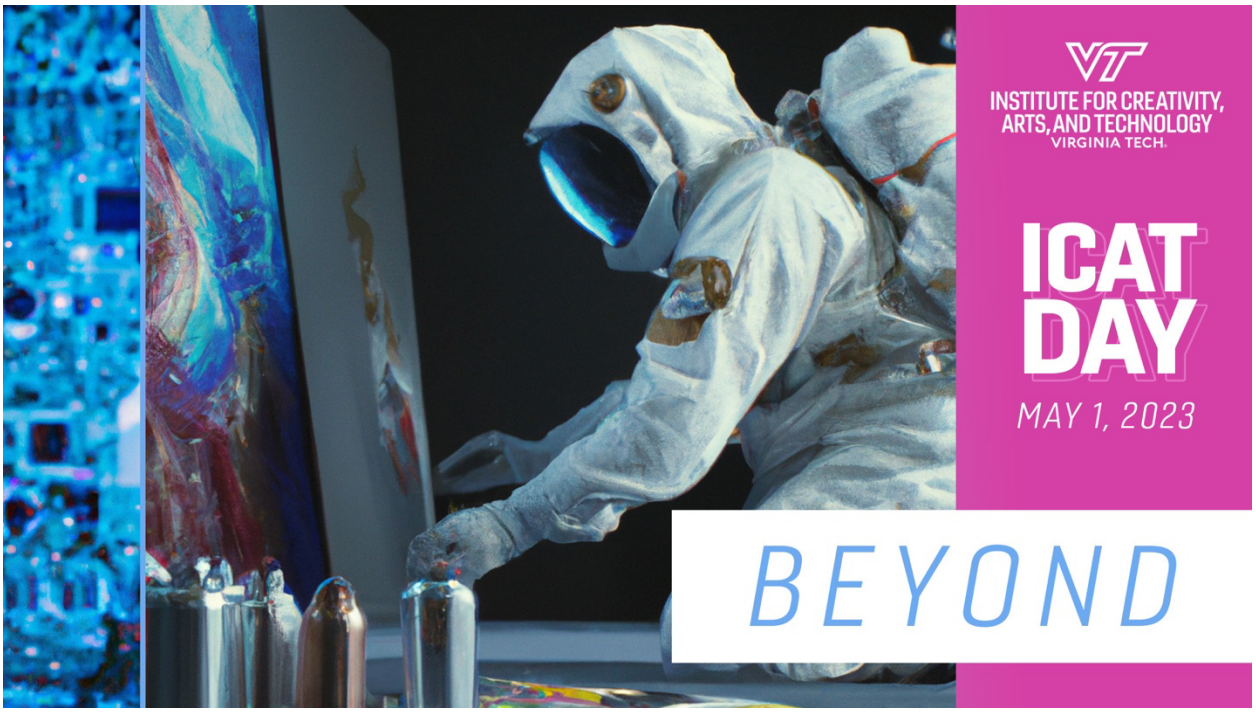

INSTITUTE FOR CREATIVITY, ARTS, AND TECHNOLOGY
VIRGINIA TECH
ICAT DAY
MAY 1, 2023
BEYOND

FOREWORD

It is with great pleasure to welcome everyone back to our eleventh annual Creativity + Innovation Day. For over a decade, we have been able to come together to celebrate the extraordinary works of students and faculty that push beyond the boundaries of science, engineering, art, and design. Hosted by the Institute for Creativity, Arts, and Technology (ICAT), the event advances research, innovation, and education by bringing together like-minded individuals across disciplines; providing funding, space, support, and expertise; and building mutually beneficial partnerships beyond campus.

This year's ICAT Day theme is *Beyond*, where we will focus on the kinds of work people do beyond a transdisciplinary education, how disciplines and identity are intertwined, and how that can help and transform. The celebration includes a day of ICAT-funded exhibits, a panel discussion, award presentations, and the Rhizome community student projects.

