

# 2018 R&I Annual Report

Reporting Period: (May 31, 2017-June 1, 2018)

## Organization & Personnel Report

In 2017, Erin Smith was hired as Health Sciences Research Librarian in Research Collaboration & Engagement, Chris Miller was hired as Digital Humanities Coordinator in Publishing Strategy, Nathaniel Porter was hired as Social Sciences Data Consultant and Data Education Coordinator in Data Services, Wen Nie Ng was hired as Digital Collections Librarian in Digital Imaging and Preservation Services (DI&PS), and Alex Kinnaman was hired as Digital Preservation Coordinator in DI&PS. In 2018, Luke Menzies was hired as Digital Preservation Technologist in DI&PS, Katelyn Toms was hired as Digitization Specialist in DI&PS, Steve Tatum joined DI&PS as Digital Collections Curator, and Janice Kim was hired as Software Engineer in Digital Library Development. In June 2018, Digital Library Development transitioned to a new division of Information Technology as part of a library-wide restructuring.

Steps taken this year to advance R&I and library-wide goals and to improve communication and collaboration across the division include development of R&I 5 yr and 2018 implementation plans, statement of core values, guiding philosophy, and launch of an email newsletter.

## Achievements by Library Strategic Initiative

### 2. Research Impact & Collaboration

- **Created a new Research Collaboration and Engagement (RCE) department** to partner with library liaisons and curators to provide campus-wide research services for communicating research impact, promoting inclusive and collaborative research, and conducting foundational research in emerging domains. RCE provided more than 131 support interactions (consultations, course sessions, full courses, workshops, or collaborative support) to more than 2091 people. Each interaction was tailored to area/topic-specific research project or training needs.
- **Expanded educational offerings**, including new content and instructors for the annual program: Get Noticed: Managing Your Scholarly Career in an Age of Metrics, Social Media, and Open Research. Contributed to the Preparing the Future Professoriate course ([GRAD 5104](#)) through 2 3-hour panel discussions on open access, once during the Fall semester and once in the Spring. Consulting area/s: Developing an online presence.
- **(Service Expansion: Univ. Community - Research Service) Expanded support for systematic reviews.** Expanded educational offerings on systematic reviews from 2 per year to 4 and from 12 participants to 96. Provided consultations for several projects (17+), including a text mining project for the Biocomplexity Institute. Evidence synthesis methods

and tools are key to gaining insight from today's available information, for establishing foundational research for cutting edge and interdisciplinary topics. Consulting area/s: Evidence synthesis/systematic reviews; Mining scholarly literature text and data.

- Provided students in Public Health, Neuroscience, and Biochemistry with the opportunity to leverage their disciplinary knowledge in the **creation of educational content for the Master Health Research Literacy Project** and to reflect on their experience. Outcomes include internal presentations to a stakeholder group; co-authored presentation for a regional conference, and drafts of 3-4 part modules on 3 topics (vaccines and antibiotics, graphic medicine, and genetics). Consulting area/s: Creating openly licensed content; Expert searching; Community engagement. University Initiative: Experiential Learning; Health Sciences and Technology Campus.
- **(Service Expansion: Univ. Community - Research Service) Completed the search process to hire a Research Impact Librarian** to lead efforts to assess impact service needs, coordinate research impact consulting services with liaisons, develop a communication and outreach plan for Altmetrics Explorer, and expand research impact educational programs. Efforts to prepare for research impact services include launch of an Elements CV pilot project and creation of resources to assist scholars with [communicating impact](#) (used 480 times). RCE worked with Faculty Affairs and Collections and Technical Services to make Altmetric Explorer, a key database for research engagement data, available campus wide and began the Elements support pilot project. These services make it easier for faculty and administrators to learn more about and share the impact of their research, scholarship, and other works. Consulting area/s: Understanding current research information systems; Modeling and curating institutional data; Learning how to prepare a comprehensive impact report; Health information.
- **Launched early campus-wide support for research collaboration.** Provided consultations and organized a panel session. 67 members of the VT community used the VT Libraries supported Open Science Framework (OSF). Consulting area/s: Using the Open Science Framework.
- Usage also continued to be high for **LibGuides created by members of the RCE department:**

