IMAGINE

University Libraries at Virginia Tech Magazine

DIGITIZING BUGS
AND DINOSAUR BONES

Machine Learning for
Whiskey Flavors

Students Finding Success

Moving Research Forward

CHEESY
CHEESY
CHEESY
CHEESY
CHEESY

STORY INSIDE

During final exams, it can be tough for students to keep their spirits up and brains engaged. To help support them, the Library gets really cheesy.

Our delicious solution is featured on page 26.

Photo by Trevor Finney

Imagine

Spring/Summer 2020 Vol.1, No. 1

Dear friends of the University Libraries,

Greetings from the University Libraries. In this magazine, you will find stories about our outstanding students, faculty, and staff and how expertise in the library helps advance Virginia Tech research. These stories were written before the COVID-19 pandemic, before all Virginia Tech classes moved online, and before the university facilities were closed to promote social distancing and reduce the spread of the virus.
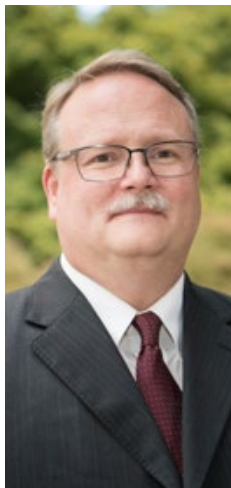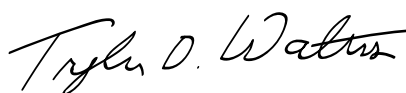
It's hard to believe it was only a few months ago, in a March 11 message to our Virginia Tech community, when Virginia Tech President Tim Sands announced the university would extend spring break and move to online-only instruction. Since then, I have seen library employees mobilize quickly and creatively to meet the needs of our faculty and students.

Many library resources have already been online, even before we imagined that our lives would change and our work would become mostly virtual. Faculty and students have used these services as a matter of course during fall, winter, spring, and summer semesters. We continue to enhance digital resources. Some of the stories you will find inside, like the digital preservation of the Virginia Tech Insect Collection and the 3D scanning of rare dinosaur bones, exemplify this commitment to providing accessible information and knowledge to our Virginia Tech community and beyond.

Learn more about library resources and expertise by following us on Facebook, Twitter, and Instagram.

All the best,

Tyler Walters, Ph.D.
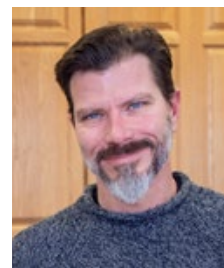Dean, University Libraries
Virginia Tech

Features

Creativity and Innovation

Data

Scholarship

Digital magazine available at lib.vt.edu/magazine

Making prehistoric discoveries globally available

ONE BONE AT A TIME

By Elise Monsour Puckett

VIRGINIA TECH PALEONTOLOGISTS Sterling Nesbitt and Christopher Griffin travel to faraway lands to find adventure and prehistoric treasure, living their childhood dreams of learning more about what's underfoot and illuminating deep history.

Nesbitt and Griffin, of the Department of Geosciences in the College of Science, venture into the wilderness of Zimbabwe, Tanzania, Zambia, Madagascar, and forests and fields around the world hunting for rare finds — dinosaur bones that no one else can access. Digging through the grit and partnering with remote museums, they collect fossilized bones, like from an unnamed dinosaur found in Zimbabwe. This new magnificent creature is a precursor of the long-necked dinosaurs, such as the small bipedal brachiosaurus.

After collection, the bones undergo a time-consuming cleaning process to prepare them for scanning. "Most of the bones are partially covered with a thin layer of rock. We use an air-powered needle that hums as it vibrates back and forth under a microscope and delicately knocks off the prehistoric rock without damaging the bone," Griffin said.

To make these invaluable finds digitally available for national and international scholars and citizens, Nesbitt and Griffin partner with University Libraries' 3D Design Studio

manager Max Ofsa to scan, digitize, print, and replicate these prehistoric bones using a modern form of paleontology.

This work is revolutionary in the study of dinosaurs. The digitization gives a record of the bones and archives and conserves their shapes and forms. It also provides an opportunity for others to study, 3D print, and build upon previous research to further illuminate the lives of these prehistoric creatures.

Traditionally, one would need to physically go to a museum to see and study fossils. "Being able to broadly and quickly apply these resources, 3D scanning has great implications in how we share information. We are able to offer the nuance and detail of real-world objects in a digital realm," said Ofsa.

Take Zimbabwe, for example. Zimbabwe is a difficult and expensive place to visit with an uncertain political climate, funding, and infrastructure. Because of this, their fossil bone collections are rarely examined or used. Now, thanks to Griffin's and Nesbitt's work and University Libraries' 3D scanning expertise and technology, anyone can study Africa's oldest known dinosaur excavated in Zimbabwe.

"Our philosophy is that all these bones don't belong to anyone. This is all our equal history. Very few people ever get to see these bones in person," said Nesbitt. "The University
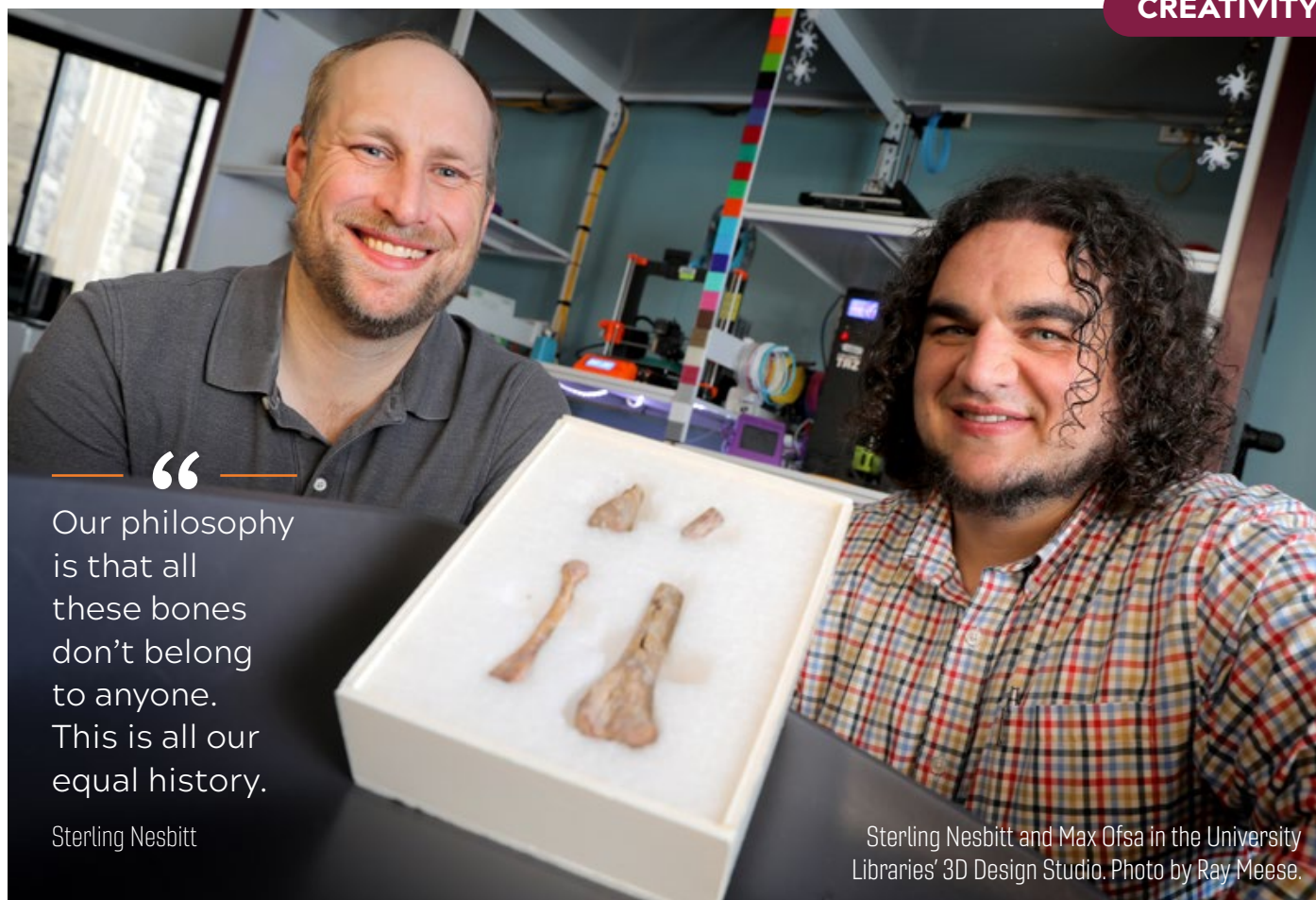
> "Our philosophy is that all these bones don't belong to anyone. This is all our equal history."
>
> Sterling Nesbitt

Sterling Nesbitt and Max Ofsa in the University Libraries' 3D Design Studio. Photo by Ray Meese.

Libraries' scanners are so good with extremely high resolution. This is the next best thing to holding the bone in your hand. This is as close as you can get to going to Zimbabwe yourself."

"I can scan a bone, send it to researchers in places like South America or the Smithsonian," said Griffin. "They can download it instantly, look at it in three dimensions, and confirm what a fossil is or is not."

Even with the time it takes to prepare the specimens, 3D scanning and printing are much faster than the traditional days of molding and casting. With the University Libraries' technology, bones can be individualized, scanned in as little as 20 minutes, prepared for 3D printing, and rearticulated in two days or less.

"With molding and casting, it would take at least a week, and the process adds potentially damaging material to the specimens because it has to touch rubber and glue. That's not always healthy for the specimens," said Nesbitt. "During scanning, you never touch the specimen, which keeps them intact."

3D Scanning by University Libraries' student employee Aurash Aidun. Video still by Ray Meese.

Nesbitt and Griffin's focus is studying the very first dinosaurs and other large reptiles that walked the planet. Their research breaks new ground in discovering that all dinosaurs started off very small, not the size of a bus, as Hollywood movies portray.

Because Nesbitt and Griffin created global partnerships with remote museums, excavated sites across the world, and significantly built on previous paleontology research, Virginia Tech has a unique opportunity to share their knowledge with the world through technology.

