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2021

VIRGINIA TECH ENGINEERING EDUCATION **ANNUAL REPORT**

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RESEARCH EXPENDITURES

$2,685,325

Review the breakdown of our 6 new NSF grants on **page 45.**

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32 JOURNAL PUBLICATIONS

51 DOCTORAL STUDENTS

8 ACADEMIC ADVISORS

10 STAFF & A/P FACULTY

14 TENURED/ TENURE-TRACK FACULTY

2 VISITING FACULTY

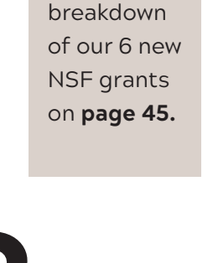
9 COLLEGIATE FACULTY, INSTRUCTORS, & PROFESSORS OF PRACTICE

OUR DEPARTMENT

Meet our department on **52-65.**

5 DOCTORATES AWARDED

Learn more about our 2021 doctoral graduates **on pages 38-39.**



From top, left to right:
Dr. Logan Perry
Dr. Karis Boyd-Sinkler
Dr. Natalie Van Tyne
Dr. Janice Hall
Dr. Chris Gewirtz

ENGE DASHBOARD

OVER **2700** GENERAL ENGINEERING STUDENTS

22,644 ADVISING CONTACTS

From advising appointments to drop-ins, our advising team has an immense impact on our undergraduate students.

MORE THAN **1000** HOURS OF STUDENT WORK IN FRITH

Read about our work in Frith on **16-23.**

SECTIONS OF MANDATORY GENERAL ENGINEERING COURSES

Learn about our courses at **bit.ly/ ENGEcourses**

39 FOUNDATIONS OF ENGINEERING I

34 FOUNDATIONS OF ENGINEERING II

2 FOUNDATIONS OF ENGINEERING PRACTICE

MESSAGE FROM THE DEPARTMENT HEAD

When we pivoted to emergency online teaching in Spring 2020 we had no idea that a year later we would still be deep in a global pandemic.

For the Department of Engineering Education at Virginia Tech, 2021 took unusual quantities of fortitude, even though we had some relief with the rollouts of the vaccine and the university's move to mandate them for students and later for employees. This allowed us to start Fall 2021 with masked in-person teaching and the slower than anticipated long journey towards a new normal, which by 2022 is still by no means a clear goal post. We continue to navigate the differential impact of the pandemic on everyone in our community, and find ways to support each other and find joy in the work that we do together.

In the midst of all that complexity, we welcomed many new people to our team in 2021! We had eight new Ph.D. students join our program in the Fall. We expanded our Academic and Career Advising team to bring in two more people. We welcomed two Collegiate Assistant Professors and two Visiting Assistant Professors. We recruited top people into the new positions of a Director of Communications and External Relations, Assistant Lab Manager, International Programs Administrator, and HR and Operations Manager. We brought new people into the existing roles of IT Systems and Support Manager and Grants Support Specialist. This is not bad for a year that started with a pandemic hiring freeze! During 2021 we also got the news that the College of Engineering was offering us five new faculty positions, with a sixth secured through a dual career hire.

Key for growing capacity in our community are the rotating leadership positions that our faculty take on. This Fall was the time to bring in new blood into two Assistant Department Head roles (one an entirely new position), the Director of the Frith First-Year Makerspace, and the General Engineering Advising Coordinator role. This Executive team has been working with much energy and creativity in leading their portfolios and building the cross-links that are essential to our work. Our undergraduate program undertook strategic growth into both service learning and an interdisciplinary capstone. Our graduate program consolidated a new curriculum and underwent an external review. Our advising team launched new initiatives to respond to the needs of the incoming first year class. Our Equity & Inclusion Committee took us through focused training to further build skills in areas where we knew we needed them. Our researchers worked to strategically think about how we position ourselves for new funding opportunities.

I hope you enjoy the read! I'm delighted to see this report highlighting our new doctoral awards, named for Dr. Bevlee Watford, a tenured professor in our Department and a trailblazer of note. You will also see a lively article on what's going on in the Frith First-Year Makerspace, a research conversation with one of our Associate Professors, an outline of research impacting directly on our local community, and a profile of a graduate student recognized with a prestigious NSF Fellowship. We are proud to also present a documentation of achievements in our Department in 2021. Thank you for your interest and support in our work.

Warm regards,
Jenni Case

MISSION STATEMENT

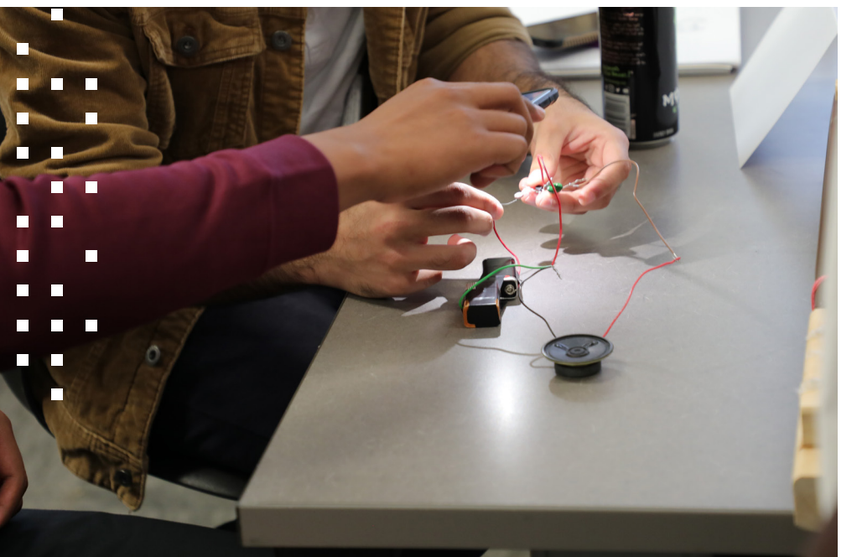
We offer a **world-class education** through exceptional advising, pedagogy, scholarship, and operational practices that **empower informed career decisions** and **serve as a meaningful touch point** for undergraduate and graduate engineering students at Virginia Tech.

We are **a community of forward-thinking professionals** who develop and disseminate knowledge, fostering cohesion between innovative research and practice.

VISION STATEMENT

We are a **globally-recognized leader** in preparing emerging engineers, educators, and scholars who work across technical, cultural and social boundaries to **address contemporary challenges and serve the broader community**.

We **influence** practice, **advance** knowledge, and **shape** careers in an environment that **nurtures learning and growth** within the field of engineering education.



New endowment honors Dr. Bevlee Watford and creates new doctoral awards

When Bevlee Watford heard an anonymous donor had given $100,000 to the Department of Engineering Education to establish an endowment in her name, she only had one question. Why her?

“I was really surprised,” said Watford, who serves as the associate dean for equity and engagement in the College of Engineering, and the executive director for the Center for Enhancement of Engineering Diversity (CEED). “I can’t really fathom who would do something like that. It’s really an honor, but what did I do that somebody thought was so good?”

For the home of the endowment, the donors selected the Department of Engineering Education, one they described as “unique, excellent, and with a culture of continuous improvement” they want to keep going.

As for Watford, the myriad reasons why she was chosen to be the namesake for the two new doctoral student awards span her nearly three decades at Virginia Tech.

A pioneer in engineering education, Watford founded CEED, serves as a graduate committee member, and mentors undergraduates and Ph.D. candidates alike, in addition to her numerous contributions to the engineering profession.

Kirsten Davis and Cynthia Hampton, as the inaugural recipients of the Bevlee Artis Watford Outstanding Dissertation and Doctoral Student Awards, are more honored to receive an award named for Watford than they are for the accolade itself.

“What struck me more than anything is the award is named after Watford, and the whole point of it is to honor her legacy,” said Hampton, the recipient of the Doctoral Student Award. “During my time at Virginia Tech, she guided me and helped me in more ways than I even knew I needed.”

Drs. Kirsten Davis and **Cynthia Hampton** are the inaugural recipients of the Bevlee Artis Watford Outstanding Dissertation and Doctoral Student Awards.

For Davis, who received the Outstanding Dissertation Award for her research on how to intentionally design global experiences for engineering students, this award connects to Watford’s own support of the Rising Sophomore Abroad Program.

This program highlights a unique opportunity for engineering students: study abroad, which is something Davis took advantage of in her undergraduate years.

“When I went to actually work as an engineer, I realized that I was using those intercultural skills in the projects I was doing,” she said. “I was collaborating with people in different countries and coordinating teams that were bringing different cultures together. I felt I was better prepared to do that, because I had these experiences that my colleagues didn’t.”