LibGuide	Engagement
Translational biology, medicine and health (TBMH)	8088 views
Systematic Reviews and Meta-Analysis	6108 views
BIOL 1004 FYE Course Guide	5969 views
HNFE 4004 Research Resources	2299 views
Psychology	1803 views

BCHM 1014 Research Resources Biochemistry FYE	1775 views
Human nutrition, foods, and exercise	1693 views
Biological sciences	1671 views
Health Sciences	1639 views
HNFE 2014 Research Resources	1379 views
NIH Data Sharing Plan Guide	1149 views
Medicine	1110 views

### 3. Research Data

- Organized a Health Analytics Summit aimed at **developing community around the interdisciplinary topic of health data**. 97 participants representing 40 unique departments and institutes engaged in dialogue and a research showcase that improved our understanding of health data discoveries, questions, perspectives, and interests. Partners included College of Business, College of Liberal Arts and Human Sciences, College of Science, Virginia Tech Carilion Research Institute, Virginia Tech School of Medicine, and Carilion Clinic. The Libraries' were invited to co-sponsor a health data conference with Carilion Clinic in August 2018. Consulting area/s: Informatics (all); Health information. University Initiative: Beyond Boundaries; Health Sciences and Technology Campus.
- (Service Expansion: Univ. Community - Student Work Exp., Experiential Learning, and Research Service)** Launched two data science studios, the **Data Transformation Lab** with specialized services for geospatial information systems (GIS), data forensics, and data manipulation, and the **Data Visualization Studio** where students and faculty can discover and learn how to present their data in visually meaningful ways. In the Data Visualization Studio, students led workshops, consulted with faculty and students on a wide range of projects including transdisciplinary collaborations, visualizing the destination areas, and detailed diversity breakdowns. Two students presented at ICAT day and a graduate student helped write an ICAT proposal and collaborated with Biocomplexity faculty on opioid visualizations. The Data Transformation Lab hired 4 students for GIS and digital forensics support and provided 45 separate consults, including the following spotlighted consultation - [University Libraries Data Transformation Lab builds collaboration and enhances research](#). In addition, DTL has partnered with the department of Geography to support an undergraduate internship. Consulting area/s: Data visualization (all); Recovering data; Using geospatial information systems; Processing and generating data. University Initiative: Beyond Boundaries; Experiential Learning.
- Expanded data education programs. Delivered an **exemplar 1.5-day Data Essentials Workshop** for graduate teaching assistants for the Data in the Social Context course offered in conjunction with College of Liberal Arts and Human Sciences and the Data and Decisions Destination Area. Contributed 17 data-themed guest lectures in courses.

Developed Qualitative Text Analytics and Data Visualization series, offered 10 data themed workshops and 6 Software Carpentry-inspired workshops, taught GRAD 5024, partnered with Honors College on Discovery Innovation Studios courses, partnered with CLAHS/Data and Decisions Destination Area to support GTA cohort for Data in a Social Context course. Consulting area/s: Data visualization (all); Understanding data/data science. University Initiative: Beyond Boundaries.

- **Provided data consulting services and established core programs of the Informatics Lab** (platform for data science collaborations). Consults include 300 research projects, 30 collaborations, 8 full project partnerships, 30 DMP consults, and 57 data extraction/collection/discovery projects. Outcomes include consultants as co-PIs on 6 grant applications led by researchers outside the Libraries and contributions to 17 publications. Increased knowledge of machine learning and deep learning to expand our informatics expertise. Consulting area/s: Preparing a data management plan; Informatics (all).
- **Provided and improved campus-wide data management and curation services.** Made progress on software development to improve the functionality of VTechData, including steps towards allowing for deposit from the Open Science Framework (in partnership with the Center for Open Science) and batch loading and export of files and metadata. Developed a process for curating large datasets whereby curators transfer the dataset into VTArchive using Globus (a partnership with Advanced Research Computing) and link to the dataset from a record in VTechData. Consulting area/s: Depositing in VTechData.
- **(Service Expansion: Univ. Community - Student Work Exp., Experiential Learning, and Research Service) Developed a proposal for Data Bridge:** a library student research/consulting cohort that builds on foundational work in Bevan & Brown Lab to support data analytics, curation, and visualization. Hired and trained 20 students in specialized consulting methods, supported over 100 projects, and provided 6 student teams with 40 credit hours of undergraduate research per semester. Outcomes include a student national fellowship recipient, 2 published papers with student co-authors, and 20+ presentations at local and national conferences. Consulting area/s: Understanding data/data science. University Initiative: Experiential Learning; Beyond Boundaries.