"What we are scanning and printing, no one else has access to it. We have been involved in each step of the process," said Griffin. "We scouted locations, traveled there, met with local museums and collaborators, hunted for bones, found the bones, dug them out of the ground, brought them back, cleaned them, scanned them, printed them, and published them. We are physically doing every part of the process."

Christopher Griffin excavates fossilized dinosaur bones in Zimbabwe. Photo courtesy of Christopher Griffin.

1

Process begins with the partial skull of a Suskityrannus.

Video still from Ray Meese.

2

Scanning captures the bone and converts it into as many as 21 million geometric faces.

3

The scan also captures color and texture information

4

The bone is compiled, cleaned, and simplified into the final 3D model.

Ofsa said one of his favorite projects with the paleontologists was Nesbitt's discovery of a Suskityrannus hazelae partial skull. "This is one of the smallest known relatives of the well-known, crowd-pleasing beast Tyrannosaurus rex, and we've scanned it."

The University Libraries 3D Design Studio has the capability to use CT data to print the middle of a hollow specimen, like a dinosaur's brain cavity. The technology can replicate the shape and print a 3D model of a 200 million-year-old animal brain.

Aurash Aidun, 3D digitization assistant and library student employee, has scanned many of the dinosaur bones from Nesbitt and Griffin. "I'm passionate that my work in digitizing these specimens is helping join researchers worldwide and create a new dialogue on things that have been around for millions of years," said Aidun. "I've done multiple projects for the library, ranging from my work here to the immersive environments studio, and I can say they've all been worthwhile in helping me build my craft as well as create cool things to be used by people in the university."
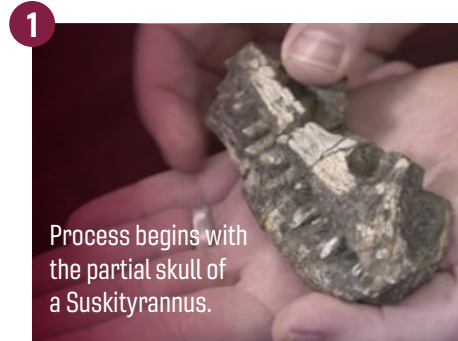
Many of these fossils can be viewed in the Virginia Tech Geosciences Museum in Derring Hall. Some of the collections are also featured in the Evolving Planet exhibit at The Field Museum in Chicago, the third-largest museum in the United States. The Field Museum received this Tanzania collection via 3D specimen scans completed by the University Libraries. The museum 3D printed the bones and created the exhibit.

"The partnership with the library has been awesome and is invaluable. We provide objects that are interesting. Then when we combine that with the technology in the library, it is just a fantastic relationship," said Nesbitt. "You can print all kinds of things. But printing a dinosaur bone that you can hold in your hand that only 10 people in the whole world have seen is special."

Thanks to emerging technologies available through the University Libraries, anyone can pursue their creative and academic passions and share them in interesting ways.
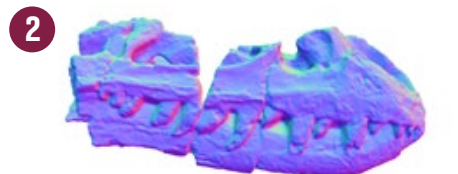
"Our 3D printing and scanning program is available to all patrons of the library, not just university colleges and departments," said Ofsa. "Making higher-end technologies and expertise available to our undergraduate and graduate students and the community instills a certain level of importance to their projects and therefore self-importance to their own endeavors." ■

Building Lifelong Skills

SARAH LOOMIS is doing her part to benefit public health through an undergraduate research project examining how different iron and lead concentrations affect water filtration systems. "I love water, and I want to work in water quality to help create a healthier environment and society," said Loomis, a sophomore biological systems engineering major and John B. Greiner Engineering Scholarship recipient.

Her passion to serve extends beyond the laboratory to the 3D Design Studio in the University Libraries.

Loomis is a student employee in the 3D Design Studio, where she helps fellow students and community members create and innovate. "It's rewarding to interact with students from majors across the university and help them print their projects."

All students, faculty, and community members can freely print projects or learn about 3D design in the studio on Newman Library's second floor.

Loomis said 3D printing and design skills will come in handy for future engineering projects, but most importantly, customer service and communication skills she is learning in the 3D Design Studio will directly benefit her future.

"I have learned how to edit patrons' print designs and maintain the equipment," said Loomis. "I've also conducted studio tours for students, parents, and young children. This helps me enhance communication skills that I'll use professionally moving forward. I'll have to describe my research and findings, so knowing how to effectively communicate complex issues with different audiences will be beneficial to my future career."

Along with learning these important soft skills, Loomis said the job is fun. "My favorite print for myself has been a model dragon from Game of Thrones, and students have come in with designs ranging from a giant bust of Caesar to a case for their calculator. I've also seen engineering students use the studio for their senior design projects to test how well the material holds up when printed at different angles and compressed."

"People are excited to print their items and are grateful for the service the studio provides," said Loomis. "I enjoy helping them and being a part of their creativity." ■ AB
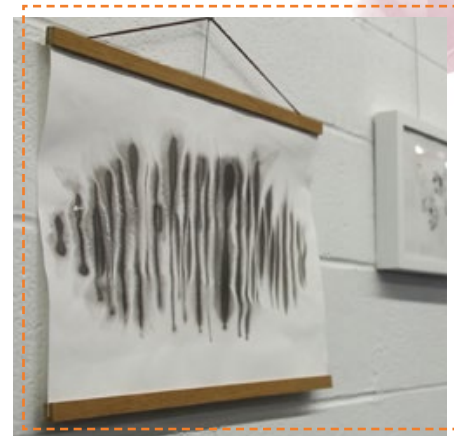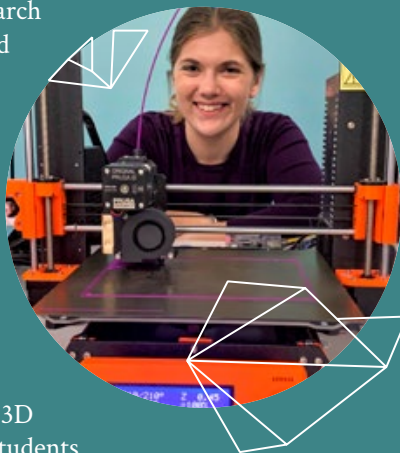
In Search of Beauty
Video spotlight by Liz McVoy

In Search of the Beauty of Nature by Tianming Zhao was an exhibit featuring watercolor paintings and leaf prints inspired by natural beauty. The appreciation of nature is always a guideline for organic architecture. Each leaf, twig and stone have stories to tell, and when combined, they compose a sonata of art and architecture. In a similar but more abstract way, the skills of watercolor are often applied to express the beauty of nature.

This exhibit was on display along the Art & Architecture Gallery wall, located in the Art & Architecture Library in Cowgill Hall. There are plans to host additional exhibits and artwork in the future, so be sure to stop by and stay tuned for more.

SEE THE VIDEO
bit.ly/vtinsearch ▷

From virtual worlds to a
DREAM JOB

by Ann Brown

DILLON CUTAIAR graduated Virginia Tech in May 2020 with a job at Microsoft in his back pocket, thanks to his virtual and augmented reality work in the University Libraries at Virginia Tech.

Augmented reality adds digital elements, like Snapchat filters or holograms, to live experiences seen through smartphones, iPads, or other devices. Virtual reality typically uses goggles and immerses the wearer in an alternate experience that shuts out the physical world.

During Cutaiar's two-year paid fellowship with Todd Ogle in University Libraries Applied Research in Immersive Environments and Simulations, the computer science major freely took chances and pushed boundaries in virtual and augmented reality research.

He began with single-handedly fixing a project that preserves the history of Christiansburg Institute - an African American school once run by Booker T. Washington and located in Christiansburg, Virginia.

"Dillon's work on the Christiansburg Institute project is the sole reason it exists today. He made the tough call and told me a complete rewrite would be necessary," said Ogle.

"That showed maturity. He single-handedly took my design requirements and bootstrapped the app from scratch."

Through an iPad loaded with an app, students stroll school grounds, explore buildings that no longer exist, investigate original school photographs, and build their own historical record of the school that educated the region's African American students from 1870-1966.

Cutaiar didn't have previous experience with the program used to build the project — but he took advantage of library resources and expertise to learn it. "I was ready to learn whatever I needed to. I had to take full ownership of the project and Todd had a lot of trust in me," said Dillon.

He then expanded his projects to include a virtual version of the School of Performing Arts' and the Institute for Creativity, Arts, and Technology's installation Shakespeare's Garden, an immersive sound stroll through Shakespeare's sonnets, soliloquies, and scenes in the Moss Arts Center's Cube.

"I made it work from scratch by bringing in visuals and audio from original artists and a virtual model of the Cube from graduate student Lucas Freeman in the School of Visual and Performing Arts," said Cutaiar.

> 66
> I learned how to be comfortable with the ambiguity inherent in creation and innovation.
>
> Dillon Cutaiar

Create and explore virtual environments of your own at Newman Library's Virtual Environments Studio.

"I created a similar virtual reality preservation of the School of Visual Arts and School of Performing Arts' Poe's Shadows: An Immersive Theatrical Installation. It's a mobile experience of the giant rotating Tell-Tale Heart illustration. Virtual reality can preserve a unique experience and make it available beyond the original installation."

Ogle provides students experience in working with the latest technology, researching innovative virtual reality practices, and experimenting in emerging technologies as members of multidisciplinary faculty and student teams.

"Students apply skills they may be exposed to through coursework but not have adequate time to master them," said Ogle. "They also stretch their skills and add new ones to their personal toolkit through problem-solving and peer teaching."

Cutaiar's most exciting fellowship experience was traveling to the Smithsonian Institution's National Museum of American History as part of the 2019 ACCelerate festival. Cutaiar and faculty from several disciplines across the university created a virtual and physical exploration of Vauquois, France's WWI tunnels. It included a physical replica of the tunnel that seamlessly integrated with the virtual experience.

In the exhibit, visitors experience how soldiers lived and fought in these tunnels with rough walls, dim light, and no privacy while explosives knock pebbles from the ceiling. They came away with empathy for the soldiers' plight and a deeper knowledge of WWI history.

"It's fulfilling to build projects that make a difference in learning and the way people view the world," said Cutaiar. "My work in the library is the main reason I know what I want to do. The technical skills I have in augmented reality, certain programming languages, and my experience working in diverse teams got me my job at Microsoft. It was really helpful for me."