Davis came to the engineering education Ph.D. program with this mindset, intent on figuring out how to make intercultural learning available to student engineers through traditional study abroad programs and classroom integration.

She studied programs like the Rising Sophomore Abroad Program to see how

DURING MY TIME AT VIRGINIA TECH, SHE GUIDED ME AND HELPED ME IN MORE WAYS THAN I EVEN KNEW I NEEDED.

Dr. Bevlee Watford, shown here at the Class of 2023 Ring Premiere on Oct. 6, serves as the Associate Dean for Equity and Engagement in the College of Engineering. Read the story **bit.ly/2023RingPremiere**.

WE SAY ALL THE TIME REPRESENTATION MATTERS, BUT IT REALLY, REALLY DOES.... IT'S WHERE YOU FEEL SEEN AND HEARD. THEY TAUGHT ME THE IMPORTANCE OF WHAT SPACES SHOULD LOOK LIKE AND WHAT THEY SHOULD FEEL LIKE.

they support students' development across a wide range of outcomes, and explored how different data collection and assessment approaches can provide new perspectives on student learning.

Since completing her doctorate in April 2020, Davis has joined the faculty ranks as assistant professor of engineering education at Purdue University.

She was recently awarded a National Science Foundation grant to reimagine international research experiences for students in a virtual space. Much like she did while at Virginia Tech, she'll be working on the grant with David Knight, her former advisor, and Nicole Sanderlin.

The Outstanding Doctoral Student Award recognizes Hampton's wide range of achievements in research, outreach and teaching. She joined the university in 2014 as a program assistant in CEED, and quickly became a role model and a relentless advocate for others.

For Hampton, it was a life-changing experience to work in both the engineering education department under Stephanie Adams' department leadership, and in CEED, with Watford, her role models of Black women leading in academics.

"We say all the time representation matters, but it really, really does," Hampton said. "I think seeing her path, learning over the years of Dr. Watford's story, and being able to have the privilege of working in engineering education, a space that she helped pioneer – and the same with Adams – it's a space in which you feel great responsibility, but it's where you feel seen and heard. They taught me the importance of what spaces should look like and what they should feel like."

Her sense of responsibility extends to many aspects of her professional career: the numerous students she's mentored, the programmatic efforts she pushed through CEED, and even her NSF Graduate Research Fellowship, with which she focused on understanding systemic change efforts to promote equity and inclusion with the desire to broaden participation work in engineering education. During her fellowship, she looked at the experiences of majority engineering faculty change agents.

"I started courses in change management and organizational change, and they really spoke to how I tried to view systemic issues," said Hampton, "Through all the systems thinking, and systems dynamics, I thought, OK, we can take these types of ways of thinking, of going beyond the surface level, and apply it to what's going on in engineering education."

Hampton, who completed her doctorate in December 2020, continues her influential work as a post-doctoral research associate for the University of Colorado Boulder. She still serves as a mentor to students, regardless of their location.

"I definitely have an open-door policy to students no matter what the circumstances are," Hampton said. "I think that mentoring – both receiving it and giving it – has been a huge part of my educational journey, even now."

Article by Nicole Hazuda. Originally published in VTx on June 15, 2021.

Embracing the freedom to fail

The Frith First-Year Makerspace provides hands-on exploration of creativity, community, and engineering.

Take two rows of wooden workbenches, thousands of dollars invested in creative technology and tools, and nearly 30 undergraduate lab assistants (ULAs) from across the College of Engineering, and you get the Frith First-Year Makerspace in Randolph Hall, a lab dedicated to the pursuit of engineering education through failure.

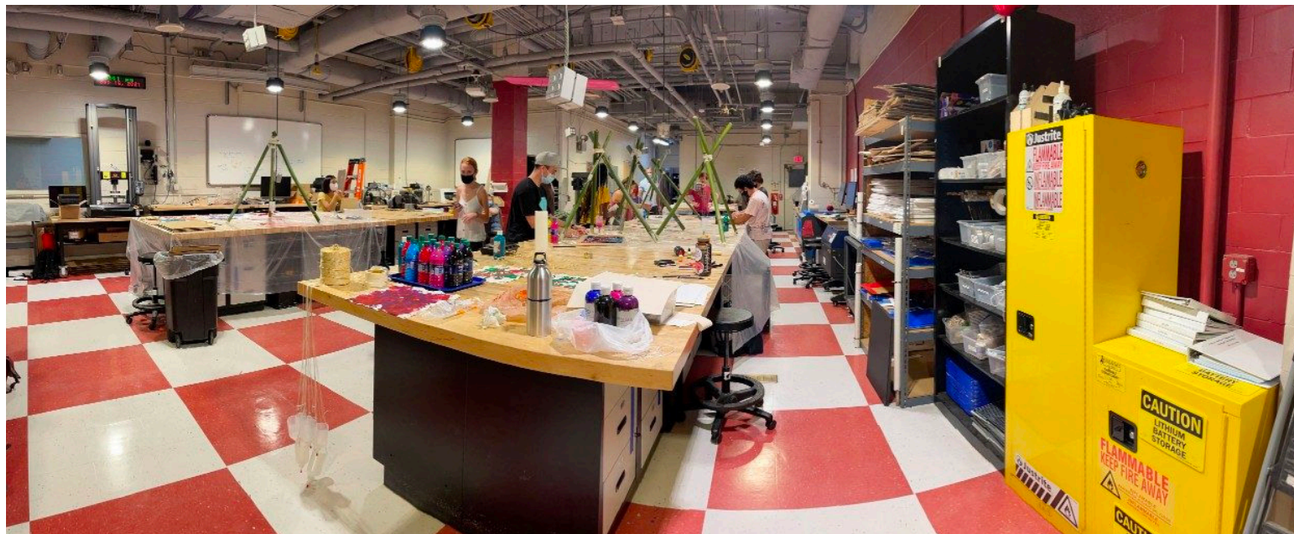
“Makerspaces are one of the rare places where failing or messing something up is not only acceptable, but also encouraged in the course of learning,” said Nick Bedard, the lab’s assistant manager. “Students often get in the mindset that every problem in life will be well-defined with constraints and a solution, but rarely does it work out like that. My

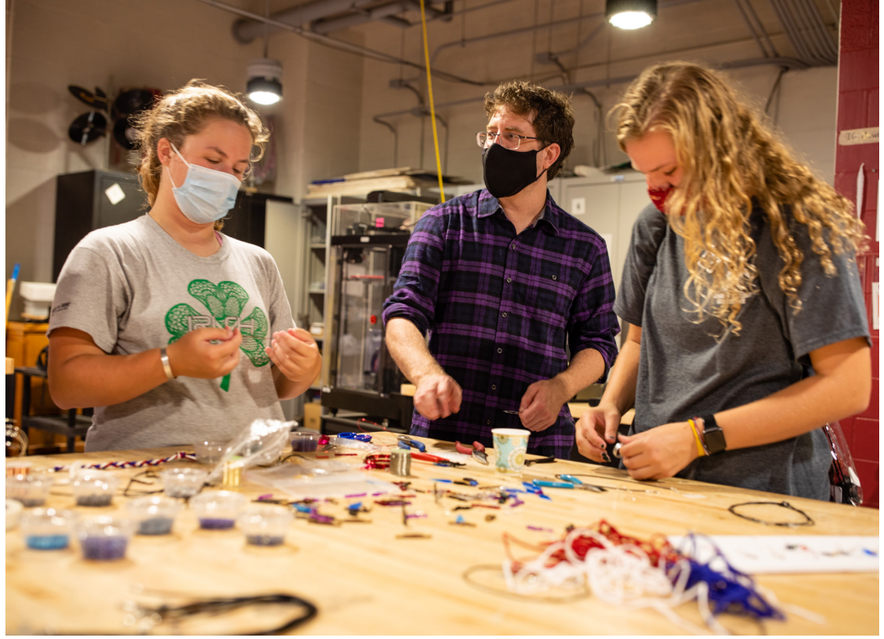
STUDENTS OFTEN GET IN THE MINDSET THAT EVERY PROBLEM IN LIFE WILL BE WELL-DEFINED WITH CONSTRAINTS AND A SOLUTION, BUT RARELY DOES IT WORK OUT LIKE THAT. MY BIGGEST EXCITEMENT IS GETTING STUDENTS COMFORTABLE WORKING IN GRAY AREAS OR NEBULOUS REGIONS OF PROBLEM SOLVING.

biggest excitement is getting students comfortable working in gray areas or nebulous regions of problem solving."

The Frith First-Year Makerspace is open to all first-year students — no previous experience, reservations, or teammates required. Students can design and create — and redesign and recreate — learning to embrace mistakes as part of the design process. Whether laser cutting a custom gameboard or using the CNC machine to create a wooden mountain range, students are encouraged to utilize Frith space for personal and class projects.