#### 4. Digital Libraries

- **Engaged in digital library-driven data science partnerships.** Partnered on data streaming projects with Mechanical Engineering, Math, and Computer Science and the Goodwin Hall Living Lab and contributed ideas for advancing this work in a Data and Decisions NSF proposal. Built a prototype computer music repository with Professor Ico Bukvic and partners in the School of Performing Arts and the Institute of Creativity, Arts, and Technology. Consulting area/s: Creating a new open access repository system; Creating an accessible repository system. University Initiative: Beyond Boundaries.
- **Launched phase one of the VT, Appalachia, and Commonwealth Archive** with community partners Virginia Tech Squires Theatre, Barter Theatre, Montgomery Museum,

City of Crewe, VA, and Reynolds Homestead. <http://di.lib.vt.edu/> Tested, configured, and deployed Omeka as short-term digital library platform to host multiple content types. Produced over 163,000 digital objects for the archive. Established workflows and relationships for Digital Public Library of America harvesting through the Digital Virginia's Service Hub. Proposed process for gathering stakeholder input, documented functional requirements, and developed business plan for phase two of the digital library. University Initiative: Community engagement.

- **Expanded Digital Imaging Lab** into Digital Creation Suite through technology acquisition and collaborative space consolidation with Special Collections to reduce redundancy, combine efforts of Digital Imaging and Preservation and Special Collections. Outcomes include increased potential for higher production volume and broader scope of materials the University Libraries can digitize.
- **(Service Expansion: Public - Community Engagement) Launched regional digitization service** and produced digitized content in open formats of cultural heritage collections of enduring value to community partners: Virginia Tech Squires Theatre, Barter Theatre, Montgomery Museum, City of Crewe, VA, and Reynolds Homestead. Consulting area/s: Digitizing materials; Producing digitized content in open formats. University Initiative: Community engagement.
- **Digitized materials resulting in** over 163,000 images and derivatives in various file formats. Totals per file format and hard drive space: 91,550 tiffs with a new total of 223,550, 151,110 jpegs with a new total of 179,110, 5.68TB of hard drive space with a new total of 8.02TB, 6 3D photogrammetry specimens from the Virginia Tech Geosciences Museum, and 5 3D photogrammetry models of sculptures from the Taubman Museum in Roanoke, Virginia.
- Initiated and engaged in community initiatives through the Institute of Museum and Library Services grant, "Developing Library Strategy for 3D and Virtual Reality Collection Development and Reuse", to **understand trends in photogrammetry practice** and library service model development. Held the first national forum on 3D and virtual reality content creation and publishing. Partners include University of Oklahoma and Indiana University.
- Developed **Collection on Higher Education Policy for Minorities in the United States** (<https://vtechworks.lib.vt.edu/handle/10919/82860>), an online collection of 500 open access documents that provide a comprehensive and balanced view on higher education policy analysis for minorities in the United States. Consulting area/s: Creating an open repository collection. University Initiative: Beyond Boundaries; Diversity and Inclusion.
- **Launched an Accessibility Club** to address cross-departmental digital accessibility issues, concerns, and opportunities. Partnered with the Office for Equity and Accessibility on collaborative learning projects. Contributed accessibility recommendations to the COMPEL computer music repository project. Consulting area/s: Creating an accessible repository system. University Initiative: Diversity and Inclusion.