A series of awards will be presented to recognize exemplary work at ICAT Creativity and Innovation Day:

> The Judges' Choice award is given to the exhibit that judges find intriguing and appealing based on their work with the Institute for Creativity, Arts, and Technology. Judges are members of the ICAT Advisory Board, which is made up of thought leaders in industry and education who provide input to ICAT leadership. Advisory Board members look for impact on the broader community and alignment with the event theme.
>
> The Museums' Choice award is given to the exhibit that our museum partners find the most creative and innovative with potential to be a museum exhibit. Museum partners will vote individually, and the most frequent vote will determine the winner.
>
> The People's Choice award is given to the exhibit that creates the most memorable audience experience by capturing the hearts and minds of event attendees. Exhibits should exemplify excellent two-way communication with visitors and engage them in their work beyond the surface level. ICAT Creativity + Innovation Day is a community event and presenters with enthusiasm and zeal are recognized for their inspiring presentations. Visitors are encouraged to explore all the exhibits at the event, and online votes are tallied to determine a winner.

ICAT brings together artists, designers, engineers, and scientists to collaborate and create solutions for a better future for us. Immerse yourself in the world of creativity and innovation and see what kind of amazing things we have accomplished when we work together across disciplines. We can't wait to see you there!

R. Benjamin Knapp
Executive Director
Institute for Creativity, Arts, and Technology
Virginia Tech

Phyllis Newbill
Associate Director of Educational Networks
Center for Educational Networks and Impacts
Virginia Tech

Table of Contents

CREATIVITY + INNOVATION EVENTS

ICAT Creativity + Innovation Day: Beyond
Monday, May 1, 2022

Exhibits
10:00-2:00 PM Moss Arts Center and Media Building

Panel Discussion
3:00 PM Creativity and Innovation District LLC Community Assembly

Awards/Reception
4:30 PM CID LLC Community Assembly

Rhizome Community Student Projects
5:30 PM CID LLC Community Assembly

PANEL DISCUSSION

We are thrilled to welcome the return of five graduates of the Institute of Creativity, Arts, and Technology to celebrate creativity and innovation with us. This year's theme is Beyond, focusing on the kinds of work people do beyond a transdisciplinary education, how disciplines and identity are intertwined, and how that can help and transform. In a panel discussion with Ashely Costello, these individuals will speak about the trajectories of their lives since their time at ICAT.

MODERATOR

Ashley Costello is the current Graduate Research Assistant for CENI. She is pursuing a Ph.D. in the Higher Education program. Her research interests are in exploring how to create more conducive higher education learning environments for trauma-impacted students and exploring traumatic educational cultures around STEM majors. She is from Northeastern Pennsylvania, where she received her undergraduate degree in Social Work from Lock Haven University, and eventually a master's in social work from Marywood University in Scranton, Pennsylvania. During the time between her undergraduate degree and her first master's, she worked as a crisis counselor in a Women's Center with individuals that were experiencing and fleeing relationship/dating violence. She carried this passion for working with trauma-impacted populations to Virginia Tech when she came here in 2016 to pursue another master's in public administration. After that program, she worked with a Women's Center in Virginia as an Outreach and Community Educator. She then moved into higher education when she took a position within the Living-Learning Community, Innovate, and completed her final master's degree in educational psychology at Tech. When she's not hitting the books, or writing fervently in her home office, she enjoys casually running races with some of her School of Education colleagues, and the fabric arts (mainly cross-stitching and hand embroidery).

GUEST SPEAKERS

Brennon Bortz is a Software Solution Architect today. He initially studied music theory and composition as an undergraduate, and then pursued a graduate degree in music composition, feeding himself along the way as a software developer. While working on his master's degree focusing on choral and small acoustic ensemble composition, he was introduced to electroacoustic composition and began working with Paulo Chagas, Tim Labor, and Miller Puckette. His interest in cross- and inter-disciplinary work grew as he discovered ways to combine music and technology, later moving to Northern Ireland to pursue a second master's and Ph.D. in sonic arts. There he began working with Ben Knapp, whom he later followed to Virginia Tech to become one of the first students associated with ICAT. At Virginia Tech, he completed a master's and Ph.D. in computer science, focusing his research at the intersection of music, psychophysiology, and affective computing. Now a proud member of Corporate America at Leidos, Brennon spends his time overseeing the software engineering activities of an operation of several thousand employees, building a new software factory in Pennsylvania, engaging executive leadership on software and cloud strategy, and—from time to time—building cool things. He lives in Fresno, California with his wife Whitney, his two daughters, and his son.