Established by a philanthropic gift from Ray Frith '51 and Violet Frith in 1998, who have continued to provide support for operations and even an extensive renovation in 2014, the makerspace provides a creative home to over 2000 general engineering students – many who are exploring engineering for the first time – and directly connects to their foundations of engineering courses. As the new director of the Frith First-Year Makerspace, Ben Chambers has a vision for the lab that builds off the extensive work of his predecessors and its legacy of learning through the freedom to fail, and looks toward a future that transcends Randolph Hall.





"I envision the First-Year Makers program as a community, and that doesn't mean just the space," said Chambers, associate professor of practice in engineering education, who took over as director for William Michael Butler in summer 2021. "It's in the activity and relationships and conversations of our students, our undergraduate lab assistants, and our faculty, both in the lab and the classroom spaces the program maintains and supplies."

The first step for the "new" Frith? Making the community feel a reality by bringing engineering students together. Chambers and Bedard started with Frith's first-ever table at Gobblerfest. They followed it up with a pendulum paint night, a jewelry-making session, and even laser-cut paper pop-up cards, all events where students could explore creativity and the makerspace without any pressure.

Just as essential to Chambers's vision are the undergraduate lab assistants that serve the Frith First-Year Makerspace. According to Chambers, the undergraduate lab assistants are a crucial part of running a successful and safe makerspace. They provide mentoring and other informal support to the students who come into the space, and the diversity of their majors creates a mini-major exploration experience for all Frith visitors.

"Our undergraduate lab assistants are the frontline of encouraging outside-the-box thinking," Bedard said. "We have mechanical engineers whose specialties are electronics, civil engineers who make incredible artwork, and the list goes on. That curiosity creates an infectiously positive atmosphere. I've never been part of a team more committed to the mission than the team of ULAs at Frith."

When robotics and mechatronics major Melida Umana Martinez joined Frith at the beginning of her sophomore year, she was looking for a way to expand her resume while still working in a workshop setting she loved. Now in her third year as an undergraduate lab assistant, Martinez is just as appreciative of the makerspace as she was on her first day there.

OUR UNDERGRADUATE LAB ASSISTANTS ARE THE FRONTLINE OF ENCOURAGING OUTSIDE-THE-BOX THINKING. THAT CURIOSITY CREATES AN INFECTIOUSLY POSITIVE ATMOSPHERE. I'VE NEVER BEEN PART OF A TEAM MORE COMMITTED TO THE MISSION THAN THE TEAM OF ULAs AT FRITH.

“Frith has been the biggest mentor of all – everyone there is like a family,” she said. “We’re all just a bunch of makers trying to expand the love for creating, and I love that. Frith has supported me by providing me with the space to get creative, which is one of the easiest things to lose under the avalanche of coursework that is engineering. Whenever I’m at the lab, I’m able to create. Simple as that.”

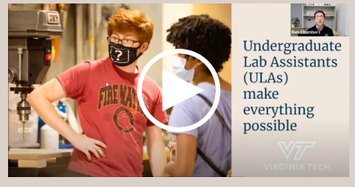
For Eszter Varga, an international student from Budapest, Hungary, and a junior majoring in aerospace engineering, Frith was her first place to experience a workshop setting. “I’ve never had access to a lab like this my entire life, as back home, it’s not a sort of thing available to us,” said Varga, now in her third year as an undergraduate lab assistant at Frith. “I fell madly in love with workshops, and Frith allowed me to not only share this passion with other students, but also to keep creating myself.”

Martinez, Varga, and their fellow undergraduate lab assistants will be able to carry that family spirit into the Frith program’s new location when construction of the Randolph Hall replacement officially begins in a few years. After nearly seven decades, Randolph is slated to receive a complete makeover, thanks to generous gift from the Norris and Wendy Mitchell family. In addition to almost doubling the building square footage and creating a new home for its existing Stability Wind Tunnel, the revised Randolph will include room for an expanded development space for general engineering students.

“Our hope for the new space is to increase opportunities for our students to make things and to interact with each other,” Chambers said. “I want it to feel like a home where they can go, have fun creating, learn by doing, and collaborate with their peers.”

Article by Nicole Hazuda. Originally published in the Fall 2021 Virginia Tech Engineer. Read more stories at **bit.ly/ENGmag**, and read about the Mitchell Gift at **bit.ly/MitchellGift**.

Learn more about the work with Frith by visiting **bit.ly/FRITHyt**



WATCH ONLINE

Q&A: Exploring ENGE research

How does STEM graduate funding vary across teaching and research assistantships, fellowships, and traineeships, and what's the impact on doctorate selection and employment offers?

When you think of making a life-changing decision, like where to pursue your doctoral program, what factors would affect your decision? Location? Faculty? Or, is it which program provides the most funding?

According to a survey conducted by Dr. David Knight, for over 50 percent of graduate students looking to pursue their doctorates in STEM, money, surprisingly, isn't the top decision factor. Knight's survey results aligned with interview data collected as part of a collaborative National Science Foundation grant led by a team of researchers at Virginia Tech and the University of Texas at Austin titled, "Variation in the awarding and effectiveness of STEM graduate student funding across teaching and research assistantships, fellowships, and traineeships." In this Q&A, Knight shares lessons learned from the grant research, impacts and publications, and what's next for the research.

Can you talk a bit about your grant, the team that you worked with, and kind of the impetus for this particular research?

The whole motivation of the grant is that we invest a whole lot of money in supporting graduate students in STEM (not just engineering) fields, but we haven't really done a deep-dive in understanding how we think about funding, what it means for students' trajectories, or how can we think strategically as programs. We don't know a lot about the phenomenon, and there are many people in program director roles who don't have good data on investments, on benchmarks, on best practices, those kinds of things.

As for my team, I have a great collaborator at the University of Texas at Austin, Maura Borrego, a former VT faculty member. And we've had a wonderful team of grad students

In addition to his work with the STEM graduate funding grant, **Dr. David Knight** served as the inaugural Assistant Department Head for Research & Engagement, and continued his work as Special Assistant to the Dean for Strategic Planning.

and postdocs over the past six or seven years – there's a long list of people who have worked on the grant! On the VT side, postdocs have been Dustin Grote, Whitney Wall Bortz, and Michelle Klopfer; Chelsea Lyles, Tim Kinoshita, and Abe Alsharif have been tremendous grad students working on the grant; Mayra Artiles Fonseca collaborated for part of her dissertation research; and recently we collaborated with faculty colleagues Walter Lee, Homero Murzi, and Andrew Katz. And of course, there was a whole group of wonderful people on the UT-Austin side.

What would you say are the biggest takeaways from your research findings?

One of the more interesting ones is the strategies that programs use to recruit Ph.D. students are predominantly

Read more about the grant at **bit.ly/Collab750**

READ

financially driven. We see a lot of, "here's a great assistantship offer." And some programs will give top-up funds, moving allowances, or signing bonuses. What's interesting is that's the go-to strategy, but when we ask program leaders, "how do you think students should make their decisions?" they point to everything else, not the financial reasons.

IF PROGRAMS WOULD TAKE THAT EXTRA MONEY AND INVEST IT IN SUPPORTING THE STUDENTS THEY HAVE IN PLACE, THEN THOSE KINDS OF EFFORTS SEEM TO BE MORE ATTRACTIVE TO STUDENTS, AND IT'S GOING TO BENEFIT THEM IN THE LONG RUN.

Program leaders actually say, "No, they shouldn't make their decisions based on the money. It should be based on advisor fit, or research interests, or what can the program offer in terms of professional development."

When we talked to graduate students, they actually say similar things – the money isn't the draw. Yes, it's important to have funding, but a difference of $5K as a "bonus" for enrolling isn't going to tip the scales on where the student decides to attend. If programs would take that extra money and invest it in supporting the students they have in place, then those kinds of efforts seem to be more attractive to students, and it's going to benefit them in the long run. Like, making sure that they are able to attend conferences, or embedding other career development things into their programs.

We did a survey and several hundred doctoral students responded from across a bunch of institutions; over half of them chose a place that didn't give the top amount of money. But graduate students are making decisions for a variety of reasons, and so kind of bringing program strategies into alignment with what their own faculty think and what students think is one good outcome that hopefully comes out of the research.

Has your research already had any impact?

I'm really proud of this: throughout the project, any time we do a deep-dive into the data we send a report out to any unit that gave us data. And earlier in the project, we took the national scale data and we fed back individual program data with benchmarks from the national data set to about a hundred programs. A few months ago, we sent a survey summary report to programs whose students responded to our data collection request.