- **Installed and tested digital curation platforms and tools as virtual machines** with the aim of providing practical direction to colleagues on which tools to use and how to best integrate disparate procedures involved with data creation, digital imaging, preservation storage & maintenance, and digital library access.
- **Other digital library service activities** include drafting and updating a new [Digital Preservation Policy](#) (statement of principles, preservation procedures, and collection level metadata guidelines), developing preservation LibGuides, developing a digital library project review and evaluation process (including a workflow for digital humanities projects that would span the whole life of a project from prototyping to archive), and creating a digital library technology roadmap with defined short term and long term goals.
- **Digital library development achievements** include securing \$248,451 from the Institute of Museum and Library Services (IMLS) for “Continuing Education to Advance Web Archiving”, code contributions to the Fedora project (Fedora 4 docker project downloaded over 2900 times), completing the prototype International Archive of Women in Architecture digital library, increased library-wide knowledge Amazon Web Services, custom web archiving index development, resolution of 550 recorded digital library issues, and completion of the subcontract for the IMLS-funded Educopia ETD Curation Workbench project. Consulting area/s: Creating a new open access repository system.

## 5. Digital Scholarship

- **Funded open publication** of 104 scholarly articles written by 241 unique Virginia Tech authors. \$123,571 supported new scholarship produced by VT students, staff, and faculty in 14 colleges/centers/institutes. Since the pilot fund began (FY 2013-2014), OA articles support has grown 89% from \$58,700 to \$123,571 with a larger increase in articles: 111% from 55 to 104.
- **Increased open access to institutional resources** in VTechWorks with 4,357 new items total, 803 items in new Beyond Boundaries collections, 413 scholarly articles deposited through Elements, 470 new peer reviewed articles from open access publishers BioMed Central (existing), MDPI and Hindawi, and the new interdisciplinary faculty/student Vaccine Research Group collection. The repository received 520,480 item views and 6,025,112 downloads; average downloads per day (3,620 ) is one of the highest among Repository Analytics & Metrics Portal members, second only to University of Michigan’s Deep Blue. Noteworthy collections developed this year include:
  - [James D. McComas Staff Leadership Seminars](#)
  - [Information Systems for Biotechnology](#)
  - [PPE: Program in Philosophy, Politics, and Economics](#)
  - [Vaccine Research Group](#)
  - [Faculty Works, Department of Chemistry](#)
  - [Southern Industrial Educational Association](#)

- **Integrated repository with university infrastructures**, including 1) implementing Repository Tools 2, which will allow the harvest of metadata from VTechWorks to Elements, increasing the exposure of VTechWorks collections to faculty when using Elements and enhancing faculty efficiency using Elements, and 2) ETD direct submission process in VTechWorks, which eliminates the need for the legacy ETD-db system. Partners include Digital Science and the Graduate School. University Initiative: Scalable and Sustainable Infrastructure for a Top 100 Global University.
- **Delivered workshops and public programs on open movements**, including campus-wide programs on using open methods in teaching in STEM disciplines (Dr. Lorena Barber, George Washington University), open workflows for research quality, reproducibility, and diversity (Dr. Jeff Spies, Center for Open Science), and open education practices: equity, achievement, and innovation (Dr. Rajiv Jhangiani, Kwantlen Polytechnic Institute). In total, over 350 attendees participated in over 20 workshops, and we continued to provide campus-wide leadership as coordinators of Open Access Week and Open Education Week. Consulting area/s: Advising on Creative Commons licenses; Open education (all); Understanding trends in scholarly publishing. University Initiative: Economic Development; Beyond Boundaries; Diversity and Inclusion.
- **Increased outreach and advocacy on open access and open education**, as demonstrated by our continued engagement in Open Access policy conversations with the Commission on Research and members of the university community, membership this year in the Coalition of Open Access Policy Institutions (COAPI), workshops on open pedagogy practices, 723 open-themed consulting sessions with faculty, students, and community/public, as well as by usage of our curated resources (see list below). Consulting area/s: Open education (all); Understanding open pedagogy.