At Microsoft, Cutaiar will be working on projects similar to those he created at the library. He will overlay digital elements, such as objects, videos, and graphics, on a live view to help train front-line employees in manufacturing or other hands-on professions.

"Holograms used to be science fiction, but now they are becoming a reality. I'm excited about my future because I'm confident in my ability to learn new things," said Cutaiar. "With Todd, I learned how to be comfortable with the ambiguity inherent in creation and innovation — I'm thankful for that." ■

Vistors explore the Shakespeare's Garden exhibit. Photos by Courtney Flickinger (left) and Leslie King (right).

CREATIVE POTENTIAL

Dani Chowen,

a second-year double major in human development and public relations, uses music to express life.

"I enjoy the self-expression that writing music allows. It's also a gratifying experience to create something from scratch that is 100 percent yours," said Chowen. "Music is a unifying art form, and being able to put thoughts and feelings into song is cathartic."

Chowen plays the ukulele, piano, and a bit of drums. Many of her friends are music majors and inspire her through their creations. "Seeing them unapologetically follow their true passions every single day really inspired me to follow mine as well."

She came to Virginia Tech as a business major, but after seeing the joy that her friends felt while performing and studying what they love, she was inspired to change majors to human development and public relations. She wants to help people reach their full potential and advance their success. She said that these areas of study will help her do that.

Most days you'll see Chowen helping fellow students, faculty, and community members learn to use equipment or software in the University Libraries Media Design Studios. This is her third semester as a student employee in the studios. She said that helping people create and innovate with the technology available there solidifies her academic passions.

"Seeing people pursue what they love and working creative endeavors into their areas of study inspires me in a similar way," said Chowen. "People come to the studios to grow and explore their talents and passions, and this really encouraged me to do the same."

Chowen helps others record music, sets up studio equipment for podcasts, lends professional-grade media technology, and provides encouragement to budding artists.

"It's so inspiring to see what students bring to the studio to do," said Chowen. "One group recorded a comedy podcast. I helped them set up the equipment and sat in on the recording. It was hilarious!"

She helped a student from Uzbekistan record a translation of English material to Uzbek. "In this small way, I helped her keep her own culture and language alive while she's here in America."

She also has helped groups capture history. "We recorded oral histories of people who participated over the years in Virginia Tech's Denim Day, an initiative to support gay rights by wearing denim on that day," Chowen said. "It's eye-opening to see how the studios are used for cultural and historically significant purposes like the recording of oral histories."

She said she learns just as much as the patrons in the studio.

"Helping people choose the right equipment for their projects has been a huge learning experience for me. I've also learned a lot about the different projects people on campus want to work on," said Chowen. "I've seen people edit comedy videos, record podcasts, record original songs, learn to Photoshop, and take graduation pictures with our cameras. Seeing what the Virginia Tech community is passionate about has been one of the most rewarding things I've learned through my time at this job."

She said this is her chance to add her own communication and teaching skills and customer service knowledge to helping others realize their creative and academic potential. "Helping people access these tools to succeed in ways they might not have imagined before is so special. I love how the Media Design Studios get rid of barriers to this technology so anyone can create." ■ AB
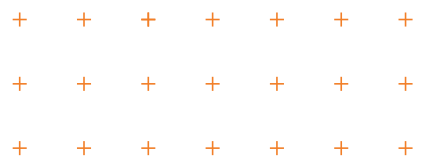
ACTIVATE

CREATIVITY + CONNECTIONS
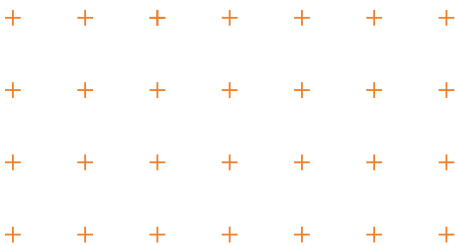
Every great idea starts somewhere. At Virginia Tech, they start right here.

In an age of limitless information and rapid change, access to emerging technology and the perspective to build on it has never been more valuable.

University Libraries at Virginia Tech provides expertise and services that transcend geography and time to fuel accomplishments by all Hokies.

Your gift today to the Library Excellence Annual Fund will make a difference. By giving to the University Libraries you support every student and researcher in the Virginia Tech community, including those who use our resources from afar.

Thank you for your support.

VIRGINIA TECH.
BOUNDLESS
IMPACT

Give today: give.vt.edu/library

MOVING RESEARCH
›› FORWARD

The University Libraries data services team helps researchers ensure that their research products, including data, are high quality and preserved so that they can be re-used to fuel innovation and discovery over time, distance, and discipline.

›› The Team

19 experts with diverse data expertise in:

- Curation and management
- Open sharing
- Graphic design and visualization
- GIS
- Analytics
- Informatics
- Metadata

> Libraries are all about managing information and keeping it safe for the future — and that's exactly what we're doing with research data! Our work ensures that research data generated today continue to have a high value to researchers in the future for the benefit of society.

Andi Ogier
Director, University Libraries Data Services

Photo: Data Services Team members Shane Coleman (left), Jonathan Petters (center), Andi Ogier (right). Photo by Liz McVoy

›› Support for across the Drillfied and beyond

Since the team's formation, its research support has grown from less than two dozen consultations in 2014-2015 to over **350** in 2018-2019.

In total since 2014:

- **Consultation**
- **Collaboration**
- **Partnership**

	CALS	CAUS	CLAHS	CNRE	COE	COS	HC	PAMP	VM	VTC	INSTITUTES
Consultation	212	115	149	87	168	79	8	29	13	5	33
Collaboration	44	8	32	9	16	28	6	7	1	2	17
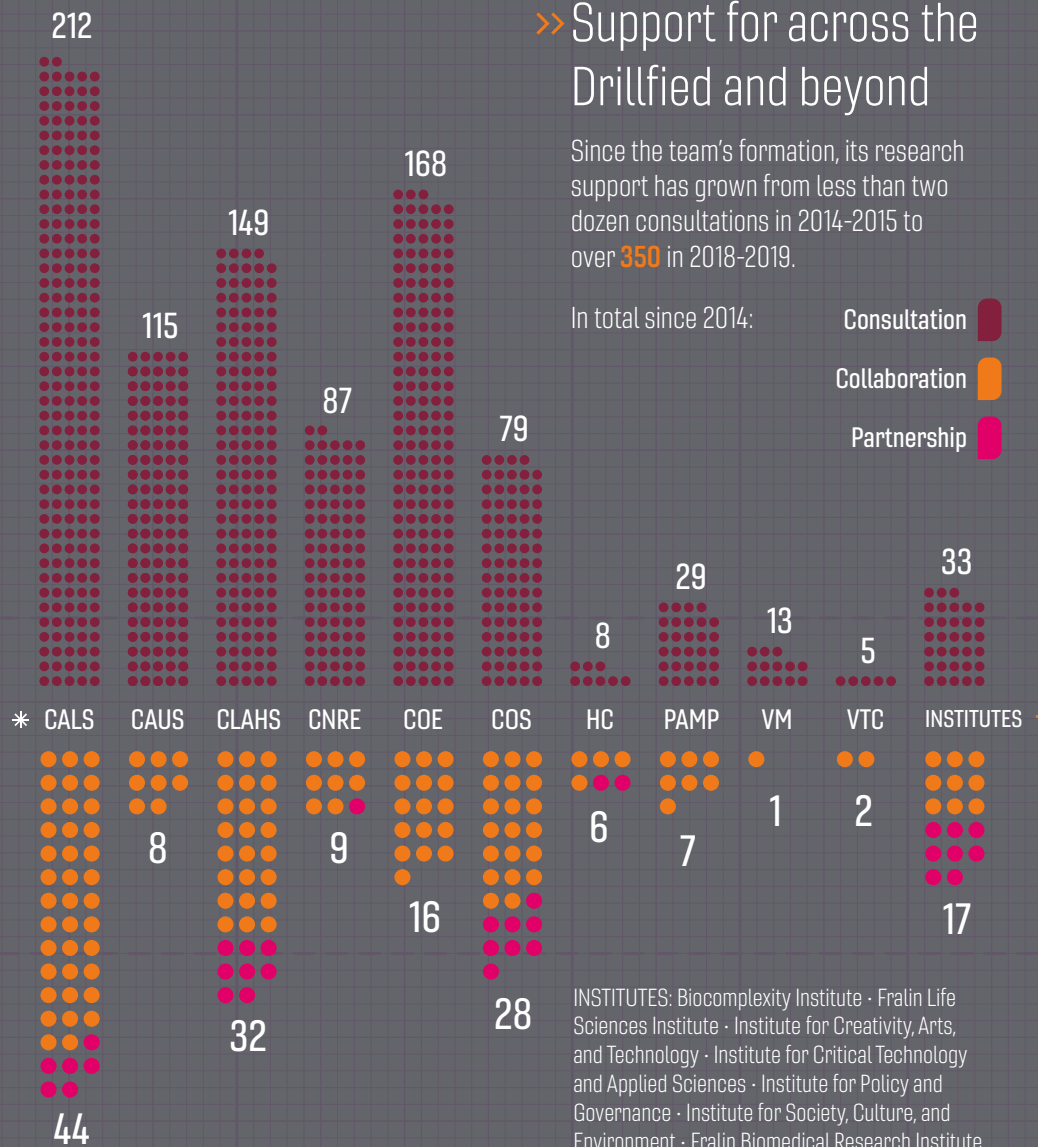
INSTITUTES: Biocomplexity Institute · Fralin Life Sciences Institute · Institute for Creativity, Arts, and Technology · Institute for Critical Technology and Applied Sciences · Institute for Policy and Governance · Institute for Society, Culture, and Environment · Fralin Biomedical Research Institute at VTC · Virginia Tech Transportation Institute

›› Resources for every stage of the research journey

Design workshops, guest lectures, and teaching consultations

Plan data management plans for grants, repository selection, sensitive data consultations, and data collection instrument design

Collect data collection, computational and informatics tools, big data, and qualitative data expertise

Analyze analytic software access and assistance, specialized data analytic techniques

Publish visualization creation, interactive dashboards, design editing, and advice

Archive Virginia Tech data repository, disciplinary or government repository deposits, and metadata creation

Reuse finding secondary data for research, locating datasets for teaching, providing subscription data collections, cleaning and restructuring data, and advising on systematic reviews and meta-analysis

›› Outcomes

The greatest benefit: University Libraries' data experts help researchers make their data and other research products valuable to future researchers.