I just got an email back from a colleague at a peer institution saying that it'll be really helpful for their program – it's rich data they can actually act on. Those are the comments I really like! One of the local things here at Virginia Tech (that I didn't even know was happening)was that a task force sponsored by the Graduate School referenced our *Journal of Higher Education* paper that discussed the ways that STEM programs might rethink some of our recruitment. And our own faculty members here are doing research on that! Obviously it's nice to have journal articles referenced and contribute to knowledge development, but when I hear from program leaders or associate deans who are actually putting that work into practice, that's where it's great.

In the publication, "Illuminating systematic differences in no job offers for STEM doctoral recipient," you say it's a systematic issue that there aren't as many, if at all, job offers for women and racially minoritized Ph.D. students. What is a viable "solution" to get more job offers?

I think it's a couple of things. One thing that piece does is it pushes back on the narrative of, "Oh, well the supply isn't there from those subpopulations." Actually the supply is

PUBLICATIONS

Doctoral funding portfolios across and within engineering, life sciences, and physical sciences | *Studies in Graduate and Postdoctoral Education, 2018*

STEM doctoral student agency regarding funding | *Studies in Higher Education, 2019*

Illuminating systematic differences in no job offers for STEM doctoral recipient | *PLOS-ONE, 2020*

A competitive system: doctoral student recruitment in STEM and why money may not be the answer | *Journal of Higher Education, 2020*

STEM doctoral students' skill development: does funding mechanism matter? | *International Journal of STEM Education, 2021*

Find more at bit.ly/Collab750

there, and the gap is widening, or it's been widening over the past couple of decades, in terms of students who are seeking jobs having a solid job offer at the end of their Ph.D. programs.

The exact difference between men and women in terms of job offers gets explained away when you account for whether the Ph.D. holder is in a partner relationship or married. We need to think – industry and academia – more creatively about dual career options, as one example of a policy and practice area. It's pretty clear from our analyses if you are a married woman, you're going to be more likely to not have a job offer coming out of a Ph.D. program than a married man. There are good examples of institutions and companies that are trying to address that.

ONE THING THAT PIECE DOES IS IT PUSHES BACK ON THE NARRATIVE OF, "OH, WELL THE SUPPLY ISN'T THERE FROM THOSE SUBPOPULATIONS." ACTUALLY THE SUPPLY IS THERE, AND THE GAP IS WIDENING, OR IT'S BEEN WIDENING OVER THE PAST COUPLE OF DECADES.

We saw differences in who gets job offers and who doesn't based on how a graduate student is funded. If you compare people on a research assistantship to people with a teaching assistantship, you're more likely to not have a job offer if you're funded predominantly by teaching assistantships. Part of that is thinking about how we're awarding graduate teaching assistantships, and if we're doing anything systematic about the process. When you think about it from a socialization and prep for work perspective, faculty are trained predominantly to be researchers. So if you're working within your research group, those are students who are going to have funding to go to conferences, be able to network, and get access to experiences. Teaching is very important, but that activity is disconnected from what faculty/advisors tend to be focused on, at least at many research institutions with large STEM Ph.D. programs, and so that's an area that programs should pay attention to.

The other thing that we didn't expect: it's really important to look at fellowships. We have money to recruit racially minoritized and women students into STEM fields, so they're given prestigious fellowships, which are excellent and those students can have a lot of autonomy. But similar to the teaching assistantship, if those fellowships cause the students to be disconnected from faculty members or funded research opportunities, it's hard to get experience or professional development opportunities. If we are awarding fellowships to try to broaden participation in the field, but those fellowships unintentionally cause those students to have access to fewer opportunities, our research shows this can make a difference in job offers once students wrap up their programs.

What are your next steps now that the grant has closed?

We just launched the follow-on grant. In our data collection, we learned not many programs know what to do about non-academic career pathways and how to help students reach those goals. So Maura and I are working on a new grant focused on non-academic career pathways for engineering graduate students. It's different in that it focuses on engineering, but it's also broadening from just Ph.D. students to include Master's students. We don't know much about Master's students and their experiences, so that'll be a big contribution of that new effort, too.

Beyond this focus on graduate education, I'm super excited about our new $3 million Research Hub we'll be leading focused on low-income students in engineering. It's pulling together a really great team–Bev Watford, Walter Lee, Jake Grohs and me from VT; Teri Reed, PK Imbrie, and David Reeping from the University of Cincinnati; Dustin Grote from Weber State University; Amy Richardson from Northern Virginia Community College; Sarah Rodriguez from Texas A&M-Commerce; and Bruk Berhane from Florida International University . A key mission in this effort is to build out capacity across a range of institutions. Our leadership Hub team is going to be working with 40 different teams at a wide range of institutions to expand how researchers and practitioners think about researching their organizational processes.

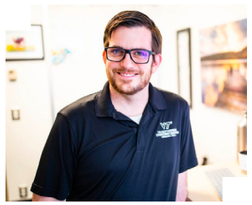
The real big pitch for the hub is that we want to help teams who are running S-STEM programs to be able to build infrastructure and institutional processes that are sustainable even beyond the grant funding. These kinds of programs all rely on organizational partnerships within and between institutions, so that will be our team's focus over the next several years.

Read more about the new Research Hub grant at **bit.ly/ResearchHubSummary**

READ

WORKING TOWARD A MORE VIBRANT VIRGINIA

Supporting School-Industry Partnerships & Career Exploration in the New River Valley

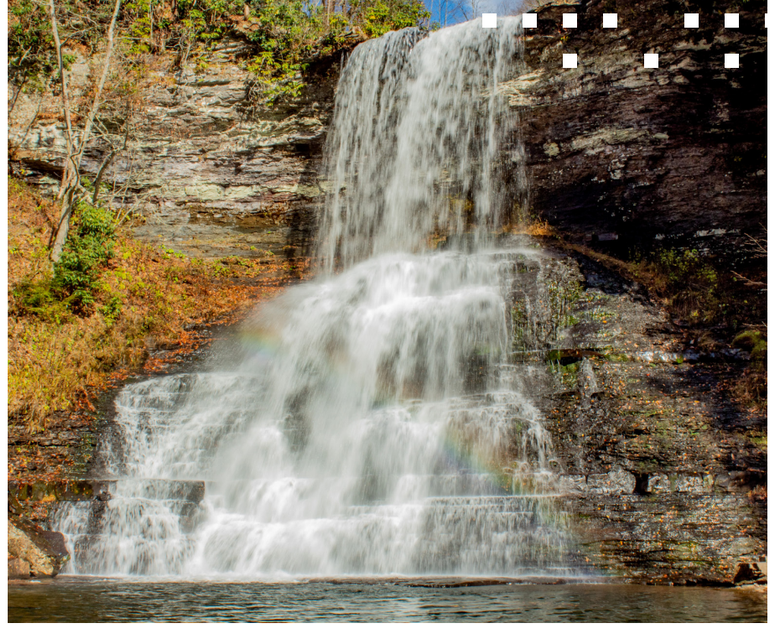


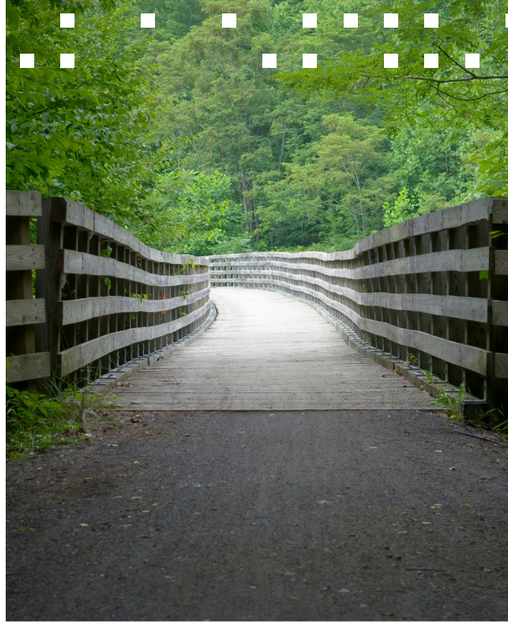
Dr. Jake Grohs

As a scholar intimately familiar with the challenges and potential of school-industry partnerships in Southwest Virginia, Dr. Jake Grohs, ENGE associate professor and assistant department head of graduate programs, experienced firsthand the disruption the COVID-19 pandemic wreaked on existing connections. As part of restoring these connections, Grohs partnered with the New River Valley Regional Commission through a Vibrant Virginia grant.

Together we have an interest in essentially workforce education for youth in the community," Grohs said. "When COVID disrupted everything, it kind of exacerbated the differences between the worlds of school and industry. Each group had their own sets of challenges and demands, trying to comply with safety, health and economic challenges. The opportunity to partner, the capacity to partner and even the physical ability to partner because of health and safety has pretty much been disrupted."

