




COLLABORATE
INNOVATE
CREATE
SHARE

UNIVERSITY LIBRARIES

PROGRESS REPORT 2018



UNIVERSITY LIBRARIES
VIRGINIA TECH.

The background of the page is a blurred photograph of a modern library interior. In the foreground on the right, the back of a person wearing a dark pinstriped suit jacket is visible. The background shows bright, rectangular light fixtures on the ceiling and blurred figures of people in the distance.

How do we define the 21st century research library? It's so much more than books and even electronic resources. The University Libraries at Virginia Tech fuels innovation and creativity. Through our technology-rich spaces and expert services, Hokies explore and create virtual worlds, print 3D models to test theoretical hypotheses, and transform numerical data into vibrantly visual depictions of world challenges.

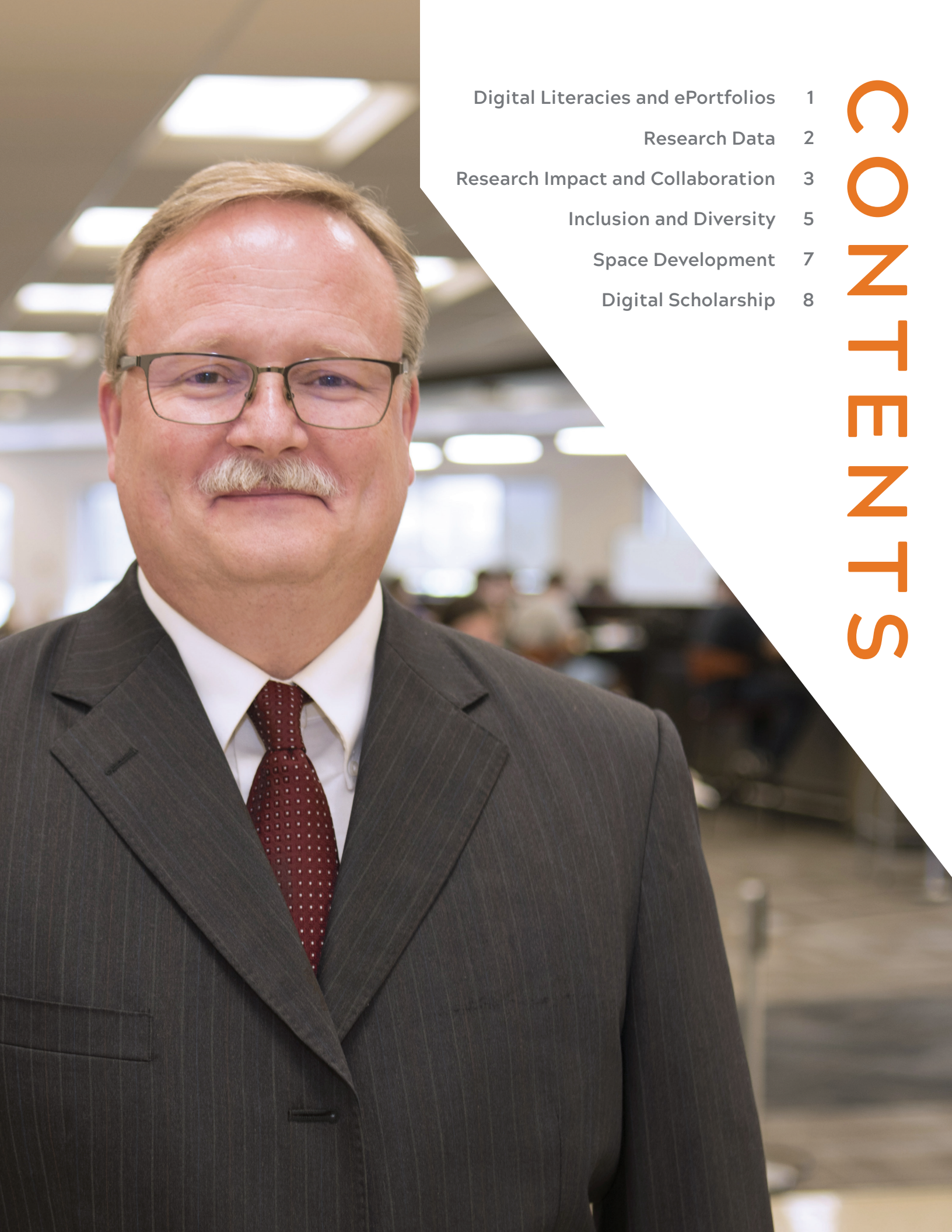
Throughout these pages, you will get a snapshot of our key accomplishments over the past year as well as the impact our services provide to the university, the Commonwealth, and the world. We will talk about the reach of VTechWorks, our digital library of Virginia Tech scholarship; the creative studios in which anyone can innovate, learn, and invent with the latest technology; tools researchers need so they can make a difference in society; support for openly accessible scholarship and educational resources; and the transformation of space into collaborative areas for faculty and students to make their ideas a reality.