Faculty 45%
Grad. Student 34%
Undergrad. Student 10%
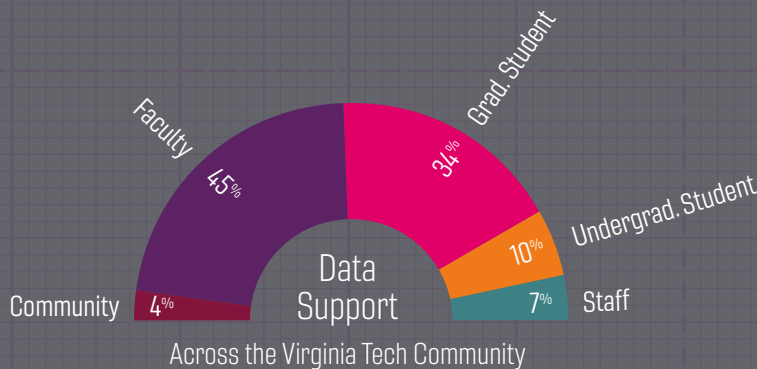Staff 7%
Community 4%

Data Support
Across the Virginia Tech Community

96 Workshops and trainings since 2018, including:

Demystifying Machine Learning
A beginner-friendly workshop aimed at teaching the basics of what machine learning is, what it can and can't do, and when to consider using it.

Software Carpentry - Bash, Git, and Programming with R and Python
Software Carpentry aims to help researchers get their work done in less time and with less pain by teaching them basic research computing skills.

Adobe After Effects: Visualization Design and Animation
An introduction to the principles and techniques of creating and animating stunning data visualizations inside of Adobe After Effects.

Piloting a Community of Student Data Consultants that Supports and Enhances Research Data Services
A presentation at the International Digital Curation Conference on the training and management model used in the University Libraries' DataBridge.

⚙ Winner of best paper at IDCC 2020

Support activities have included and led to:

77 Special tools

47 Publications

43 Grants

26 Co-PIs

62 Data extractions/generations

161 Dataset discoveries

112 Data management plans

242 Visualizations
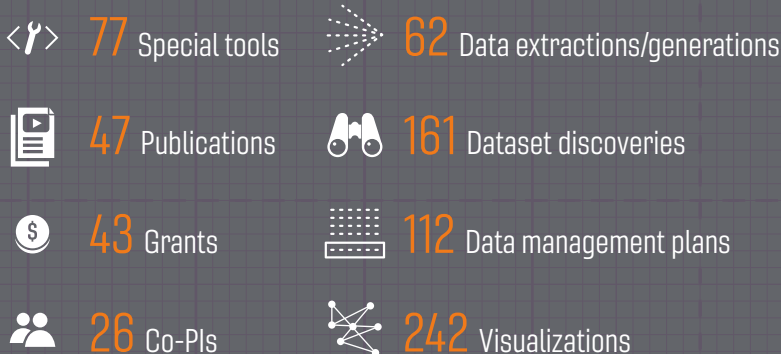
✳ College Agriculture and Life Sciences, College of Architecture and Urban Studies, College of Liberal Arts and Human Sciences, College of Natural Resources and Environment, College of Engineering, College of Science, Honors College, Pamplin College of Business, Virginia-Maryland College of Veterinary Medicine, Virginia Tech Carilion

Fluent in Flavor

Using machine learning to build a flavor language for whiskey

by Ann Brown

Smoke.

Coal dust.

Fine leather.

Dark berry fruit.

Coffee grounds.

SO MANY DESCRIPTORS and personal perceptions swirl around a glass of whiskey. Published whiskey reviews include sensory and non-sensory descriptions of thousands of these distilled spirits.

Finding meaning in and understanding these descriptors is at the heart of discriminating whiskey connoisseurs' debates. But even for the not-so-discriminating, all of these words can be confusing for investigating the taste and value of a bourbon that costs $130 a bottle - when a $55 similar substitute would do.

A research project by food science faculty member Jacob Lahne, graduate student Leah Hamilton, and University Libraries' data consultants Chreston Miller, Michael Stamper, and Amr Hilal received a SEAD Major Grant from The Institute for Creativity, Arts, and Technology (ICAT) to create a tool that finds a common language in a data set of 6,500 published whiskey reviews of about 50 - 100 words each.

ICAT awards SEAD grants to projects that bring together scientists, engineers, artists, and designers to tackle some of the world's most complex challenges. Figuring out how to consistently and systematically describe whiskey could be an important and complex challenge for many, but beyond this specific food product, the deep learning tool this project creates could be used for all research that uses descriptive data.

The team is applying Natural Language Processing (NLP), a subfield of linguistics, computer science, information engineering, and artificial intelligence that involves

Chreston Miller, Leah Hamilton, Jacob Lahne. Photo by Trevor Finney.

programming computers to process and analyze large amounts of natural language data — whiskey descriptors.

This data science technique offers researchers opportunities to analyze more data than what was possible through the traditional time-intensive and expensive manual text analysis process. According to the project team, there have been no previous attempts to apply this sort of NLP approach for sensory-evaluation purposes.

"These data sets haven't been studied by anyone else. One of the nice things about whiskey is its enthusiast market," said Lahne. "People care about taste deeply. Whiskey lives or dies by sensory perception. These reviews are in metaphorical, messy, natural language. What we're trying to get to is some shared concept about taste."

Hamilton said they may even be able to make connections among the descriptors used, the production process, and the geographical origin of the liquor.

"This tool will analyze free-response comments and identify which words are describing flavor and separate them from what's not descriptive," said Hamilton. "It will also identify which words are related and describe the same flavor. This will ultimately be helpful to consumers who may want to buy something that's close to a high dollar whiskey but is more affordable."

As a computer scientist with research interest in qualitative data, Miller is excited about what this project could mean as a proof of concept for a larger proposal.

"There is value in a tool with deep learning, also called machine learning," said Miller. "Deep learning is a machine learning technique based on how neural connections in the brain process information. By training the tool, we are able to comb through more information and make sense of it more quickly and efficiently than a human brain. If we throw enough data at it, the peculiarities are diluted. This is a new area of research and one that is very exciting."

When the team has its common language defined, they will pass the data to Stamper, a graphic designer specializing in interactive design, to create visual interfaces that help audiences draw insight and meaning from the data.

"We will define our target audiences and build an interface to communicate the data. We can use visualizations to see how we can dig deeper into the information," said Stamper. "We can include geographic visualizations, temporal visualizations. It will be a very interactive opportunity for the audience to experience the data in new ways."

Upon the completion of the year-long process, the team will raise a glass to future research that could build upon this novel approach they have begun.

"At some point, we may get to a place where we describe flavors like we do colors - it would be standardized," said Hamilton. "This is a great step in that direction." ■

Beautiful and insightful:

Making complex data approachable through art and information design

by Ann Brown

MICHAEL STAMPER, University Libraries' data visualization designer, plays a unique role in the research process by transforming faculty and student clients' complex research data into vibrant, interactive, and dynamic visualizations to better communicate their findings to a broad audience.

Modern research libraries are places to acquire traditional ingredients for solid research and academic endeavors. They are also where faculty and students tap resources, expertise, and spaces to create a finished product.

"Many academic libraries have data and visualization services," said Stamper, "but to my knowledge, none of them have a data visualization designer to help take rendering data or designing information to the next level by formating and shaping them to be more impactful, engaging, and insightful."

Stamper is an artist first. He holds an undergraduate degree in graphic design, studio art, and art history and a Master of Fine Arts degree in graphic and interactive design. His artistic interests include traditional drawing, painting, printmaking, and letterpress work with metal and wood type.

His professional background is as diverse as his creative expertise. He's served as an assistant professor of graphic design at Minnesota State University-Moorehead and an art director and designer at the largest advertising and public relations firm in Indianapolis and at Indiana University.

While pursuing a master's degree at Indiana University-Bloomington, Stamper realized a keen need for artists to help communicate research. "I started my graduate studies, focused on data visualization, information architecture, and human-computer interaction while I was a full-time art director and designer at Indiana University," said Stamper. "I switched to the MFA program because I realized that there was and is a definite need for creative-types to be a part of scientific research teams."

Stamper said research faculty have different wants than traditional public relations or advertising clients; however, they all need to communicate an idea or concept to their target audience.

Anne Brown and Michael Stamper. Photo by Liz McVoy.

In the University Libraries at Virginia Tech, Stamper's work ranges from creating custom infographics to rendering large abstract networks of data and everything in between.

"If a researcher is working on a publication or proposal, I help them by providing infographics or visualizations to support and communicate their data and research. If they have an idea or sketch for something they'd like to use or need to use they can come to me," said Stamper. "In this way, I free the researchers up to focus on their writing by creating the graphics, diagrams, or visualization that communicate effectively to their target audience. All the projects that come across my desk are unique. That makes my job interesting."

Stamper gets excited when he can share the work that he has done. One such project was an ICAT mini-SEAD grant-funded project for developing an online tool for students to visualize and explore acid-conjugates. This project resulted in a beta version of the tool and a poster titled "Design Thinking for Visualizing Acid-base Chemistry" which Stamper presented at the Gordon Research Conference: Visualization in Science and Education.