According to Grohs, school-industry partnerships are "hugely important" for student internships, work-based learning experiences, and connecting students to secondary education or workforce opportunities. Because these relationships have been upended due to COVID, Grohs and his team – which includes Computer Science graduate student Danny Mathieson and former ENGE employee, Holly Lesko, who now works as the Public Health School Liaison at the Commission on the Business Continuity Team – are seeking to understand and build capacity to help maintain connection in the face of any future disruptions.





Read the book: *Vibrant Virginia: Engaging the Commonwealth to Expand Economic Vitality* Learn more at: **bit.ly/VVabook**

Their efforts are guided by two primary goals: inventory disruptive impacts - the identification of barriers and opportunities school-industry partnerships before and through the COVID-19 pandemic; and building community capacity - the replication of school-industry partnership elements to build and foster resilient partnerships to sustain large-scale challenges.

"We're interested in how much of those challenges are VT PEERS-specific, versus if this is an area that has been totally kind of upended by COVID," Grohs said. "That's the nature of the work that we've done: interviews with career coaches, Career and Technical Education teachers, and some school administrators, just trying to assess what are the opportunities and barriers with workforce education through COVID and beyond."

From the interviews, three key, transferable themes of successful partnerships emerged:

- Programming pauses can help teams refocus and enrich partnership infrastructures.
- Invested, resilient individuals can push forward program adaptations in spite of large-scale uncertainties.
- Innovative spaces and approaches can leverage community capacity for programming.

Initial findings highlighted communities that persevered in the face of unprecedented times. From administrators who developed shared visions, pursued external funding and formed coalitions, to teachers, counselors and career coaches who collaborated to plan activities in a virtual environment, innovation and teamwork was apparent in the interviews conducted by Groh's team. They're now working to make progress on their second guiding goal: community capacity.

"We're working with the Regional Commission to convene with schools and educators, to think about what could be some value added, what could we do to try to start building capacity for STEM experiences, to fill in some of the gaps," Grohs said. "In some cases, programs were already innovative and continued, but we want to revitalize anything that needs it, and continue to build upon viable pathways, mitigating any damage potentially caused by COVID."

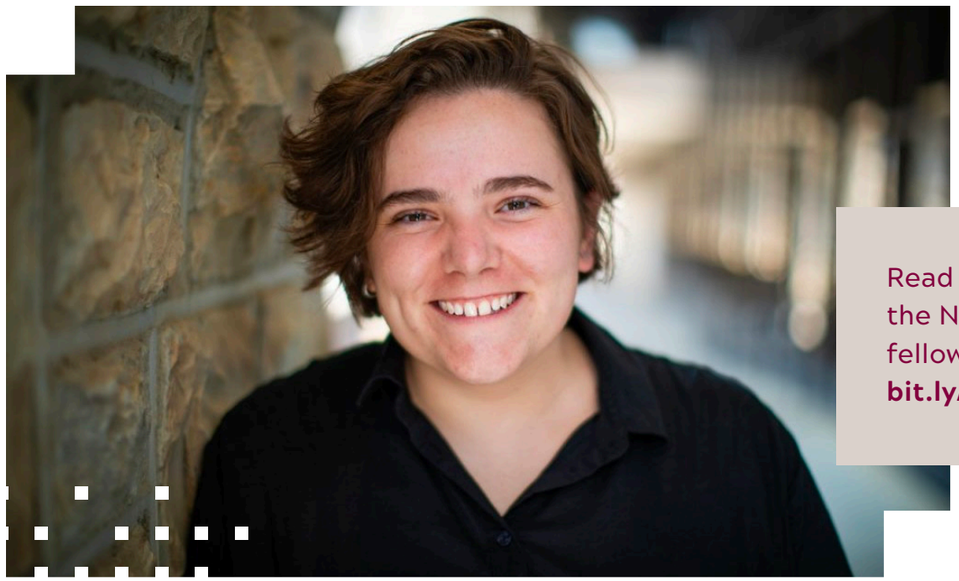
MALLE SCHILLING NAMED NSF GRADUATE RESEARCH FELLOW

Third-year doctoral student Malle Schilling will focus her fellowship on a project centered on Appalachian high school students in counties where VT PEERS is working. Led by Jake Grohs, assistant professor of engineering education, VT PEERS partners Appalachian Virginia schools with researchers and industry engineers in in-class activities that teach engineering and science concepts, while highlighting industry connections and job possibilities for students and teachers.

Schilling is interested in helping these rural students become leaders in their communities, so in her research, she's utilizing guidelines from commissions, like the Appalachian Regional Commission, on strengthening economic resilience and workforce development.

"My main focus is how we can kind of shift the conversation in engineering education to more of an assets-based approach, focusing on what students bring with them, and asking questions around how rural students use some of those assets in how they approach engineering problems," said Schilling.

Summary by Niki Hazuda. Originally published in VTx on August 13, 2021.



Read more about the NSF graduate fellowships at **bit.ly/VTNSFG21**

READ

JOURNAL PUBLICATIONS

Artiles, M., & Matusovich, H. (2022). **Doctoral advisor selection in chemical engineering: evaluating two programs through principal-agent theory.** Studies in Engineering Education, 2(2), 120–140.

Bairaktarova, D. & Plumlee D. (2022). **Creating space for empathy: perspectives on challenges of teaching design thinking to future engineers.** International Journal of Engineering Education, 38(2), 512–524.

Brozina, C., Katz, A., & Johri, A. (2021). **Taking stock: analysis of IJEE publications from 1996–2020 to examine impact and coverage of topics.** International Journal of Engineering Education, 37(5), 1146-1160.

Chambers, B. D., Murzi, H., James, M., Gray, D., & Matusovich, H. M. (2021). **Course development in a first year engineering program: the interplay of autonomy, peer relationships, and content.** International Journal of Engineering Education, 37(5), 1343-1358.

Chambers, B.D., Reid, K.J. (2021) **Looking ahead: from driving cars in the lobby to online: using open creative expression to understand student emotions about transitioning to remote instruction during the COVID-19 crisis.** Advances in Engineering Education. 9(4), 1-9.

Chambers, B. D., Reichard, G., Kuhar, T. P., Leskey, T. C., & Pearce, A. R. (2021). **Thermal contrast in walls as a possible factor in determining the winter shelter-seeking behavior of Halyomorpha halys (Hemiptera: Pentatomidae).** Journal of Entomological Science, 56(1), 111-115.

Chew, K. J. (2021). **Interaction between learning assessment and student motivation: a scoping review.** International Journal of Engineering Education, 37(5), 1313-1329.

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Edwards, C.D., Lee, W.C., Knight, D.B., Fletcher, T., Reid, K., and Lewis, R. (2021). **Outreach at scale: developing a logic model to explore the organizational components of the summer engineering experiences for kids program.** Advances in Engineering Education, 9(1), 1-28.

Ellestad, R. M., & Matusovich, H. M. (2021). **Metacognitive engagement during problem solving while in naturalistic homework study groups.** International Journal of Engineering Education, 37(1), 96-114.

Ford, J. D., Paretti, M., Kotys-Schwartz, D., Howe, S., & Ott, R. **New engineers' transfer of communication activities from school to work (2021).** IEEE Transactions on Professional Communication. 64(2), 105-120.

Froehle, K., Phillips, A., & Murzi, H. (2021) **Lifelong learning is an ethical responsibility of professional engineers: is school preparing young engineers for lifelong learning?** Journal of Civil Engineering Education, 147(3).

Gewirtz, C., & Paretti, M. C. (2021). **Becoming after college: agency and structure in transitions to engineering work.** Engineering Studies, 13(2), 111-131. Gillen, A. L., Grohs, J. R., Matusovich, H. M., & Kirk, G. R. (2021). **A multiple case study of an interorganizational collaboration: Exploring the first year of an industry partnership focused on middle school engineering education.** Journal of Engineering Education, 110(3), 545-571.

Grote, D. M., Knight, D. B., Lee, W. C., and Watford, B.A. (2021). **Navigating the curricular maze: Examining the complexities of articulated pathways for transfer students in engineering.** Community College Journal for Research and Practice.

Grote, D., Patrick, A., Lyles, C., Knight, D., Borrego, M., & Alsharif, A. (2021). **STEM doctoral students' skill development: does funding mechanism matter?.** International Journal of STEM Education, 8(1), 1-19.

Holloman, T. K., Lee, W. C., London, J. S., Hawkins Ash, C. D., & Watford, B. A. (2021). **The assessment cycle: insights from a systematic literature review on broadening participation in engineering and computer science.** Journal of Engineering Education, 110(4), 1027-1048.

Holloman, T.K., London, J., Lee, W.C., Pee, C.M., Hawkins Ash, C., and Watford B.A. (2021). **Underrepresented and overlooked: insights from a systematic literature review about black graduate students in engineering and computer science.** International Journal of Engineering Education, 37(2), 1-15.