Resource name	Authors/contributors	Resource type	Engagement
<a href="#">Open@VT</a>	Young, Walz, Pannabecker, Potter, Lawrence, Guimont	Blog	3,700 views
<a href="#">@openatvt</a>	Young	Twitter account	800 followers
<a href="#">OpenVT</a>	Young, Walz	Google email group	138 members
<a href="#">ETDs</a>	McMillan	LibGuide	9,019 views
<a href="#">OASF</a>	McMillan	LibGuide	2,405 views
<a href="#">Open Access</a>	Young	LibGuide	1,386 views
<a href="#">Open Education</a>	Walz	LibGuide	14,056 views
<a href="#">ORCID</a>	Young	LibGuide	234 views

- **Published new journals and articles and migrated legacy journals to Ubiquity**. We supported a total of 50 journals: 10 active journals, and 40 archived, embargoed, or dormant journals. We completed the migration of 6 journals to Ubiquity Press; 2 journal

migrations are still in process. We moved 1 journal to archived status (Journal of Research in Music Performance). We migrated 583 articles to Ubiquity Press and published 54 new articles. We processed 90 articles for accessibility, consulted with 16 individuals on digital authoring and digital layout editing, and released 329 embargoed articles for open access publication. Our services supported 62 students and 14 faculty members and we estimate our VT Publishing (OJS, Scholar, and Ubiquity) page views total over 600,000. Consulting area/s: Establishing a new open access journal; Selecting and using digital authoring tools; Selecting and using digital editing tools.

- **(Service Expansion: Univ. Community - Publishing Service) Supported book publishing.** We supported by subvention of \$5,000 publication of the open access book, “*A Colonial Affair: Commerce, Conversion, and Scandal in French India*” by CLAHS faculty member Danna Agmon (the first supported by the Towards an Open Monograph Ecosystem (TOME) initiative) in collaboration with CLAHS and the Provost’s Office. We published “*RE: Reflections and Explorations: A Forum for Deliberative Dialogue*” by public and international affairs professor Max Stephenson Jr., the student authored and edited “*Welcome to the Beatles*” as part of a course taught by history associate professor Robert Stephens, supported 73 student authors of chapters in books, supported 3 faculty members as editors/advisors of books, and supported 30 faculty members via consulting on their monographs (60 hours spent reviewing book proposals and advising on finding a publisher). We consulted with 11 individuals on digital authoring and digital layout editing specifically for book publication. Consulting area/s: Producing and publishing books; Selecting and using digital authoring tools; Selecting and using digital editing tools.
- Supported 10 **digital humanities projects**, including Daniel Newcomb’s [VPI in World War I](#), LaDale Winling’s [Redlining Virginia](#), David Radcliffe’s [Lord Byron and his Times](#), Tom Ewing’s and Daniel Newcomb’s [Roanoke Valley in the Great War](#), Ed Gitre’s *The American Soldier in World War II*, Todd Ogle’s *Christiansburg Institute (CI Spy)* project, and the multi-author and multidisciplinary *Shakespeare’s Garden Virtual Reality Project*.
- In support of our goals to **explore publishing partnerships that reinforce University priorities**, we publish *RE: Reflections and Explorations* which aligns with the Equity and Social Disparity in the Human Condition SGA (55 students published this year); we publish *Community Change* which aligns with the Intelligent Infrastructure for Human Centered Communities DA, the Equity and Social Disparity in the Human Condition, the Policy SGAs; and we publish *SPECTRA* which aligns with the Equity and Social Disparity in the Human Condition SGA (9 students published this year). University Initiative: *Beyond Boundaries*.
- **Supported the creation and publication of Open Educational Resources (OERs)**, including [Electromagnetics](#) [vol. 1 beta] by Steven Ellingson, faculty member in Electrical and Computer Engineering. The book has received 7,704 downloads to date; 2202 views in last 6 months. Open@VT [announcement](#) Jan. 18; [Fundamentals of Business, 2<sup>nd</sup> ed.](#) by Skripak, Stephen J., [Virtual Reality Dog](#), Thomas Tucker/Anita Walz, and [Augmented Reality Dog](#). Consulting area/s: Open education (all); Producing and publishing books.