"Some of the most fun visualizations I've worked on are projects that can be taken beyond the initial data or information
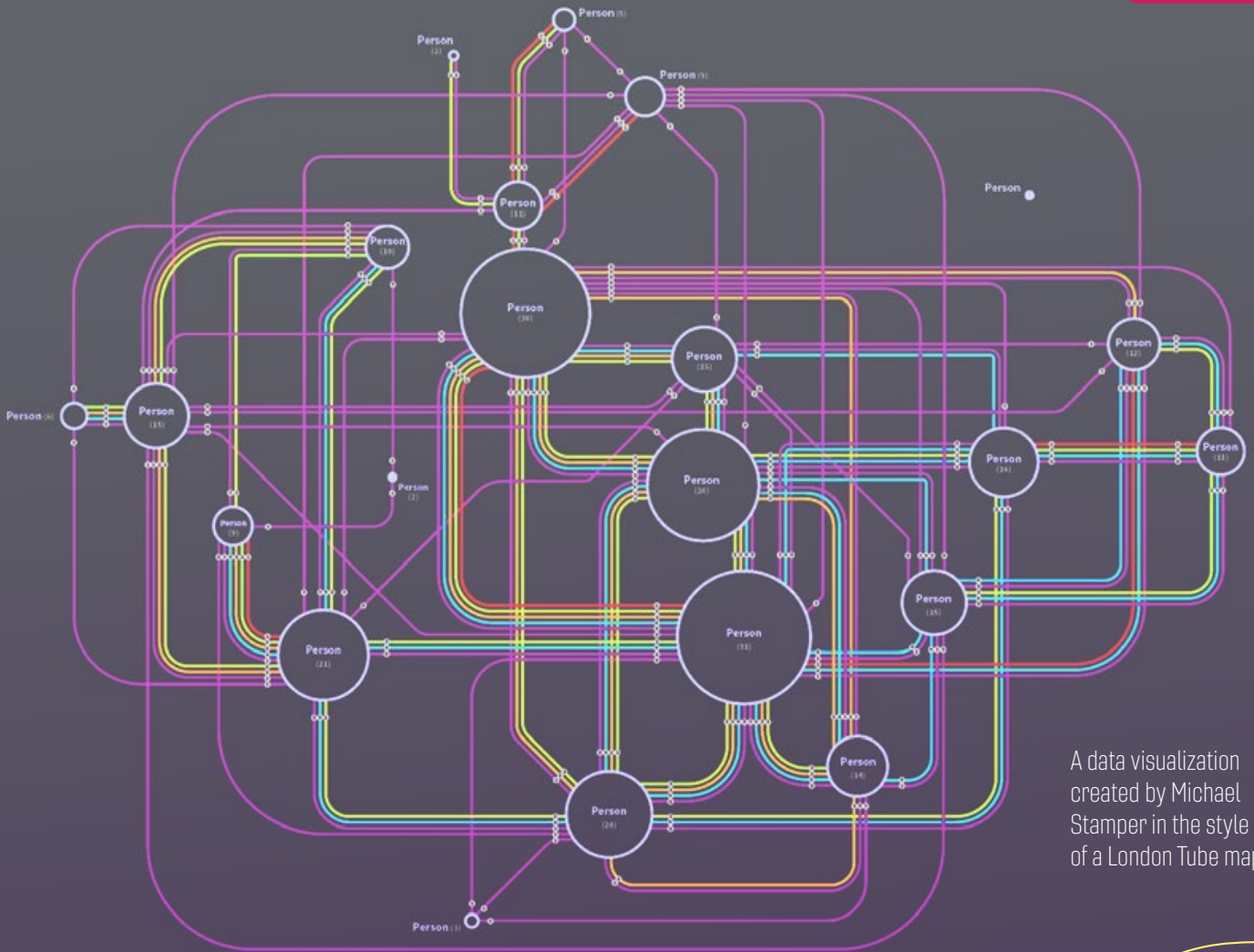
A data visualization created by Michael Stamper in the style of a London Tube map

visualization design request and transformed into multiple pieces for that researcher and their team," said Stamper. "For instance, one online project went from a simple mockup of an interface to interact with a visualization, to a conference poster outlining the design process, and a presentation that explained all the aspects of the planning, design, creation, and sharing that process with others."

He also wrote an editorial, "I am a data visualization designer in an academic library, and more!" for an Association of College and Research Libraries Digital Scholarship publication. Stamper's role in the University Libraries is unusual and other universities are interested in how the library structures and provides its data services to Virginia Tech researchers.

"The demand for my services is steady and I have three years' worth of work from Virginia Tech that I can't show to the public because of patron privacy, which we take very seriously in the library," said Stamper. "I hope this work results in an increased rate of approved and funded grant proposals. I also strive to teach students good visualization and information design concepts. Virginia Tech has a wide range of students studying computer science and engineering to humanities disciplines, and all of them need to present their own research visually. I help them learn how to do that, and do it effectively."

Stamper welcomes unusual challenges. He says it keeps his job challenging and rewarding.

"The quirkiest visualization I've done at Virginia Tech involved transforming a complex network visualization into a more understandable London-style Tube map," said Stamper. "This demonstrates taking an analytic rendering of data and how applying color, typography, layout, or STEM to STEAM to it transforms it into something easier to read by a wider audience — it's also more fun.

"I often use the metaphor that I'm kind of like a baseball outfielder," said Stamper. "It's not up to me what comes my way. But when it does, I'm there to take care of it, which can sometimes be unusual — in a good way!" ■

BEYOND
the comfort zone

Tanner Spicer helps others overcome data challenges while building a resume with confidence
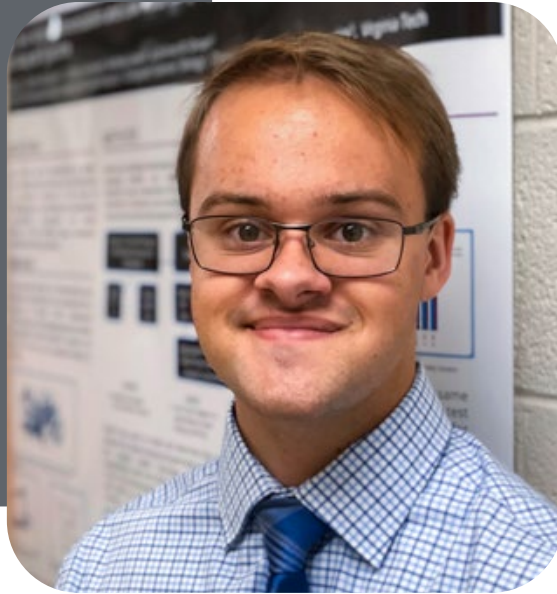
Tanner Spicer. Photo courtesy of Carter Gottschalk.

TANNER SPICER, a junior majoring in Computational Modeling and Data Analytics (CMDA) and Computer Science (CS), dives into complicated datasets as part of his position with the University Libraries DataBridge student group. He loves to organize, make sense of complex patterns in data, and use his skills to benefit research projects across Virginia Tech.

"I'm pushing myself outside of my comfort zone. I'm a pretty quiet kid. What we do in DataBridge is exciting to me because of what it means to the outside world and the impact on it," said Spicer. "I'm working on important projects while developing my data science and presentation skills."

The University Libraries at Virginia Tech's DataBridge program provides hands-on training for undergraduate students to be successful in data analysis and visualization. It's an undergraduate research experience, led by the University Libraries' Anne M. Brown and managed by Jonathan Briganti, that gives students interested in working with data a chance to increase knowledge and hone skills by collaborating with graduate students and faculty across campus with computationally-intensive research projects.

DataBridge students are first trained in data-logic and analysis skills and then paired with a Virginia Tech client and project. The students act as consultants, project managers, problem-solvers, analysts, programmers, cleaners, collectors, and visualizers of data.

Spicer has worked on projects such as creating a tool for the general public to analyze historical Chicago election data and create their own visualizations of what they find interesting in the data. He said this tool makes the election data more approachable and accessible for everyone by allowing them to create their own data

visualizations from the data sets, in addition to letting us understand more about Chicago voting trends and urban politics

Brown said that watching students like Tanner find their passion and talent through their work with DataBridge is what the program is about — to help develop students so they are ready to be successful data scientists.

"He has pushed his disciplinary boundaries and uses his data science skillset to work on research projects from the fields of computational chemistry to urban politics," said Brown. "Tanner is independent but has embraced working in a team and with partners from all over campus."

Spicer admits he's an introvert. That doesn't stop him from successfully presenting his work at conferences and making data science approachable for his clients.

"I've learned to enjoy presentations," admitted Spicer. "I get nervous, but I am very confident about my data science and methods."

"It has been great to watch him develop into a team leader in the group and excel at presenting his work at on-campus research symposiums and contributing to group meetings with other students and our collaborators," said Brown. "DataBridge enhances these students' confidence and experience while providing an important service to our research university." ■ AB

> **"**
> What we do in DataBridge is exciting to me because of what it means to the outside world and the impact on it.
> Tanner Spicer

FILE
SAVE BUG

3D imaging brings rare insect collection to light

by Ann Brown

IN THE UNASSUMING BASEMENT of Virginia Tech's Seitz Hall, 130-year-old history of Virginia's insect biodiversity is carefully preserved and documented. More than 20 stark white cabinets filled top to bottom with glass-topped Cornell pine drawers line the climate-controlled and monitored room. Inside these drawers is The Virginia Tech Insect Collection, the oldest and largest entomological collection in Virginia, founded in 1888.

This collection of more than 500,000 specimens represents the rich insect diversity of the Appalachian region and is an exceptional repository of endangered insects, pollinators, and many native species once common but now disappearing from habitat loss, like the rusty patched bumble bee collected in 1863. This native pollinator was once widespread through the eastern United States but the native meadows and forests that were their homes are vanishing and their population has dwindled. They are now on the U.S. Fish and Wildlife endangered species list.

"The VT Insect Collection is the result of careful field studies and collections for more than 130 years," said Paul Marek, associate professor of entomology in the College of Agriculture and Life Sciences and curator of The Virginia Tech Insect Collection. "Decades and centuries in the future, researchers using new techniques and methods can use the very same specimens conserved in the collection to address novel questions."

Photo by Erin Williams.

Nathan Hall holds a tray of specimens in the basement of Seitz Hall.. Photo by Trevor Finney.

Nathan Hall, University Libraries' director of digital imaging and preservation, and Marek are teaming up to ensure this rare collection is available beyond the basement walls.

Thanks to a 2019 Digitizing Hidden Special Collections and Archives award from the Council on Library and Information Resources (CLIR) funded by The Andrew W. Mellon Foundation, Hall and Marek will be embarking on a two-year project to preserve 15,000 specimens through two-dimensional digitization. They will also create three-dimensional digital models of 300 more using photogrammetry.

Beginning in June, this award will fund the work of graduate assistants, faculty, and staff for two years and equipment to create online collections that are globally available without restriction.

The digital collection will include the digitized physical picture or 3D model of the insect and metadata including measurements, chemical compositions, ancient DNA information, and other biological or geographical information. This gives anyone with an Internet connection an opportunity to learn from the past and build on future policies and discoveries.

View the 3D models for yourself!
sketchfab.com/ VirginiaTech UnivLibraries

Several scientifically valuable collections in the museum will be digitized, including specimens of federally endangered species and ecologically critical pollinators.