Huerta, M. V., Carberry, A. R., Pipe, T., & McKenna, A. F. (2021). **Inner engineering: evaluating the utility of mindfulness training to cultivate intrapersonal and interpersonal competencies among first-year engineering students.** Journal of Engineering Education, 110(3), 636-670.

Lee, W. C., Hall, J. L., Godwin, A., Knight, D. B., & Verdín, D. (2022). **Operationalizing and monitoring student support in undergraduate engineering education.** Journal of Engineering Education, 111(1), 82-110.

Lee, W. C., Knight, D. B., & Cardella, M. E. (2021). **Promoting equity by scaling up summer engineering experiences: a retrospective reflection on tensions and tradeoffs.** Journal of Pre-College Engineering Education Research (J-PEER), 11(1), 8.

Lee, W. C., Lutz, B. D., Matusovich, H. M., & Bhaduri, S.* (2021). **Student perceptions of learning about diversity and its place in Engineering Classrooms in the United States.** International Journal of Engineering Education, 37(1), 147-162.

London, J.S., Hawkins Ash, C.D., & Lee, W.C. (2021). **Potential engineers: a systematic literature review exploring Black children's access to and experiences with STEM.** Journal of Engineering Education.

London, J., Carberry, A., Abhyankar, R., Ayela-Uwangue, A., Huang, W., Huerta, M., Lee, E., Cruz, S., Yasuhara, K., Allendoerfer, C. (2021). **The pioneers' stories as a tool for introducing graduate students to the engineering education research community.** Advances in Engineering Education, 29(1), 1-22.

Lutz, B., & Paretti, M. C. (2021). **Exploring the social and cultural dimensions of learning for recent engineering graduates during the school-to-work transition.** Engineering Studies, 13(2), 132-157.

Matusovich, H. M., Gillen, A. L., Van Montfrans, V., Grohs, J. R., Paradise, T., Carrico, C.*, Lesko, H., & Gilbert, K. (2021). **Student outcomes from the collective design and delivery of culturally relevant engineering outreach curricula in rural and Appalachian middle schools.** International Journal of Engineering Education, 37(4), 884-899.

Miller, D. A., Artiles, M. S., and Matusovich, H. M. (2021). **The role of writing clusters in minority students' beliefs about writing, papers & publications.** Interdisciplinary Journal of Undergraduate Research: 8(11).

Milovanovic, J., Shealy, T., & Katz, A. (2021). **Higher perceived design thinking traits and active learning in design courses motivate engineering students to tackle energy sustainability in their careers.** Sustainability, 13(22), 12570.

Shealy, T., Katz, A., Godwin, A., & Bell, M. (2021). **Civil engineering students' beliefs about global warming and misconceptions about climate science.** Journal of Civil Engineering Education, 147(4), 04021011.

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Southard, K. M., Hester, S. D., Jurkiewicz, J., Curry, J. E., Kim, Y., Cox, J., ... & Talanquer, V. (2021). **A close look at change: the role of an instructional-team community on an Instructor's evolution during instructional reform.** Disciplinary and Interdisciplinary Science Education Research, 3(1), 1-18.

Reeping, D., & Knight, D. B. (2021). **Information asymmetries in web-based information for engineering transfer students.** Journal of Engineering Education, 110(2), 318-342.

Not just research: Check out articles highlighting faculty work in 2021.

"Stink bug stealth. That's a focus of this Virginia Tech professor's research." | *Roanoke Times, News & Record, Oct. 4*

"Professor aims to integrate diversity issues into engineering education" | *Civil Engineering Source, Nov. 1*

"Academic Advising: Gallery View" | *ASEE-PRISM, October*

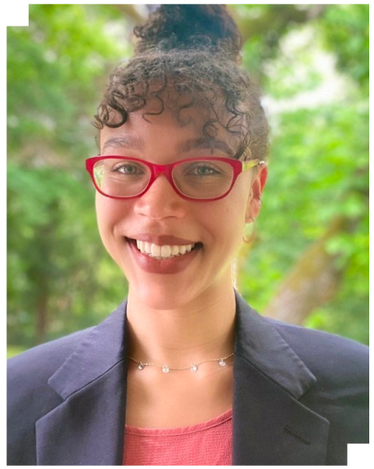
"Virginia Tech turns to Minecraft to 'engineer' a school online" | *Civil Engineering Source, Dec. 9*

2021 DOCTORATES

Dr. Logan Perry

"A Multi-Case Study on the Transfer of Engineering Learning Between Capstone & Work"

March 2021



Dr. Janice Hall

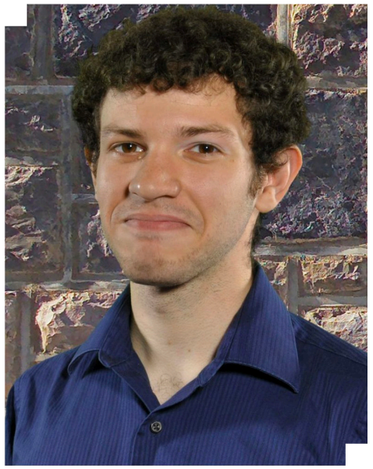
"Disaggregating the Monolith: A Case Study on Varied Engineering Career Orientations and Strategies of Black Women in Tech"

May 2021

Dr. Karis Boyd-Sinkler

"Exploring the Interpersonal Relationships of Black Men in Undergraduate Engineering Programs"

May 2021



Dr. Chris Gewirtz

"Twelve Tales of Engineering in the 'Real World:' Narratives of Newcomers' Agency in Transitions to Engineering Work"

August 2021

Dr. Natalie Van Tyne

"Achieving What Gets Measured: Responsive and Reflective Learning Approaches and Strategies of First Year Engineering Students"

December 2021

Jeremi London receives NSF CAREER award to break down engineering education barriers

At the intersection of change, impact, diversity, equity, and inclusion, stands an assistant professor from the Department of Engineering Education at Virginia Tech: Jeremi London. With her recent National Science Foundation CAREER grant, London is poised to tackle one of today's most pressing questions for engineering: Who gets to be an engineer?

"One of my favorite professors at Purdue always said research is autobiographical," said London, who was named a 2021 Outstanding New Assistant Professor.

"There's a reason why I, with my unique combination of background and interests, am fascinated by this problem," she said. "And I'm inspired by the late Congressman John Lewis, always wondering what kind of 'good trouble' can I get into?"

London's focus for the CAREER grant is creating a comprehensive change model for broadening participation and reshaping how engineering colleges approach diversity, equity, and inclusion efforts. She hopes to replace periodic gains with long-term, systemic change.

To these ends, London will design a unique document outlining the model in an "ultra" practical and accessible format, she said.

"I literally see the Impact Toolkit as a playbook, but in a way that can be the form of reflective exercises, issues to consider, policies to revamp, and more," London said. "I want it to showcase how to use the concrete insights I learn from the case studies of the exemplars. Each case study will be centered on the best practices associated with five areas within any college of engineering: admissions, financial aid, curriculum, student and faculty interactions, and campus experiences."

Utilizing data collected by the American Society for Engineering Education, London identified universities that consistently awarded engineering bachelor's degrees to the most Black and brown engineers over the past three years.

For her CAREER study, she'll look at Florida International University, Morgan State University, University of Central Florida, University of Maryland-Baltimore County, and University of Maryland-College Park.

"I'm excited and encouraged to see a variety of institutions, because I don't want to say everyone needs to go to a Hispanic-serving institution, or a historical Black college or university," she said. "I want to make sure, regardless of what you're interested in, it's possible for you to access an engineering education and to excel well while you're there."

AND I'M INSPIRED BY THE LATE CONGRESSMAN JOHN LEWIS, ALWAYS WONDERING WHAT KIND OF 'GOOD TROUBLE' CAN I GET INTO?

The minimum requirement to become an engineer is an undergraduate degree, and according to London, that's the key to diversifying the engineering workforce. Despite making up 13 percent of the United States population, less than 5 percent of engineers are Black or African American.

Changing policies, revisiting financial aid approaches, and examining priorities are all practical changes London believes will ensure the next generation of engineering educators can disrupt the status quo to achieve parity. She's partnered with Virginia Tech's College of Engineering and College of Science to implement her grant findings and anticipates building more partnerships over the next five years.

"Jeremi is an exceptionally committed and talented scholar, who brings a breadth of experience and perspective to her work," said Jenni Case, head of the Department of Engineering Education. "She also already has a strong national profile for her research on impact. Of particular significance is that Jeremi will be kicking off her CAREER proposal in the same year that she takes on the leadership for the ASEE Year of Impact on Racial Equity. This is an opportunity for an incredible blend of research and practice, and Jeremi is really well placed to do this."