- As a member of the Open Textbook Network (OTN) Publishing Cooperative we **received training in Scribe production workflow** and have translated pieces of this workflow to use while migrating Microsoft Word files to PressBooks.
- **(Service Expansion: Univ. Community - New Academic/Research Programs, Student Work Exp., Instructional Service) Launched Athenaeum in Fall 2017.** Configured Athenaeum rooms for use, established instructor partnerships, provided classroom and project support beginning Fall 2017. Consulting area/s: Digital humanities (all). University Initiative: Beyond Boundaries.

Athenaeum Fall 2017 stats		
Semester-long Courses Supported (4)	Student count	
Intro to Data in Social Context (MW)	25	
Russia Since Communism (TTH)	19	
Issues in Public Discourse (TTH)	17	
Research Seminar in History (TTH)	23	
Series Meetings Supported (3)	Average count	
STS Seminar Series (7 mtgs)	31	
What Is Health? Series (4 mtgs)	15	
Data in Society Forum (3 mtgs)	10	
Individual Events (16)	Attendee count	Remote
Oral history workshop (9/6)	8	
NEH Fellowships (9/13)	12	1
Paul Laqueur met Humanities fac. (9/14)	11	
NEH Program Officer Teleconference (9/20)	18	2
Ethnochoreology Telemeeting (9/25)	5	4
Danna Agmon History class presentations (10/18)	21	
Special Collections visit (10/20, two sessions)	65	
Phi Beta Kappa Speaker (10/25)	15	
AD Carson lecture (11/3)	8	
Advancement visit (11/6)	3	
Website wireframing workshop (11/9)	12	
Ed Gitre WWII meeting (11/20)	9	3
17 Moments in Soviet History meeting (11/28)	15	1
Omeka Users Group meeting (12/6)	21	
Viral networks (12/11)	8	7

Website wireframing workshop (12/14)	12	
Athenaeum Spring 2018 stats		
Semester-long Courses Supported (7)	Student count	
Data in Society (MW)	21	
Black Aesthetics (MW)	18	
Digital History (TTH)	8	
Data Visualization (TTH)	28	
20 <sup>th</sup> -century Russia (TTH)	25	
Strategic Management (M, grad)	10	
HR in the Arts (W, grad)	12	
Series Meetings Supported (2)	Average count	
STS Seminar Series (9 mtgs)	29	
DH Seminar Series (8 mtgs)	8	
Individual Events (11)	Attendee count	Remote
NLI Get Noticed	29	
Health Analytics	50	
Athenaeum Opening	60	
DitC Challenge Hour	15	
Douglass Day Transcribe-a-Thon	35	
VE Day Transcribe-a-Thon	68	800+
Peace Studies Poster Session	35	
Python programming for DH (2 sessions)	25	
R programming for DH (2 sessions)	23	
Wiki edit	25	
Podcasting workshops (3 sessions)	15	

## 7. NCR & Roanoke/HS&T Development

- **(Service Expansion: Univ. Community - Roanoke - Research Service, Instructional Service) Connected Virginia Tech Libraries' data and information services with the Health Sciences and Technology Campus.** Developed resource needs and service model scenarios for the forthcoming Biomedical Research Expansion Library. Worked collaboratively with the Virginia Tech Carilion School of Medicine (VTCSOM) Integration Committee and VTCSOM Library administrators and staff on planning for VTCSOM Library joining Virginia Tech Libraries. Consulting area/s: Health information. University Initiative: Health Sciences and Technology Campus.

- **Supported digital research methods and environments through broad collaboration.** RCE Health Sciences Research Librarian attended Science of Team Science Conference, supported 5+ collaborative research projects, incorporated collaboration tools methods in 3 workshops, and hosted the first “How to Be a Collaborator” workshop. Consulting area/s: Research collaboration (all); Understanding research collaboration methods (team science).
- **Engaged in publishing activities that support scholarship in the National Capital Region.** Publications supported include the [RE: Reflections and Explorations](#) volume (numerous student authors from NCR, Institute for Policy and Governance, and the School of Public and International Affairs) and ongoing discussions with Tom Sanchez (SPIA) about moving [International Journal of Urban Housing Policy](#) from Taylor & Francis to VT Publishing. Consulting area/s: Producing and publishing books; Deciding whether to transition a journal to open. University Initiative: National Capital Region.