"This project enhances access to an important biodiversity collection of threatened species that are critical to food production and sustainable ecosystems," said Hall. "By enhancing greater access to these specimens, we are creating a new means of learning about these species which are essential to the quality of life and the human condition regionally, nationally, and globally."

Many decisions that regulate foreign and domestic trade are based on research generated from natural history collections.

"In the U.S. we import fruit, cars, electronics, and many other items. Unwanted insect stowaways in these shipments and invasive species threaten our crops, ecosystems and animal health," said Marek. "At present, there are 50,000 invasive species in the U.S. that cause $120 billion worth of environmental and agricultural damage each year. By having a repository of local species like The Virginia Tech Insect Collection, we can rapidly identify exotic species and respond."

Hall and Marek believe that making this collection more available to citizens and policymakers in addition to researchers is invaluable.

"What sets our work apart is that our user interfaces and access points will be targeting K-12 and general audiences. I think this project is absolutely unique," said Hall.

Hall and his team will be carefully making 300 3D scans of the delicate insects through a process of difficult steps. Maureen Saverot, University Libraries' 3D texture artist, uses a turntable to take a picture of the specimen at every five degrees of turning until she takes an image of the bug at several different heights, from above, straight on and from below. Then she flips the insect over and repeats the process. Once the hundreds of images per specimen are created she starts to piece together and polish the digital version of the insect.

"So far I think the Monarch butterfly has been the most challenging," said Saverot. "Typically I photograph the insects in two parts, upright and flipped over on their backs by placing the pin in clay to hold the insect steady. Later on, I can merge these two chunks of data. However, with the Monarch's flat wings and a slight amount of gravity pulling on them between being upright and turned over, it took me ages to get the wings to align! A close second is a similar issue with that bumble bee and its thin, translucent wings."

Once the collection is digitized, the general public can access it through the University Libraries at Virginia Tech and the Digital Library of America. More researcher-focused access will be through iDigBio and Symbiota Collection of Arthropods Network (SCAN).

Marek and Hall plan to pursue more funding to continue the initiative and digitize the whole collection of nearly half-million specimens.

"With modern high-throughput techniques, this goal is not too far off," said Marek. ∎

(Above) Paul Marek describes the importance of specimens in The Virginia Tech Insect Collection. Photo by Trevor Finney.

SEE THE VIDEO
bit.ly/3dbugsvid

Maureen Saverot reviews a digitized beetle in the photogrammetry lab in Newman Library. Photo by Erin Williams.

POLITICS, POWER, & PLAYBOY
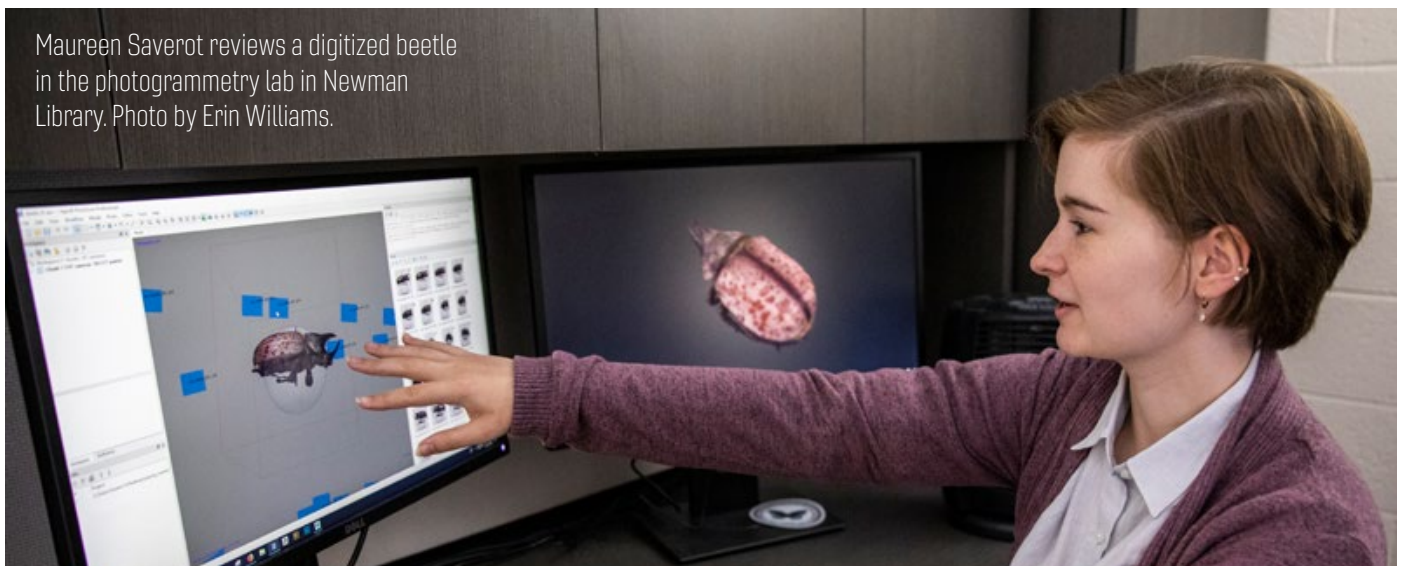
WHAT DO politics, power, and Playboy magazine have in common? They were all prominent in the American mindset during the 1960s. They also were core themes in professor Marian Mollin's Spring 2019 History Research Seminar (HIST 4914), "America in the 1960s." The course culminated in a 161-page book authored by the students and published in the fall by the College of Liberal Arts and Human Sciences History Department in association with in association with Virginia Tech Publishing in the University Libraries at Virginia Tech.

"Politics, Power, and Playboy" is part of a student book series that began with "Welcome to the Beatles" in 2018. Both books were authored and edited by Virginia Tech undergraduate history students, who worked with the staff of Virginia Tech Publishing to produce the final product. The books are available online at no charge or in an inexpensive paperback edition via Amazon. This growing collaboration between the History Department and Virginia Tech Publishing exemplifies one of the ways that the University Libraries is evolving its services to support student research and education in the 21st century.

"This publication series is a great example of how today's humanities classroom is evolving to incorporate new and creative modes of experiential learning," said Peter Potter, publishing director in the University Libraries. "When most people think of a history classroom they probably conjure up images of lectures, tests, and research papers that will only ever be read by the professor teaching the class. In today's world, new digital technologies have made it possible to think in grander terms. Why not inject new life into the classroom by having the students actually publish a book that they can buy as a Christmas present for friends and family?"

> **"**
> ... today's humanities classroom is evolving to incorporate new and creative modes of experiential learning ...
>
> Peter Potter

Mollin agrees. "The students loved the idea of writing a book," she said. "It created a level of excitement throughout the semester that could never have been replicated by my having them simply write a paper for submission to me alone. While the process was rigorous and arduous, and even stressful for them at times, they all expressed great satisfaction in knowing that they would produce a tangible and lasting project from their efforts."

The book is organized into three sections that mirror the book title — politics, power, and Playboy. The politics section illuminates electoral politics, public support for President John F. Kennedy from his run for office through his assassination and beyond, and the making and implementation of foreign and domestic policy over the course of the 1960s.

The second section discusses social, cultural, and political power struggles in America's 1960s. The book's student writers also focus on the complicated relationships between race, identity, and power.

The third section is a reflection of the shift in ideas about women's sexuality and beauty standards as a by-product of the cultural, political, and social power struggles of the times. It discusses changes in the way magazines and newspapers like Playboy, Cosmopolitan, and Ebony portrayed women's sexuality and beauty to national audiences.

The students' in-depth research into the tumultuous decade allowed them an opportunity to reflect on similarities and differences between the past and today.

"Every writer brings their unique perspective to a historical research project," said Mollin. "As such, our students bring a unique collective generational perspective to the history of the 1960s, a field that has been studied a great deal, but by

participants in that era's events and established scholars who are quite a bit older than the students in my class. What they choose to write about, and how they choose to approach their subjects says as much about the present day as it does about the past that they have chronicled in their chapters."

"This book project was incredible," said Kayla Mizelle, a student co-author and citation editor. "It not only allowed us to create something tangible that we wanted to work towards, but it allowed us to write about something we really cared about from our own unique perspective. We often talked in class about how we really wanted to get this right because we cared so much about what we were working on and we wanted to do the history justice."

Claire Ko, a student in Mollin's class and recent graduate, was a co-author and line editor for the book. Through this project, she realized how much she loved research and writing. "I am attending a Masters program at Virginia Tech in the spring for Secondary Education for History and Social Sciences," said Ko. "However, after my experience with writing this book, I am contemplating pursuing a career in research. It opened my eyes to another career path I could take and thrive in."

Mollin said her students not only created a significant book of published historical research but honed skills that will benefit them in the future.

"The students learned important skills in critical thinking and analysis, how to engage in rigorous research, and how to overcome intellectual and logistical obstacles to success," said Mollin. "They honed their writing skills and gained practice in how to work collaboratively with others as a part of a team. These skills will serve them well in the future, no matter what paths they choose to follow in their lives and no matter what types of careers and jobs they pursue."

Potter is not surprised to see the idea catching on elsewhere at Virginia Tech. "We were approached last year by Andrea Baldwin and Anthony Kwame Harrison from the Department of Sociology," said Potter. "Both were intrigued at the idea of a class book project."

Baldwin was offering for the first time a graduate course on Black feminisms. Harrison was teaching his popular Foundations of Hip Hop course. Both classes have since resulted in newly published books: "Standpoints: Black Feminist Knowledges" and "The Foundations of Hip-Hop Encyclopedia."

Potter says that the process never gets old. "It is fun to see how the students in each class tackle the book project in their own way. This means that each book is different so we're all learning as we go along." ■ AB

Access all the books for free at
publishing.vt.edu »

From left, Frank Powell, Seth Hendrickson, Kayla Mizelle, and Brianna Sclafani were among the history students who co-authored a book on the American mindset during the 1960s. Their fellow authors included Brett Kershaw, Claire Ko, Kaya McGee, Abigail Simko, and Gia Theocharidis. Professor Marian Mollin edited the book.

Photo by Andrew Adkins.

AMPLIFYING
the Unheard

MANY GROUPS IN SOUTHWEST VIRGINIA are largely invisible in media and research, despite being integral to the fabric of our communities. A flipped symposium, "amplifying unheard voices" on January 14, 2020 in Newman Library's multipurpose room brought together more than 80 researchers, Virginia Tech students, interested community members, and speakers to discover these voices and honor their local stories.