Please join us in celebrating our achievements and in looking forward to another year of innovation, creativity, and service to our Virginia Tech community and beyond.

All the best,

A handwritten signature in black ink that reads "Tyler D. Walters". The script is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

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



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KEY ACCOMPLISHMENTS:

DIGITAL LITERACIES & EPORTFOLIOS

The University Libraries conceived and implemented an ePortfolios program to vibrantly showcase student and faculty work. During the last year, faculty interactions in the program increased by 122 percent from 27 to 221 unique faculty members and student engagement from zero to 8,561 students.



Wael Saab has gone from Ph.D. candidate to Adidas engineer after earning his doctorate in robotics and mechatronics at Virginia Tech.

While many doctor of philosophy graduates choose to become instructors in their fields, others use the extensive skill set they've acquired to take on industry work. Through constructing his ePortfolio, Saab found the latter to be his professional direction.

Saab was introduced to ePortfolios during the last year in his program when he came across an invitation to participate in the Fall 2017 ePortfolio Showcase. When he created his ePortfolio, he noticed a trend throughout all of his projects.

"Many of my projects in my ePortfolio centered on my published research," said Saab. "As I uploaded them, I noticed certain skills reappearing – skills such as mechanical design and manufacturing – as well as some of the software I'm proficient in. As you build your ePortfolio, you start to

see these trends, which is helpful in deciding where you should go professionally."

Since much of his ePortfolio showcases applied projects, Saab elected to seek industry work and interviewed with Adidas. Saab brought his ePortfolio to the interview and showcased his relevant projects. The activewear company was impressed that some of Saab's past work focused on the same manufacturing principles used for product design.

"Adidas engineers are keen on characterizing elements of fabrics because doing



I ENJOY GETTING TO SEE THE DIVERSITY OF MY PROJECTS, THE SKILLS I IMPLEMENT, AND HOW MY WORK HAS CHANGED OVER TIME.

- WAEL SAAB

so influences how products get manufactured," he said. "So, I showed them a project I had done where I created a robot that moves with fabric on its feet. Properties of that fabric were exploited to produce optimal robot locomotion, and the fabric can be modified to any sized robot."

Some of the strengths of an ePortfolio include multimedia elements and skill hashtags. Saab uses these features to both engage his audience with videos and diagrams, as well as become part of the portfolio platform's communities that also use similar hashtags. These tools help him make more connections in his industries of interest.

"I will maintain my ePortfolio throughout my career," Saab said. "I enjoy getting to see the diversity of my projects, the skills I implement, and how my work has changed over time. It's helped me determine my strengths and weaknesses, and it's been beneficial to both me and the company I am working for."

KEY ACCOMPLISHMENTS: RESEARCH DATA

The University Libraries launched two new studios, the Data Transformation Lab with specialized services GIS, data forensics, and data manipulation, and the Data Visualization Studio where patrons discover how to present their data in visually meaningful ways.

Virginia Tech is leading a grant-funded project to make web archives valuable to researchers.



The Institute of Museum and Library Services recently awarded a \$248,451 grant for a collaborative two-year project, Continuing Education to Advance Web Archiving, that will create materials to teach librarians and archivists across the world how to collect, extract, and analyze archived information from the World Wide Web.

Zhiwu Xie, chief strategy officer for the University Libraries at Virginia Tech, is leading the team of experts to create a curriculum surrounding the technology of web archiving and challenges related to how archivists and librarians can gather the most useful information from archived internet sites and social media.

"The web is the most prominent channel of communication we have today, and web sites change all the time. The web doesn't have a memory, so a history of time is hard to construct," said Xie. "Web archiving is about recording that memory."

Project team member and Virginia Tech professor

**I VIEW INFORMATION AS
A FUNDAMENTAL NEED
OF HUMANS.**

- ED FOX

of computer science Ed Fox believes in providing individuals and libraries the tools to better access and analyze the massive amount of archived information.

"I view information as a fundamental need of humans," said Fox. "The most visible information is what's available over the World Wide Web, and over time, in its archive. This information is invaluable for researchers studying areas such as trends in elections, technology, and the environment."