Jason Forsyth is an Associate Professor of Engineering at James Madison University. He received his PhD from Virginia Tech in May 2015. His major research interests are in wearable/ubiquitous computing and engineering education. Previously he was an Assistant Professor of Electrical and Computer Engineering at York College of Pennsylvania from 2015 to 2018, teaching courses across the engineering curriculum and specialized in microprocessors, embedded systems, and engineering capstone. Outside of the classroom, Jason has been nominated for the New River Valley Leading Lights award, funded externally and internally through York College's Great to Greater initiative and the York County Community Foundation, and awarded a recipient of the 2012 Best Paper Award from IEEE Transactions on Automation Science and Engineering for working on wearable monitoring of carbon monoxide poisoning in construction workers. His current research interests focus on on-body human activity recognition and interactive machine learning for physical therapy patients and practitioners to increase exercise adherence and clinical evaluation.

George Hardebeck is a Senior Producer of Engineering at Ideum specializing in projection mapping, physical computing, virtual environments, and interaction design. He received his BFA and MFA of Creative Technologies from Virginia Tech, where he learned to love the challenges in making advanced scientific research accessible through interactive media. George has worked on large and small format clients from Smithsonian Museum of American History, Natural History Museum of Utah, the Moss Arts Center, Boeing, and was a featured artist at Moogfest in 2018. George is leading the development of a 60' projection environment at the Da Vinci Science Center, where guests are encouraged to emulate Da Vinci's creativity through Art, Science, and Engineering. He developed the premier exhibit for New York City's first civil rights museum, The Jackie Robinson Museum, an S-scale model of Ebbets Field with a faceted dvLED wall, 5k interactive touchscreens, a projection-mapped field, and a 30,000-character 3D printed crowd. At Ideum, we get to explore novel concepts and interact with the top historical and scientific experts in their field to tell compelling stories through the use of emerging and interactive technologies.

Annie Y. Patrick is a Post-Doctoral Fellow in the Studio for Transforming Engineering Learning and Research (STELAR) Lab in the Coulter Department of Biomedical Engineering at Georgia Tech. She received a bachelor's degree in psychology from Mississippi College and an associate degree in nursing from Holmes Community College. After a fulfilling nursing career working in a variety of specialties, she became interested in technology while studying Library and Information Science and completed a master's degree in network technology and cyber assurance at East Carolina University. She received her doctorate degree in Science and Technology Studies (STS) from Virginia Tech. She works as an applied scholar in interdisciplinary spaces focused on the groundwork of sociological participation, engineering studies, social (in)visibility, care work, and social justice.

Kari Zacharias is an engineer, a humanist, and an education researcher. She is a graduate of the Virginia Tech Department of Science, Technology, and Society, where she completed her PhD in 2018. During her graduate studies, ICAT was her research site as well as one of her academic homes: her dissertation examined transdisciplinarity, belonging, and institutionalization in science, engineering, art, and design. Dr. Zacharias is currently an Assistant Professor in the Centre for Engineering Professional Practice and Engineering Education at the University of Manitoba, where she researches engineering cultures and knowledge. Her work includes studies of how engineering ways of understanding the world can be integrated with other disciplinary and Indigenous ways of knowing, being, and making. Dr. Zacharias enjoys hiking and roller skating, and lives in Winnipeg, Manitoba with her partner and their very extroverted cat.

ICAT: Open at the Source

ICAT: *Open (at the) Source* presents pioneering approaches to public exhibits that use technology to deliver immersive and interactive experiences.