"This event was meant to inspire and equip long-term collaboration between Virginia Tech and community groups," said Nathaniel Porter, University Libraries' social science data consultant and data education coordinator. "During the event, attendees had the chance to partner directly in community-based research through facilitated conversations."

Martin, a Navy and Marine Corps veteran and event speaker, lives in Grayson County with her wife and infant son. "I live in a little tiny community in Southwest Virginia, and it's really quite rural," said Martin. "It has less than a thousand people, which is smaller than the first ship I was on board. I will talk about some of my reactions to that world. Yes, it's my own history, but also the story arc of what it's like being in this community."

Ferguson, an enrolled member of the Monacan Indian Nation and event speaker, embraces the chance to tell her story. "Our voices have been silenced, so the opportunity to amplify our voices and have people think about the things we've gone through is a great idea," said Ferguson. "We're saying 'what's going to help your program? What's going to help your community and how can we help?'"

Porter is working with speakers and attendees to select four to six projects out of the 24 that were suggested during the symposium. Proposed project ideas included traditional academic activities like collecting oral histories and publishing open access resources. Other ideas ranged from hosting grant-writing workshops for communities experiencing marginalization to securing adequate safe housing over breaks for non-local students who can't afford to return home.

"Only a few of the project ideas comprised traditional research, which we didn't expect," said Porter. "But that's okay because the point of the event was to build lasting connections and find meaningful ways to build better communities in Southwest Virginia."

The event was sponsored by University Libraries, Center for Humanities, and the Office for Inclusion and Diversity Advancing the Human Condition Symposium. ■ AB

SPEAKERS INCLUDED:

Hannah Martin
LGBT military veteran, small-scale farmer, and potter

Victoria Ferguson
Monacan Indian tribal elder and cultural steward

Chris Alderman
recovering substance user and peer recovery advocate

Hothaifa Abu Samra
Syrian refugee and community college student

Julia Dinsmore
poet and poverty abolitionist

Juan Pacheco transcribed materials in Special Collections and University Archives. Photo by Trevor Finney.

Finding and telling those hidden stories

JUAN PACHECO is passionate about people and their stories. As a student employee in the University Libraries Special Collections and University Archives, the senior psychology major is surrounded by stories of people who overcame challenges and formed the foundations for future achievement.

"There are so many stories of hope and education for marginalized communities in the New River Valley," said Pacheco. "I get to be a part of that."

In spring 2019, Pacheco began transcribing oral interviews of Christiansburg Institute alumni. Christiansburg Institute, an influential African American school once run by Booker T. Washington and located in Christiansburg, Virginia, was the first of its kind in southwestern Virginia.

"It began in 1866 as a school for educating newly-freed slaves after the Civil War. This was the mecca of black education. Almost every student left with an education and a trade," said Pacheco. "The school and its 100-acre grounds were once so influential, now I'm happy to be a part of memorializing it."

These stories document black communities in Pulaski, Elliston, Wake Forest, and Blacksburg, homes of the students and their families. Some of the alumni interviewed are now deceased. For this and many other reasons, Pacheco is passionate about transcribing their interviews to share them with the world through Special Collections and University Archives' online digital library.

He is also transcribing oral interviews of Denim Day participants. Forty years ago, during the week of Jan. 15-19,

the Virginia Tech Gay Student Alliance held the first Gay Awareness Week, a multi-event effort to promote awareness of gay and lesbian people throughout campus. The high point was Denim Day, which called on all students, faculty, and staff to show their support of gay rights by wearing denim.

"These stories show how people make their own community in a place they didn't really feel like they were a part," said Pacheco. "Empowerment of marginalized people came from somewhere. History is this cycle that's beautiful to see. There's empowerment in that cycle, and you make it better for the next generation."

Pacheco sees his work as an extension of who he is. His mother, alumna Beverly Ann Wood '75, grew up in poverty. As a first-generation college student, she majored in biology at Virginia Tech and later became a physician. His father is from Puerto Rico. Pacheco treasures his family history and loves to tell stories about caring and cultural sensitivity.

Beyond his work in Special Collections, he serves as a volunteer crew chief for Raft Crisis Hotline for New River Valley Community Services. He is also vice president of Virginia Tech's student chapter of the NAACP and serves on the Virginia Tech History Council subcommittee that highlights restorative justice efforts for the university's 2022 sesquicentennial and beyond.

He said it's all part of his caring for others and living the Virginia Tech motto of Ut Prosim (That I May Serve). "I knew Virginia Tech was the place for me. Because my mom is an alumna, I would frequently visit campus growing up. In a lot of my baby pictures, I had VT gear on. I even had a little VT rattle."

Delving into the history of Virginia Tech, illuminating once silent stories, and advocating for improvements for all marginalized people keeps Pacheco excited, energized, and hopeful for the future.

"I'm grateful for the stories that I get to uncover and am grateful for my own family's stories," said Pacheco. "Through my work in the University Libraries, I get paid to discover where I belong and share that with the world." ■ AB

CHEESY NIGHTS

Keep Students Fueled Through Finals

by Ann Brown

VOLUNTEERS FOR THE UNIVERSITY LIBRARIES' Cheesy Nights service project in Newman Library cranked up the grill, flipped grilled cheese, served cookies and fruit, poured hot chocolate, and even gave encouraging hugs to stressed-out students during finals week in December.

Therese Walters, service project coordinator and wife of University Libraries Dean Tyler Walters, said Cheesy Nights began in 2011 with $100 for cheese, butter, bread, and a small griddle. During fall 2019 finals week, volunteers from across the Virginia Tech community, the region, and beyond served close to 4,000 sandwiches.

"In the last nine years, this project has grown and encouraged thousands of students to keep studying and working hard during finals week," said Tyler Walters. "This project models the service-oriented land-grant mission of Virginia Tech for our students. We know they will remember this and pay it forward when they can."

"We finished our 17th semester of finals with the help and donations of 103 volunteers, including parents, alumni, the Virginia Tech Women's Club, university employees, and community members kicking in cash, baked goods, and unbelievable hours before, during, and after the five nights before finals," said Therese Walters. "I quit counting the total number served since 2011 when we hit the 20,000 mark several years ago."

Elania White, a mom of two Hokies, traveled from her home in Wytheville to help prepare and serve sandwiches and snacks to students studying in Newman Library. She learned of the project through Facebook and knew she had to participate.

"We need to do this," said White. "A lot of kids don't have anyone here to help. Some don't have any meal plan money left and this is a hot meal for them. An encouraging word and knowing someone cares makes all the difference for students."

Lisa Graves came to Blacksburg to pick up her son William, a mechanical engineering major whose last exam was on the last day of final exams. "We live seven hours away, so I don't get an opportunity to help out very often. We came here early to do this. We're a third-generation Hokie family and we like to stay involved."

Hokie parents make friends during Cheesy Nights and stay connected over the years. Some even plan which days they will serve in order to see their Hokie parent friends.

"Parents are super involved with kids while they are in grade school and high school. Their kids come to college and parents want to do something to help," said Therese Walters. "How can you not do it?"

This year, Virginia Tech Police Department officers helped grill and serve sandwiches. Officer Micah Pasquarell said it's all about supporting students.

"It's fun to do this and it's so rewarding," said Pasquarell. "Students need to know that there are people cheering for them and rooting them on to get them past the finish line. It's fun to be a part of that."

Virginia Tech Police Officer Nigel Lee volunteered three nights to cook sandwiches. "We did 800 sandwiches the first night," said Lee. "I could smell them all night - smell the butter on my clothes. It's fun because the kids are so appreciative."

Gavin Gochnour, a second-year finance major, gave testimony to the stress-relieving power of grilled cheese.

"I have a big day tomorrow and it's going to be rough," said Gochnour. "I was stressed. I got my food and felt better. I think it's cool to see the community come together to encourage me while I study. Thank you to all the volunteers who helped me calm down. Everyone was extremely welcoming and kind."

Cheesy Nights is made possible through individual private donations to the University Libraries Excellence Annual Fund. This year, it is also made possible, in part, through the generosity of Donald W. Caudill and the Alfred and Shirley Wampler Caudill Special Events Fund. This fund was created by a gift from Caudill in honor of his parents and in appreciation for the sacrifices they made to support his education.

"So many donations of time, talent, and money along with a caring library make this service project a blast to do," said Therese Walters. "All involved have truly made a difference for our students. Thank you!"

Students line up for their grilled cheeses.

> "
>
> "I was stressed. I got my food and felt better. I think it's cool to see the community come together to encourage me while I study."
>
> Gavin Gochnour

Officer Pasquarell and Officer Lee flip grilled cheese to keep students fueled for finals.

800 grilled cheeses served the first night

17th semester running

103 volunteers

YOU GOT THIS

Excited students show off their sandwiches and drinks.

Cheesy Night photos by Liz McVoy, Elise Monsour Puckett, and Trevor Finney

FACULTY & STAFF
FOCUS

Video spotlights by Liz McVoy

Research Support and Nintendo knowledge

Meet Amanda MacDonald, the undergraduate research services librarian at the University Libraries. Amanda works directly with the Office of Undergraduate Research to provide students and faculty with research support as well as celebrating students' research activity on campus.

As a lifelong Mario fan, Amanda spends some of her free time playing Nintendo and collecting all their various consoles. If you stop by her office you might just catch a glance of some of her Mario figurines!

bit.ly/vtresearchandnintendo

Digital Days

Meet Kelsey Hammer, the digital literacy and multimedia production librarian at the University Libraries. Kelsey spends her time supporting and promoting digital literacy as well as creating all kinds of content for instructors on campus. Over the past two years, she's been making her way through the Library of Congress' National Film Registry, often renting DVDs or streaming content from the Library. It's safe to say that her film explorations inspire her work at Virginia Tech.