All of the project collaborators, including Xie, Fox, Martin Klein from Los Alamos National Laboratory, Michael

Nelson from Old Dominion University, Justin Littman from George Washington University, Ian Milligan from University of Waterloo, and Jefferson Bailey from the non-profit archiving organization Internet Archive, are pioneers in web archiving technology and infrastructure.

"Collectively, we have done a lot of work in creating tools for web archiving; we want to put our work to use and make an impact on society," said Xie.

By the end of the project, the collaborators will provide a collection of educational resources, a series of in-person and online training workshops, and cyberinfrastructure for deploying tools to support the curriculum and workshops – including source code.

"Library and archive professionals will be able to go beyond their traditional role as information providers or pointers and form deeper alliances with researchers," said Xie. "This will continue to transform libraries and archives from information repositories to knowledge producers."

KEY ACCOMPLISHMENTS:

RESEARCH IMPACT & COLLABORATION

The University Libraries created a new department to provide research services for communicating research impact and engaging in inclusive and collaborative research.

The University Libraries offers college, program, and course-specific support for enhancing research skills.



> INGA HAUGEN

EMBRACES HER ROOTS IN HER ROLE AS LIBRARY LIAISON

Farming analogies roll off Inga Haugen's tongue like hay bales off a baler.

"I love baling and stacking hay bales. Do you have any that I can stack? Sometimes I just miss it!," said Haugen, the University Libraries' liaison librarian for the College of Agriculture and Life Sciences. Baling hay, milking cows, and enjoying wide-open spaces are part of Haugen's history.

She grew up with her two brothers, Olaf and Thor, on Springside Farm near Canton in southern Minnesota. Her father, Vance Haugen, was an Extension agent for the University of Wisconsin, and her mother, Bonnie, ran their 100-head dairy farm. Her family also owns a 160-acre farm near Oklee in northern Minnesota, a farm that has been in the Haugen family for more than 100 years.

As a library liaison, she provides workshops and ser-

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**I LOVE THEM BEST,
THESE ARE MY PEOPLE.**

- INGA HAUGEN

vices for College of Agriculture and Life Sciences faculty, including those in the Agricultural Research and Extension Centers (AREC) across Virginia. Throughout the year, she visits the ARECs to provide updates from Newman Library in Blacksburg and offer information about research data management, new library resources, and potential collaborations with Haugen's library colleagues in digital libraries, research impact, data services, and the library studios.

"I love them best, these are my people," said Haugen. "Growing up on the farm, I saw first-hand the importance of ARECs. The information that they provide farmers could mean the difference between a red bottom line and a black bottom line in a farm's checkbook," said Haugen.

Haugen's recent travels took her to Hampton and the waterfront Virginia Seafood Agricultural Research and Extension Center (VSAREC) where the Hampton River opens to the James. There, she taught a workshop about the new search tool Discovery Search, digital object identifiers to track impact of published research, citation management tools, and opportunities to collaborate with the University Libraries' studios, such as the data visualization studio.

In turn, she learned about the latest research being



Haugen, Ramsey and Wilkinson discuss tobacco research.

conducted in their labs. Graduate student Sam Ratcliff described his research in shrimp reproduction that could potentially cut hatchery costs in half for the ornamental shrimp industry. The VSAREC is known for its conservation projects, seafood quality and safety expertise, and applied marine hatchery research and extension that all directly support the Virginia seafood industry – a growing industry that employs close to 7,000 Virginians.

Her second stop of the two-day trip was the Southern Piedmont Agricultural Research and Extension Center (SPAREC) in Blackstone. There, center director Carol Wilkinson, Department of Agriculture and Applied Economics faculty member Ford Ramsey, and Haugen discussed a collaborative research project that utilizes the center's 30 years of data about flue-cured tobacco, also known internationally as Virginia tobacco.

Haugen's goal is to take that data, currently in paper form, and transform it to digital files stored in VTechData in order to make it more accessible for future researchers.

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**THE UNIVERSITY
LIBRARIES IS CENTRAL TO
ANYTHING I WANT TO DO.**

- CAROL WILKINSON

When Haugen learned about Ramsey's research interest, she suggested that he visit the SPAREC and meet Wilkinson. Haugen knew about the unique and precious data he was searching for because she was making plans to digitize it.

Wilkinson and Ramsey discussed the best way to gather information from the tobacco production data and explored possible research collaborations. “I met Inga and mentioned my interest in

studying historical tobacco variety trials. Someone in my position would never think to come out here. This is invaluable,” said Ramsey.

Wilkinson and Haugen have worked together on a variety of projects, including new areas of research in industrial hemp.

“The University Libraries is central to anything I want to do,” said Wilkinson. “All of a sudden I have to learn about hemp. ‘Inga, where do I find information about industrial hemp?’ Her answer is always ‘I can help you with that.’ Inga has broadened my horizons about all of the things my librarians can do.”