As a Black woman engineer, London sees striving to diversify engineering in the face of centuries of systemic racism as more than a personal responsibility.

"I not only feel a sense of duty and obligation, but I also feel a sense of agency," London said. "Part of that agency comes from the long, rich heritage of the amazing things Black, African Americans and brown people have done. Those are the people that remind me that by my choice, I too, can influence the story others tell about me – and I hope to always tell a story of impact."

Article by Nicole Hazuda. Originally published in VTx on July 12, 2021.

HONORS & AWARDS

Dr. Diana Bairaktarova

Promoted to Associate Professor with tenure

Dr. Walter Lee

Outstanding Recent Alumnus

Dr. Jeremi London

Outstanding New Assistant Professor

NSF CAREER Grant

Dr. Homero Murzi

Nunnally Award for Outstanding Faculty in Engineering Education

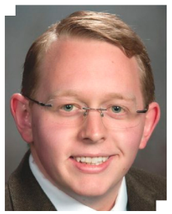
Dr. Bev Watford

Sharon Keillor Award for Women in Engineering Education (ASEE)

Ring sponsor for the class of 2023

Matt Cheatham

Advisor of the Month



Daniel Newcomb

2021 Alumni Award for Excellence in Undergraduate Advising

NACADA Outstanding Advising Award

Tahsin Chowdury

Best Student Paper Award (International Division), ASEE 2021

Jessica Deters

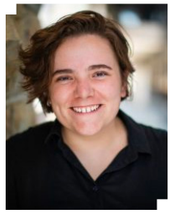
Shari B. Malone Outstanding Sorority Advisor of the Year

Taylor Lightner

Bill Anderson Fund Fellowship

Adam Masters

Graduate Student Service Excellence Award



Malle Schilling

NSF Graduate Research Fellowship

Andrea Schuman

Associate for the VT Graduate Academy for Teaching Excellence

Dr. Dustin Grote

Barbara K. Townsend Dissertation Award from the National Institute for the Study of Transfer Students

Dr. Karis Boyd-Sinkler

Inducted into the Edward A. Bouchet Graduate Honor Society

Dr. Kelly Cross

One of 1,000 inspiring Black scientists in America, Cell Mentor

Dr. Jean Mohammadi-Aragh

NSF CAREER Grant

Dr. Courtney Smith-Orr

Wiley Global 2021 STEM Hall of Fame

WATFORD AWARDS

Drs. Kirsten Davis & Cynthia Hampton

PRESIDENTIAL PRINCIPLES OF COMMUNITY AWARD

Teirra Holloman, Dr. David Knight, Dr. Walter Lee, Dr. Jeremi London & Adam Masters

BEST JOURNAL PAPER AWARD

"Exploring student disability and professional identity: navigating sociocultural expectations in U.S. undergraduate civil engineering programs"

Cassandra McCall, Ashley Shew, Denise R. Simmons, Marie C. Paretti & Lisa D. McNair

PASSED THE PRELIMINARY EXAM

Alaa Abdalla, Hannah Glisson, Tina Griesinger, Teirra Holloman, Taylor Lightner, Crystal Pee, Malle Schilling & Umair Shakir

UNDERGRADUATE SCHOLARSHIPS

2020-21 RECIPIENTS

Claire Seibel
Harry New Jones II Scholarship

Hailey Foreman
H. Powell Chapman, Jr. Award

2021-22 RECIPIENTS

Anna Walter
Harry New Jones II Scholarship

Kathryn Sloan
H. Powell Chapman, Jr. Award

NEW RESEARCH GRANTS

National Science Foundation

EAGER: Collaborative Research *"Changing the Paradigm: Developing a Framework for Secondary Analysis of EER Datasets"*
$252,650 | PI: Dr. Jenni Case

CAREER: *"Disrupting the Status Quo Regarding Who Gets to be an Engineer"*
$580,582 | PI: Dr. Jeremi London

"Building Capacity to Support Career Acceleration and STEM Workforce Development"
$79,980 | PI: Dr. Walter Lee

"Faculty Assessment Mental Models in Engineering Education"
$349,157 | PI: Dr. Andrew Katz

EAGER: SAI *"Developing Effective and Culturally Appropriate Alaskan Housing: Performance Metrics for Future Builds Based on an Interdisciplinary Ethnography of Past Projects"*
$300,000 | PI: Dr. Lisa McNair

Collaborative Research: *Non-Academic Career Paths of Master's and PhD Engineers*
$191,434 | PI: Dr. David Knight

Office of Undergraduate Research

"Developing a Program From Early Academic Career Research Opportunities in Engineering Using Minecraft"
$9,607 | Dr. Ben Chambers

Institute for Society, Culture, and Environment

Culturally Relevant Assessment in Engineering: A Pilot Study | **Dr. Homero Murzi**, with Dr. David Kniola in the School of Education

4-VA

Collaborative 4-VA: *"Exploring Students Perceptions of Engineering Using Arts-Informed Methods: A Multi-Case Study"* **Dr. Homero Murzi**, Dr. Diana Franco Duran from UVA and Dr. Jason Forsyth from JMU

Course Re-design: *"Using Technology and Digital Pedagogy in Course Redesign: Transforming a Contemporary Pedagogy Course to Expand its Reach to Graduate Students"* | **Dr. Homero Murzi**, with Dr. Natasha Watts from COE

ENGE WELCOMES

John Tilton
IT Systems & Support Manager

John Tilton started his career with a Bachelor's degree from Virginia Tech, and is pleased to return to Blacksburg! His career has taken him across all aspects of the IT world from programming and web applications through to system support, and most recently, to a senior management role as IT Manager for the Colonial Williamsburg Company.

Nick Bedard
Assistant Lab Manager

Nick Bedard joined as the new Assistant Lab Manager for the Frith Makerspace in late Spring 2021. He recently graduated with his degree in mechanical engineering from Virginia Tech, and has an excellent record of ULA work with Engineering Education over his years as an undergraduate student. He also has an interest and expertise in the makerspace more broadly.

Tameka Clarke Douglas
Collegiate Assistant Professor

Dr. Tameka Clarke Douglas joined the department as one of ENGE's two new Collegiate Assistant Professors. She has a Ph.D. in Engineering Education from Purdue University. Tameka received her Bachelor's in Civil Engineering from Morgan State University and later a Master's in that field from Lehigh University. She worked as a civil engineer before the Ph.D. and thereafter was recruited home to the University of West Indies in Jamaica to start their Civil Engineering Department. At the same time she started work in the K-12 sector and later obtained a teaching certification in Mathematics Education.

Jennifer Chin
Academic & Career Advisor

Jennifer Chin joined ENGE from UNC Wilmington, where she was both a faculty member in Communication Studies and an academic advisor in the University College. She is originally a Hokie, having received both a Bachelor's and Master's in Communication Studies at Virginia Tech. She began as an advisor in the Fall.

Matt Cheatham
Academic & Career Advisor

Matt Cheatham originally joined the ENGE advising team in Fall 2019, before transitioning to a Construction Manager I position at Industrial Turnaround Corporation (ITAC) in Chester, Virginia. ENGE welcomed Matt back as an Academic and Career Advisor.

Eunsil Lee
Visiting Assistant Professor

Dr. Eunsil Lee joined in ENGE in one of two new Visiting Assistant Professor positions. She has her Bachelor's and Master's in Nanomaterials and Biomaterials in Fibers from Yonsei University in South Korea and a Ph.D. from Arizona State University in Engineering Education Systems and Design. She was previously in a postdoctoral position at FIU.

Mark Huerta
Visiting Assistant Professor

Dr. Mark Huerta joined in ENGE in one of two new Visiting Assistant Professor positions. He has his Bachelor's and Master's in Biomedical Engineering from Arizona State University and his Ph.D. in Engineering Education Systems and Design, also from ASU. He was formerly a Lecturer and Co-Director of the EPICS program at ASU, and is the co-founder of the nonprofit, 33buckets.

Mariah Henderson
International Program Administrator

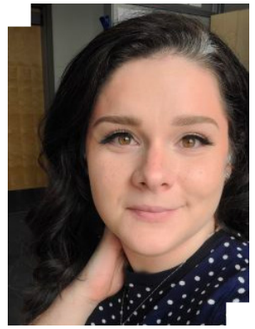
Mariah Henderson joined ENGE as the first International Program Administrator in summer 2021. She holds a Bachelor's in Psychology and Romance Languages from UNC Chapel Hill, and completed her Master's of Education in Higher Education Administration from NC State. She has nearly 10 years' experience as a middle and high school teacher. She has much experience throughout her career on international programs and experiences and also worked in the Global Programs Office in NC State.