Get in touch with Kelsey at knhammer@vt.edu to learn more about digital literacy or discuss your favorite film!

bit.ly/vtdigitaldays
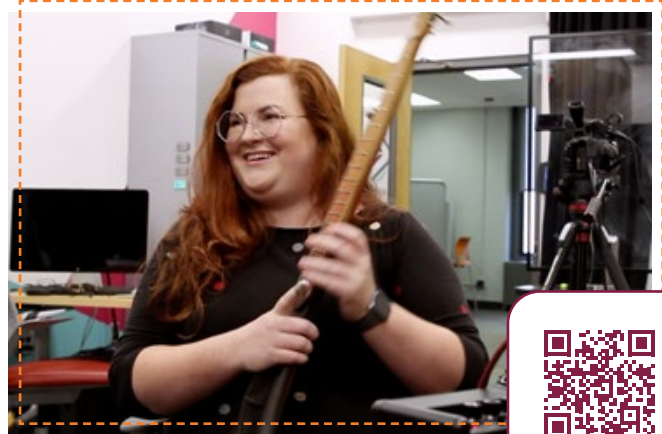
Media and Melodies

University Libraries' Media Design Studio Manager, Alice Rogers, spends her days connecting students and faculty with technology they need to create all kinds of media content. From software trainings and workshops, to coaching student workers and patrons, she ensures the Media Design Studios run smoothly. When not at the University Libraries, Alice taps into her music background by occasionally playing a wind controller as well playing the banjo in a local band.

Connect with Alice in the Media Design Studio or via email at rogersa@vt.edu.

bit.ly/vtmediamelodies

Community connections:

Ana Corral encourages connections within the region's LatinX community

THE UNIVERSITY LIBRARIES AT VIRGINIA TECH, a founding member of the Association of College and Research Libraries' Diversity Alliance for Academic Librarianship residency program, recently welcomed Ana Corral as its second resident.

In 2015, the three-year residency program began small and was housed at only the original four alliance universities — University Libraries at Virginia Tech, American University Library, The University of Iowa Libraries, and the West Virginia University Libraries. Now, the program includes close to 50 participating university libraries across the nation.

Anthony Wright de Hernandez, the University Libraries' Community Collections Archivist and Inclusion and Diversity Coordinator, was a member of the program's first residency cohort and its first resident.

Corral, a graduate of the University of California, Berkeley, and Wayne State University, said the position appealed to her because it offers the freedom to explore different areas of professional librarianship and the collaborative approach they have to tackling modern-day challenges in the field of library and information science. She was also drawn to the university's culture of service and is interested in fully immersing herself and engaging with the surrounding communities.

"One of the things that really appealed to me about the residency position in the University Libraries at Virginia Tech was the university's motto of Ut Prosim," said Corral. "I liked the emphasis on serving our communities and society."

Corral moved to Blacksburg from San Diego, California, which has a large Spanish-speaking community. As a first-generation college graduate, English is her second language and growing up, she did not see many Latinx professionals in and out of academia and knows the value and importance of seeing yourself represented in higher education. "It is important for people, especially young adults that are preparing for their academic future, to see a face that looks like theirs, especially in the library."

She said her supportive parents always encouraged her and her three sisters to further their education. "My parents went to college in Mexico, but didn't finish and instead came to the U.S. In Mexican culture, it is common for parents to want their children to stay close to home, to stay close to family, but my parents always encouraged me to go where I needed to go to be successful and happy. They only asked 'what do you need from me to help you,'" said Corral.

As a three-year resident in the University Libraries, Corral wants to learn as much as she can about the librarianship profession while making a difference in her community.

"School is a small fraction of what you need, it's a base. I am expanding upon what I learned in school," said Corral "I also want to create something that will live past my time here."

After her first three weeks in Blacksburg, she missed hearing Spanish being spoken and reading books in Spanish. She found herself drawn to El Centro, one of the community and cultural centers under the Office of Inclusion and Diversity.

"I met a lot of students who talked about missing the sense of community in language. They missed speaking Spanish and wanted someone to talk to," said Corral. "I jumped at the opportunity to become more involved in the organization and create something to fit that need."

The Comunidad Book Club was born. Corral saw this book club, a partnership between the University Libraries at Virginia Tech, the Blacksburg Public Library El Centro, and LASO, as a way to foster community and belonging and encourage people to form and maintain connections where they might not have originally sought to.

"Members of the Spanish speaking community at Virginia Tech have been searching for a place to speak in their language, to share ideas, and feel at home in an area where community and the familiar can be hard to find," said Corral. "Book clubs are places of connection, where people from different backgrounds gather to reflect, enjoy, and immerse themselves in stories.

"The Spanish-speaking community around Montgomery, Floyd, and Franklin counties is small but mighty, and connecting them with the Virginia Tech community will not only address the need for a sense of community but also provide a physical location to gather, share ideas, and be present, all in Spanish."

"I never intended this program to be just mine or just the University Libraries'; it does and should belong to the community," said Corral. "We are hoping to expand to other public libraries across the region. The University Libraries along with various partners can help cultivate a sense of belonging and welcome. The need is not just in Blacksburg, but also in other communities in Southwest Virginia." ■ AB

WE ARE CELEBRATING

the important work all of our faculty and staff do in the University Libraries.

Below is a selection of accomplishments from fiscal year 2019.

(July 1, 2018 - June 30, 2019.)

- **Craig Arthur** was named a mover and shaker in innovation by "Library Journal."
- **Annette Bailey** and **Stefanie Metko** presented "ePortfolios, digital badging, and high-impact practices: how next generation technologies are shaping learning engagement models in Academic Libraries" at OCLC Americas Regional Council Conference.
- **Sara Sweeney Bear, Alice Rogers,** and **Scott Fralin** contributed a chapter in the book The Social Future of Academic Libraries.
- **Lisa Becksford, Kayla McNabb, Kodi Saylor,** and **Kelsey Hammer** presented "Keep calm and cairn on: improving learning objects with guided feedback through usability testing" at the international LOEX conference.
- **Jonathan Bradley** presented "I reject this reality and substitute a virtual one: how to build a VR service for your library (or other space)" at EdUI2018.
- **Marc Brodsky** presented "The power of a single letter … or maybe fifty of them" at the Society of American Archivists, Military Archives Round Table, Washington, DC.
- **Andi Ogier, Anne Brown, Jonathan Petters, Amr Hilal,** and **Nathaniel Porter** published "Enhancing collaboration across the research ecosystem: using libraries as hubs for discipline-specific data experts" in the ACM International Conference Proceeding Series.
- **Cathryn Copper** presented arch_THECA_ture: technology for hybrid spaces in art and architecture libraries at the Association of Architecture School Librarians and the Association of College & Research Libraries conferences.
- **Yinlin Chen** and Edward Fox presented "Architecting the cloud-native data analysis application for ETDs" at the international conference ETD 2018.

- **Kirsten Dean** contributed a book chapter "From conversation to cultural change: strategies for connecting with students and faculty to promote OER adoption" in the open educational resource A Field Guide for Academic Librarians.
- **Julia Feerrar's** article "Development of a framework for digital literacy" was published in Reference Services Review.
- **Keith Gilbertson** presented "A native iPad app for DSpace7" at the Southern Miss Institutional Repository Conference 2019.
- **Lisa Becksford, Kiri DeBose, Edward Lener, Ginny Pannabecker,** and **Kodi Saylor** contributed the chapter "Sustaining graduate information literacy instruction: a case study of best practices" in Academic Library Services for Graduate Students: Supporting Future Academics and Professionals.
- **Corinne Guimont** and **Anita Walz** presented "A tale of two [open] textbooks" at the Open Education Southern Symposium.
- **Yinlin Chen, Bill Ingram,** and **Jim Tuttle** presented "A multi-tenancy cloud-native digital library platform" at the Open Repositories 2019 international conference.
- **Nathan Hall, Wen Nie Ng, Steve Tatum, Maureen Saverot,** and **Mary Lague** (Registrar of the Taubman Museum of Art) presented "Digital access Taubman: a case study of a partnership between the Taubman Museum of Art and Virginia Tech University Libraries" at the Virginia Association of Museums conference.
- **Tamara Kennelly's** article "The quiet path of an invisible man: Irving Linwood Peddrew III and desegregation at Virginia Tech" was published in Virginia Magazine of History & Biography.
- **Alex Kinnaman, Luke Menzies, Mary Leverance, Shira Peltzman,** and **Elena Colón-Marerro** presented "Make IT work: collaborating with IT to create sustainable preservation systems" at DigiPres2018.
- **Ellie Kohler** and **Connie Stovall** presented "Mining EZProxy data: user demographics & electronic resources" at the international Library Assessment Conference.
- **Gail McMillan's** article "ETDs in the 21st century" was published in Educause Review.

- **Rachel Miles'** article "Scholarly communication librarians' relationship with research impact indicators: an analysis of a national survey of academic librarians in the United States" was published in Journal of Librarianship and Scholarly Communication.
- **Jennifer Nardine's** article "The state of academic liaison librarian burnout in ARL libraries in the USA" was published in College Research Libraries.
- Richard Skarbez, Nicholas Polys, **Todd Ogle**, Chris North, and Doug Bowman published the article "Immersive analytics: theory and research agenda" in Frontiers in Robotics and AI.
- **Bess Pittman** presented "They're closing down the textile mill: preserving and engaging community in a mill town with no mill" at the Mid-Atlantic Regional Archives Conference.
- **Peter Potter** participated in the panel "Ripples across the pond: policy and funding environments for OA books across the Atlantic and implications for university presses" and served as the panel chair for "OA monographs as part of the information supply chain" at AUPresses 2019 meeting and presented "From the bottom up: can open monographs gain a foothold in North America?" at the OAI 11: CERN-UNIGE Workshop on Innovations in Scholarly Communication, 2019.
- **Aaron D. Purcell** published his book "The Digital Archives Handbook: A Guide to Creation, Management, and Preservation."
- **Jade Snelling** presented "Selection from Women of Design" at the Society of American Archivists Conference.
- **Ryan Speer's** review of "Ethics for Records and Information Management" by Norman Mooradian was published in American Archivist.
- **Sara Sweeney Bear** and **Patrick Tomlin** presented "The studios model: designing open spaces for creativity and innovation" at the Conference on Higher Education Pedagogy.
- **Samantha Winn's** article "Dying well in the anthropocene: on the end of archivists." was published in the Journal of Critical Library and Information Studies.
- The paper "Workshop on Web Archiving and Digital Libraries (WADL)" by Martin Klein, **Zhiwu Xie**, and Edward Fox was published in the 2019 ACM/IEEE Joint Conference on Digital Libraries (JCDL) proceedings.

Photo by Liz McVoy

Members of the Virginia Tech Publishing team discuss recent and upcoming publications.

The team helps faculty and students at every stage of the publication process, making authorship possible for more faculty and students.

University Libraries
560 Drillfield Dr
Blacksburg, VA 24061
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