KEY ACCOMPLISHMENTS:

INCLUSION AND DIVERSITY

The University Libraries continues to engage in activities that contribute to inclusion and diversity in the Libraries and across the university.

The Libraries collaborated with groups across campus on projects to enhance diversity including the International Archives of Women in Architecture and Digging in the Crates Leadership Board.

University Libraries collaborated with the Office of Accessible Technology to ensure existing open educational resources are accessible through a machine readable navigation structure.



**> ANTHONY
WRIGHT DE HERNANDEZ**
**PROMOTING DIVERSITY
IN ACADEMIC LIBRARIANSHIP**

Diversity is key to strong teams and organizations.

“Diversity in organizations promotes innovation and creativity,” said Tyler Walters, dean of the University Libraries at Virginia Tech. “People with different backgrounds think of things differently, see things from different angles, and solve challenges in a variety of ways. This is invaluable.”

For these reasons, Walters built a partnership with colleagues from American University Library, The University of Iowa Libraries, and West Virginia University Libraries to create The Diversity Alliance for Academic Librarianship residency program.

“The research librarianship profession is about four percent diverse. We are try-

ing to change that by providing a nurturing environment for those in underrepresented groups who may be interested in learning the ropes under the guidance of mentors,” said Walters.

In 2015, the three-year residency program began small and only housed at the original four alliance universities. Now, the program includes 36

participating university libraries across the nation.

“We are clearly beginning to make a national impact,” said Walters.

Community collections archivist Anthony Wright de Hernandez was a member of the program’s first residency cohort and its first resident at Virginia Tech. Wright de Hernandez found librarianship through many of life’s twists and turns.

“It took me 11 years to earn my bachelor’s degree in community studies. I went to school for three-and-a-half years, changed majors five times, and then completed my degree,” said Wright de Hernandez. “While in school, I realized the importance of libraries and their services for communities.”



He later earned his master of library and information science degree and was searching for career direction. At an American Library Association conference in Chicago, he learned about the The Diversity Alliance for Academic Librarianship residency program and applied for placement at Virginia Tech.

“I chose Virginia Tech’s program because it’s structured broadly,” said Wright de Hernandez. “I could see the opportunity to explore many areas of the profession. However, I chose to concentrate on three areas of the University Libraries – collections and technical services, special collections, and data services.” He found his niche in special collections.

“This is the first time in my life that I am able to combine what I wanted to do and what I get paid to do. I am a member of the LGBTQ+ community and bring perspective regarding what it’s like to be a part of a traditionally mar-

ginalized community,” said Wright de Hernandez. “That gives me a different perspective on collection development. I empathize with traditionally under-represented groups and strive to authentically reflect their experiences through our collections.”

After his three-year residency, Wright de Hernandez continues his important work as a full-time community collections archivist at Virginia Tech. “Now, my focus is growing what I began in my

residency and improving how our archives and special collections serve traditionally marginalized communities,” added Wright de Hernandez.

Walters participated in a panel discussion at the Association of Research Libraries and the Association of College and Research Libraries Symposium for Strategic Leadership in Diversity, Equity, and Inclusion in Minneapolis, Minnesota, to promote awareness and participation in the residency program.

“Back in 2015, there were just four of us creating this out of our back pocket. Our vision is for this program to continue to expand and become even more impactful,” said Walters.

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- ANTHONY
WRIGHT DE HERNANDEZ

KEY ACCOMPLISHMENTS: SPACE DEVELOPMENT

The University Libraries at Virginia Tech is a leader in promoting creativity and innovation by creating environments rich in emerging technology and providing library faculty who understand and teach the skills to use this technology.

> INNOVATE

EXPERIENCE CREATIVE
ENVIRONMENTS

VIRTUAL ENVIRONMENTS STUDIO

(opened in fall 2017) provides a reservable space for students, faculty, and other library patrons to engage virtual reality and augmented reality technologies.

DATA VISUALIZATION STUDIO

(opened in fall 2017) provides a space where students and faculty can learn how to present their data in beautiful and meaningful ways.

MEDIA DESIGN A AND B

(opened in spring 2018) is a student-focused media production studio comprised of two spaces. Studio A offers technology lending and iMac workstations with media production and editing software. Studio B is a bookable space where students can record videos, record audio/music, and edit projects on the studio's workstations.