## 9. Advancement

- [JUMP crowdfunding campaign](#) raised over \$2,500.00 to support the creation of Open Educational Resources.

## 10. Inclusion & Diversity

- **Partnered with campus units on accessibility and launched an Accessibility Club** to address cross-departmental digital accessibility issues, concerns, and opportunities. Collaborated extensively with Office of Accessible Technology for open educational resources. Partnered with the Office for Equity and Accessibility on collaborative learning projects. Contributed accessibility recommendations to the COMPEL computer music repository project. University Initiative: Diversity and Inclusion.
- **Developed the VTechWorks collection, “Higher Education Policy for Minorities in the United States,”** created by graduate assistant Andrea Briceño Mosquera, a collection of 500 open access documents that provide a comprehensive and balanced view on higher education policy analysis for minorities in the United States. University Initiative: Beyond Boundaries; Diversity and Inclusion.
- **Expanded access to VTechWorks content and expanded diversity and inclusion collections,** including captioning 300 videos and creating new [Office for Inclusion and Diversity \(OID\)](#) and [Interloper](#) collections. University Initiative: Diversity and Inclusion.
- We **organized and offered sessions with inclusion and equity themes** throughout the year, including “Developing Effective Teaching Practices for Identity and Inclusion in Agriculture and Life Sciences” (Haugen), “Taking Stock of Military Veterans’ Human Capital in an Agriculture Context” (Haugen), Safe Zone 101 training taught by Wright de Hernandez and Haugen, LGBTQ+ and the Media session training by Wright de Hernandez and Haugen, “[An Open Solution for Urgent Problems](#): Increasing Research Quality, Reproducibility, and Diversity,” guest lecture by Jeff Spies (COS) (621 downloads), and

[“Open Educational Practices: Equity, Achievement, and Pedagogical Innovation,”](#) by Rajiv Jhangiani during the VT Open Education Symposium (440 downloads).

## Achievements by University Initiative

- Beyond Boundaries
  - Health Analytics Summit (Data & Decisions; Adaptive Brain & Behavior)
  - Launch of Data Visualization and Data Transformation Studios (Data & Decisions)
  - Data Essentials Workshop (Data & Decisions)
  - Data Bridge (Data & Decisions)
  - Goodwin Hall Project (Data & Decisions)
  - COMPEL Project (Creativity & Innovation)
  - Workshops and public programs on open movements (All)
  - Launch of campus-wide research impact and collaboration services (All)
  - Launch of book publishing service through TOME (All)
  - Launch of Athenaeum (Data & Decisions, Creativity & Innovation, Equity and Social Disparity in the Human Condition)
- Experiential Learning
  - Master Health Literacy Project
  - Launch of Data Visualization and Data Transformation Studios
  - Refined proposal for Data Bridge experiential learning hub
- Community Engagement
  - Launched phase one of the VT, Appalachia, and Commonwealth Archive
  - Launched regional digitization service
- Diversity and Inclusion
  - Developed VTechWorks collection on Higher Education Policy for Minorities in the United States
  - Completed prototype International Archive of Women in Architecture digital library
  - Delivered equity- and diversity-themed workshops and public programs
- Scalable and Sustainable Infrastructure for a Top 100 Global University
  - Integrated repository services with university infrastructures (Elements, Graduate School ETD Submission System)
- Economic Development
  - Delivered workshops and public programs on open movements
  - Offered instruction/training on digital research methods
- Health Sciences and Technology Campus
  - Connected Virginia Tech Libraries’ data and information services with HS&T
- National Capital Region
  - Engaged in publishing activities that support scholarship in the National Capital Region