Lucinda Shewchuk holds a Bachelor's degree in Nursing with a minor in Business Administration from Radford University. After starting her career in nursing, which included a period in the Schiffert Student Health Center, she moved onto a second career in administrative support with a role in the Occupational Safety and Health Research Center at VT. She previously worked as the Research and Grants Administrator in the Department of Human Nutrition, Foods, & Exercise at Virginia Tech.

Lucinda Shewchuk
Grant Support Specialist

Tiffany Cunningham
HR & Operations Coordinator

Tiffany Cunningham joined ENGE in a new position created to add significant needed capacity in all matters related to HR and more general operational processes. Tiffany will provide direct support to our P&T committee as well as to all our search committees. Tiffany has been working at Virginia Tech since 2019; her most recent position was as Office Coordinator in the Office of Equity and Accessibility. Prior to Virginia Tech she worked over 10 years for the Montgomery County government.



Niki Hazuda
Director of Communications & External Relations

Niki Hazuda serves as ENGE's first Director of Communications and External Relations. Niki did her Bachelor's in Journalism at Rowan University, a Master's in Publications Design from the University of Baltimore, and has a strong profile of work after nearly a decade at the University of Delaware as a communications specialist in Residence Life & Housing.

Chelsea Lyles, Ph.D. is the Associate Director for Broader Impacts at the Center for Educational Networks and Impacts within the Institute for Creativity, Arts, and Technology at Virginia Tech, where she previously served as a postdoctoral associate for outreach, engagement, and evaluation. She has more than 15 years of experience in higher education, including academic advising, academic administration, student affairs, assessment and evaluation. She earned a Master's of Business Administration at Lynchburg College and holds a Ph.D. in Higher Education from Virginia Tech.

Chelsea Lyles
Affiliate Faculty

Ken Walker
Advisory Board

Ken Walker joined ENGE as the newest advisory board member. He currently works at Falfurrias Capital Partners full-time with Fund IV. Prior to joining the firm as a Partner, he assisted with the FCP portfolio leading the industrial automation and safety industry first campaign and as Executive Chairman at Falfurrias portfolio companies SixAxis, E-Technologies Group, Global Plasma Solutions, and FM Expressions (Green Distribution). He is also a member of the Board of Directors of Sauer Brands, Inc. He previously worked as COO for EnPro Industries (NYSE: NPO); served in various senior roles throughout the organization; and started his career at W.L. Gore & Associates, where he was a Business Leader.

2021 TRANSITIONS

Chandler Raynes

Chandler moved to new employment in NOVA after nearly two years with ENGE. He made significant improvements to many of ENGE systems, and supported the team remotely, even driving multiple times up and down I-81 for on-site hardware installations. He was incredibly patient, with a true readiness to help at all times.

Angela Parvin

Angela moved to the position of Post-Award and Fiscal Associate at the Virginia Tech Transport Institute (VTTI), an opportunity for her to further grow her skills and the impact of her work. She served as the inaugural ENGE Grant Support Specialist, making a tremendous impact on supporting faculty with post-award management and tracking of research expenditures and proposal support. She was a key member of the team that led the development of the ENGE strategic plan in 2020.

Dr. Wm. Michael Butler

Dr. Butler was an integral part of ENGE for 8 years, with his superb teaching, impact on the curriculum, leadership in the Frith Lab and scholarly output - all recognized with his promotion to full Professor of Practice. He moved to his home department of Aerospace and Ocean Engineering in the summer.

Dr. Grote

Dr. Grote moved to an assistant professor position in Teacher Education at Weber State University. He did great work in ENGE as a postdoctoral associate, during which he supported the NSF-funded Graduate Student Funding project led by Dr. Knight and Dr. Maura Borrego, as well as a team led by Drs. Catherine Amelink and Lisa McNair to investigate transdisciplinary, industry-relevant student learning opportunities. He also received the Barbara K. Townsend Dissertation Award.

Dr. Arefeh Mohammadi

Dr. Mohammadi moved to the University of California San Diego Extension, as a program manager for engineering and technology after supporting ENGE as instructor for the 1215/1216 courses. Her new position gives her a chance to apply her workforce development and program design expertise in an administrative role in a vibrant community in Southern California.

Dr. Marlena McGlothlin Lester

Dr. Lester transitioned to a new role as Director of Advising for the College of Engineering. She was instrumental in building up the ENGE Academic and Career Advising team to its current capacity. In her new role, Dr. Lester coordinates advising activities across the College of Engineering and continues to supervise key college activities such as Orientation and Welcome Week.

Dr. Janice Hall

Dr. Hall moved from serving as a postdoctoral associate with ENGE to the new, prestigious NSF-funded program, the eFellows Postdoctoral Fellowship program. She is doing the fellowship at Florida International University with Alexandra Coso-Strong as her faculty advisor. Janice did great work during her short post-doctoral period here, contributing to a range of projects working alongside her supervisor, Dr. Walter Lee, and helping to onboard new students to ensure sustainability of the ongoing research.

Dr. Jordan Laney

Jordan served Community Engagement and Research Partnerships Specialist in ENGE before her move to a full-time position with the Virginia Rural Health Association. She worked under the supervision of Dr. Jacob Grohs with the VT PEERS team. Her rich background in Appalachian Studies was a true asset to the department.

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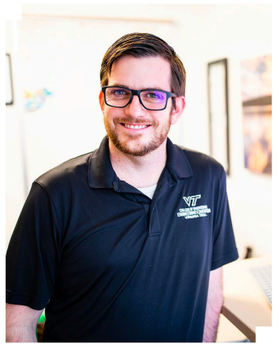

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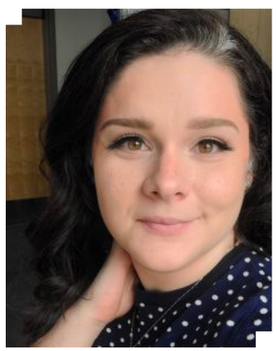

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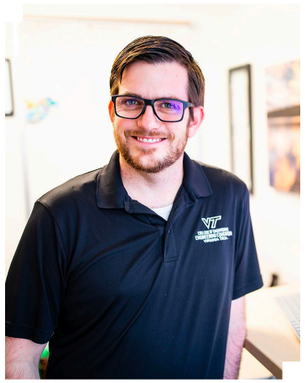

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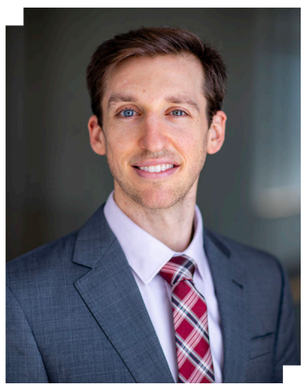

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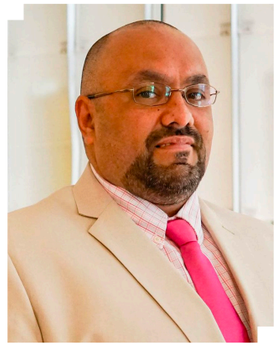

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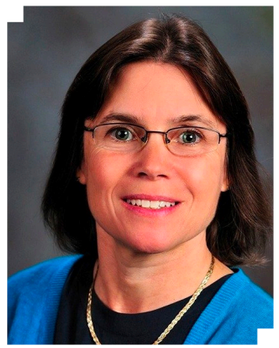

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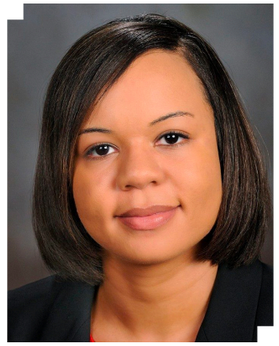

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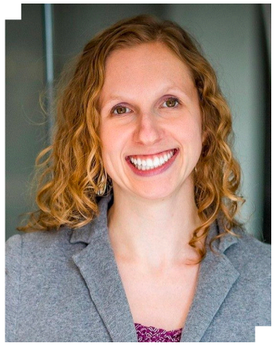

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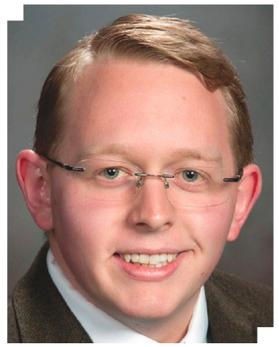

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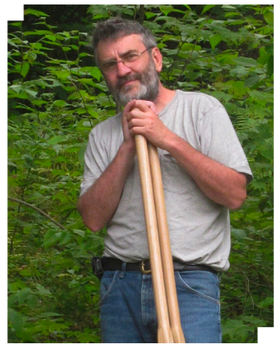

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