3D DESIGN STUDIO now offers 3D scanning services. In the studio, students and faculty from across campus can freely print

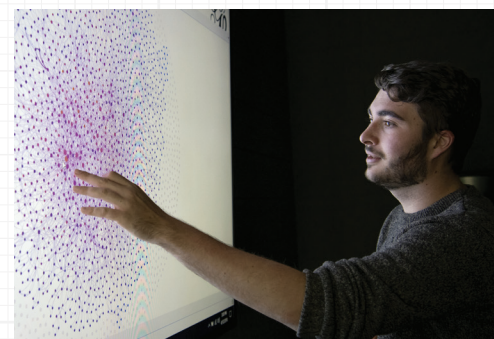
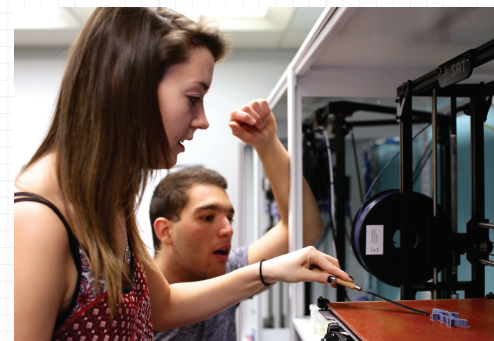
objects and learn about rapid prototyping, modeling, and additive manufacturing.

**ART AND ARCHITECTURE
LIBRARY** introduced 3D scanning technology.

THE VETERINARY MEDICINE LIBRARY

introduced new services including 3D printing, a smart-board, and enhanced equipment lending including laptops and projectors. It also partnered with the hospital to create 3D models for complex surgical cases and learning tools.

ATHENAEUM (opened in spring 2018) is a suite of space in collaboration with College of Liberal Arts and Human Sciences to cultivate digital research skills through collaborative, hands-on experience pursuing digital research projects.



KEY ACCOMPLISHMENTS:

DIGITAL SCHOLARSHIP

The University Libraries funded the publication of 104 freely downloadable scholarly articles written by 241 Virginia Tech authors. The University Libraries increased access to Virginia Tech scholarship in VTech Works, the digital library of scholarly work by the Virginia Tech community. Over the last year, learners and researchers across the globe downloaded scholarship from this digital library more than 16 million times, expanding the international impact of Hokie scholarship.



Anita Walz, open education, copyright, and scholarly communication librarian at the University Libraries, was recently awarded a 2018-19 Open Education Resource (OER) Research Fellowship.

The fellowship came from the Open Education Group, an interdisciplinary research group that “makes the world a better place by increasing the affordability and effectiveness of education.” The Open Education Group is supported by The William and Flora Hewlett Foundation, The Bill and Melinda Gates Foundation, HASTAC, and The David O. McKay School of Education.

During her fellowship, Walz will research the impact of open educational resources on the cost of education, student success outcomes, patterns of usage of OER, and perceptions of OER.

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OER IS A VALUABLE CONTRIBUTION TO COURSES AND HELPS ALL STUDENTS, ESPECIALLY THOSE WHO MAY NOT BE ABLE TO AFFORD TRADITIONAL TEXTBOOKS.

- ANITA WALZ

“My passion is empowering faculty to share their expertise with their students by creating freely and publicly shared learning materials as OER and adapting OER to fit their individual teaching needs at Virginia Tech and beyond,” Walz said. “OER is a valuable contribution to courses and helps all students, especially those who may not be able to afford traditional textbooks.”

Open Education Resources are freely accessible openly licensed textbooks, media, course materials, modules, software, and other digital assets that are used for teaching, learning, assessing, and research purposes. They are free to use online, customize, improve, re-mix, and re-purpose by others under the Creative Commons license. These books can be downloaded for free or printed at low cost.

The OER Research Fellowship allows Walz to attend the Open Education Conference in 2018 and 2019 and work with a supportive peer group of researchers from around the U.S. “This is a relatively new research area with great opportunities,” Walz said.

For more information about open education resources at Virginia Tech, visit lib.vt.edu/open-access.

THE 21ST-CENTURY LIBRARY

WHAT'S INSIDE

8
classrooms and meeting spaces

150+
events annually

8.4 million
ebooks

1.6 million
visitors annually

2,000+
manuscript collections in
Special Collections

8,600+
students highlighting their work in
ePortfolios with 2,600+ student
projects and 445+ unique
prospective employer follows

1,200+
items in VTechData, the research
data repository of the Virginia
Tech community

67,000+
scholarly works by faculty,
students, and staff in VTechWorks

SIX STUDIOS

PERMISSION TO PLAY: Library studios provide free access to emerging technologies, including advanced hardware, such as 3D printers and cutting-edge software, to encourage an atmosphere of discovery and experimentation.



UNIVERSITY LIBRARIES
VIRGINIA TECH.

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