# Reflection

- **Research Impact & Collaboration.** The focus this year was leading the search process and hiring a new Research Impact Librarian responsible for developing and coordinating the Libraries' research impact services, which should help to address any outstanding 2018 goals. The RCE team launched the Elements CV pilot project, setup and configured Altmetrics Explorer (AE), partnered with Faculty Affairs to integrate AE for Institutions with Elements, and offered consulting and education through workshops, libguide development, and in person consults. We are on target to complete our goal of delivering a collaboration workshop series in fall 2018. Due to software procurement issues, progress was delayed on the systematic review software testing project.
- **Research Data.** In terms of meeting our goals to refine VTechData services, we began capturing repository use analytics, added batch download functionality, and have only to move the code to production to complete the integration with Open Science Framework. In terms of outreach and service expansion, we successfully transferred data using Globus, increased our knowledge of machine learning and deep learning, and expanded our data education efforts. We reached established student research/consulting cohort goals, and added a student team for data recovery and forensics. Outstanding actions are the addition of batch metadata download functionality to VTechData and increased outreach for data curation and management services.
- **Digital Libraries.** We increased our support and capacity for digital imaging and preservation services by hosting the first forum for a national project to explore 3D imaging best practices, partnering with Special Collections to increase collaboration across imaging spaces, initiating new scanning projects for the regional digitization service, and increasing documentation of preservation services for different repository systems. Our efforts to develop the next generation digital library infrastructure include increased adoption of SCRUM practices, launch of the Accessibility Club, pursuit of grant projects, launch of two prototype digital libraries, development of functional requirements for the VT, Appalachia, and Commonwealth Archive, multidisciplinary data/digital library research collaborations, and high impact code contributions. Outstanding actions are the BeyondVT project, establishing a digital library technology stakeholders team, and collaborations to address DOI services.
- **Digital Scholarship.** We increased access to institutional resources by developing new VTechWorks collections for DAs/SGAs (and added to this goal a collection for the office of inclusion and diversity), joining COAPI and contributing to ongoing conversations about a campus-wide open access policy, and establishing initial workflows for archiving Ubiquity content in VTechWorks. We transitioned a high volume of journal content to Ubiquity Press, clarified support for and provided digital authoring and digital layout editing services, established a digital humanities project workflow model, and continued to offer a wide range of workshops on digital scholarship, including sessions on open education and open pedagogy. We made connections with the Equity and Social Disparity in the the Human Condition (ESDHC) SGA and intend to support any future publications produced by the

group. A noteworthy achievement was launch of Athenaeum and delivery of a diverse set of digital humanities workshops. Outstanding actions include efforts to connect with the Innovation & Creativity SGA and InclusiveVT leadership, creation of OER videos for Odyssey and infrastructure development for OERs.

- **NCR and HS&T/Roanoke Development.** We continued to contribute to space planning for the new Biomedical Research Expansion Library and planning for the VTCSOM Library merger. Efforts to expand educational offerings in Roanoke include increased team science workshops. Outstanding actions include expansion of educational programming in NCR.
- **Inclusion and Diversity.** We increased access to VTechWorks video content, organized workshops on and engaged in professional dialogue about open pedagogy, and delivered equity and inclusion themed programs. Outstanding actions include supporting InclusiveVT publications and reporting training and certifications and faculty and staff diversity; the latter will be addressed next year through partnerships with the Dean, Human Resources Director, and Library Council.

In summary, we achieved substantial growth in our service portfolio including expanded campus-wide support for book publishing, expanded campus-wide support for systematic reviews and research impact services, launch of technology-enriched spaces for digital humanities and data creativity and innovation, expanded support for data science student work and experiential learning opportunities, new partnerships through the Libraries' regional digitization service, and expanded research support for the Health Sciences and Technology Campus. These and other efforts supported priorities of the University and University Libraries, further embedded our resources, expertise, and services in the research enterprise and learning environments at Virginia Tech, offered critical support for the creation, curation, and publication of new and traditional forms of scholarship, and increased access to, and enhanced digital stewardship of, Virginia Tech's intellectual output.