013, as associate dean for research from 2008 to 2013, and as associate dean for research and faculty affairs from 2014 to 2017.

**Associate Professor Emeritus**

**JOHN BROZOVSKY**, a retired associate professor of accounting and information systems, has been conferred the title of associate professor emeritus. Brozovsky joined Virginia Tech in 1989. He

published more than 20 peer-reviewed journal articles, more than a dozen other articles, one book, and two book chapters.

**Assistant Professor**

**LIANG TAN** joined the faculty as an assistant professor of accounting and information systems.

Previously, Tan was an assistant professor of accountancy at George Washington University. His research interests span financial accounting, tax, and auditing.

**Assistant Professor**

**NGOC-KHANH TRAN** joined the faculty as an assistant professor of finance.

Previously, Tran was an assistant professor at Washington University in St. Louis. Tran's research interests focus on the economics and policy implications of asset pricing, international finance, inflation risks, and financial intermediation.

**Assistant Professor**

**MARSHALL VANCE** joined the faculty as an assistant professor of accounting and information systems.

Previously, he taught at the University of Southern California and the University of Michigan. Vance's research examines the design and effect of executive and broad-based compensation plans.



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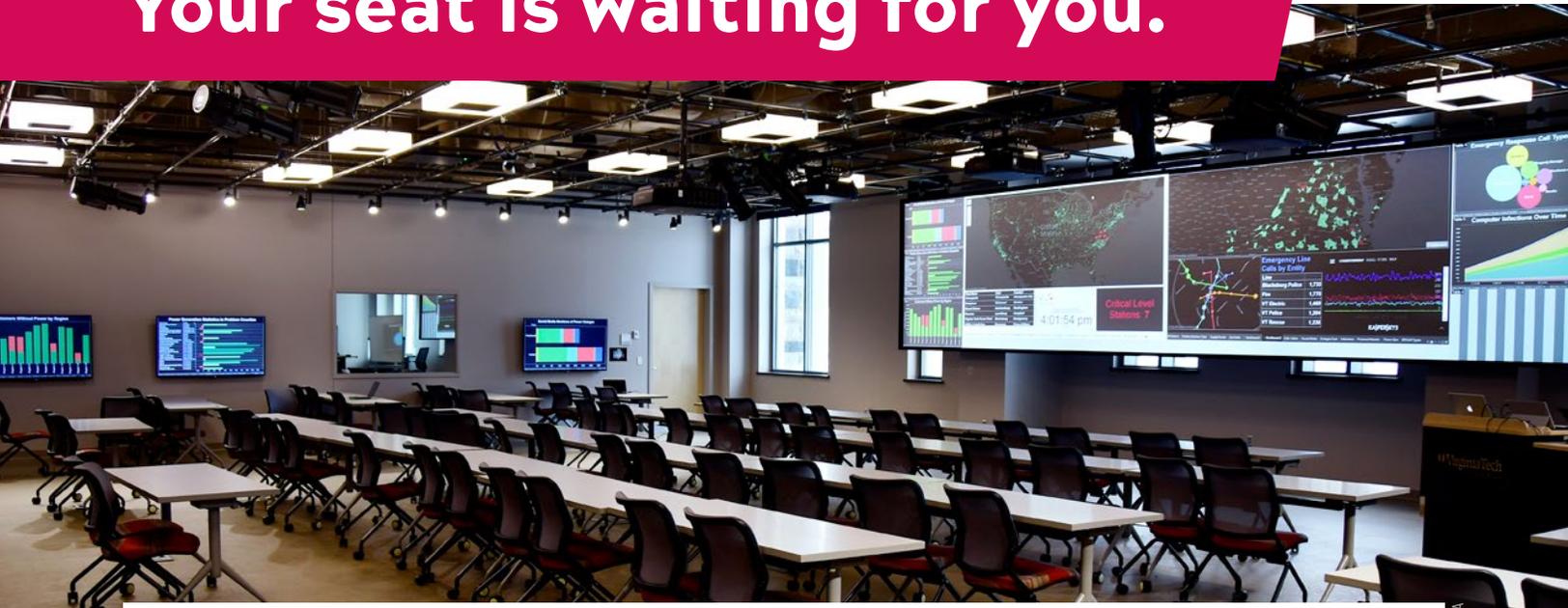
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