Celestial Garden

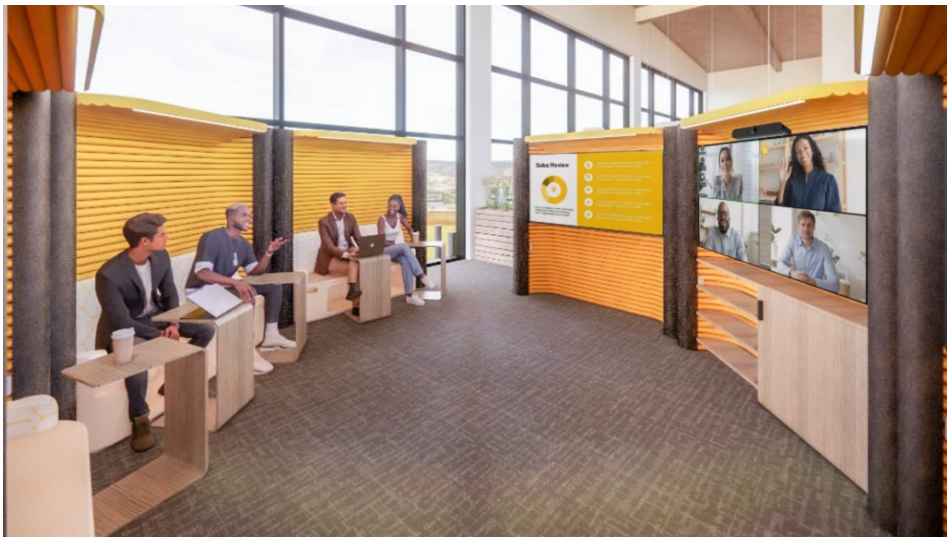
Thomas Tucker, SOVA, Co-Art Director, Form Designer, and Fabricator
David Franusich, ICAT Co-Art Director, Interaction Designer and Programmer
Tanner Upthegrove, ICAT Co-Art Director, Sound Designer and Programmer
Charlie Duff, ISE + ICAT Technical and Creative Design
Matthew Swarts, Electronics Designer
Rodney Kimbangu, SOVA +ICAT Technical and Creative Design, Documentarian
Tianyu Ge, CS + ICAT Technical and Creative Design

Celestial Garden is an interactive installation where participants engage with inflated teardrop forms in real time. Each nylon pendant is equipped with sound and light that respond directly to the participants' touch – creating a unique audiovisual soundscape. Originally designed to be showcased at the ACCelerate festival 2022 at the National Museum of American History in Washington, D.C. Installed in the dimly lit back end of Flag Hall, sixteen eight-foot teardrop forms hung from black metal trusses. Visitors entered the installation from all sides and interacted with the forms by gently pushing the outer surface to create a swinging motion. Each form reacts in real-time to the movements made by the participant: Lights within each form change color and dance with each interaction while the speaker simultaneously delivers a ripping mixture layered sound.

Kernel: A Collaboration with Steelcase

Anna Johnson, Interior Design
Cora Embree, Interior Design
Kelly Galway, Interior Design
Ronishka Sabu Nalpathil, Architecture

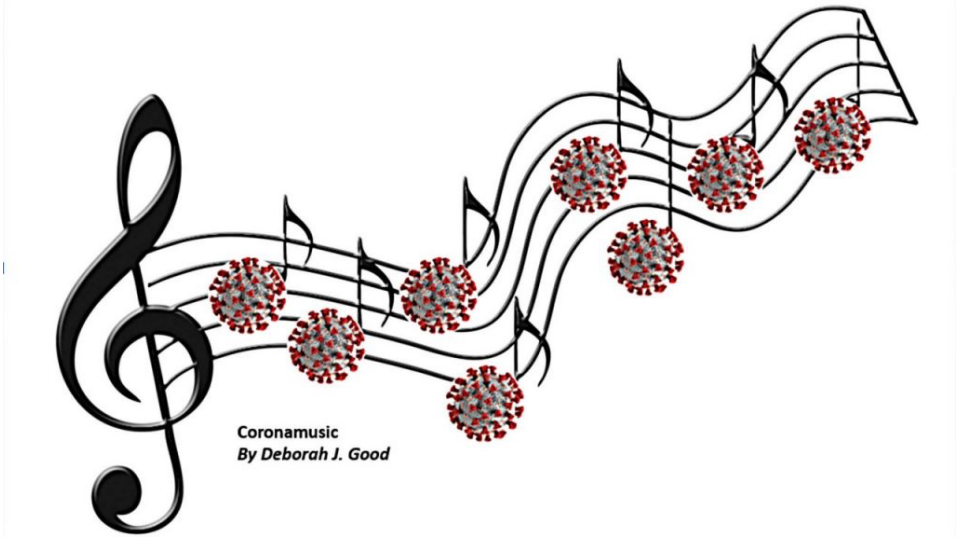
Hybrid collaboration is becoming more common in today's social and corporate settings, presenting an increasing demand for spaces that facilitate this mode of collaboration with participants both in person and on a screen. In pursuit of a solution, Kernel proposes a form of a semi-enclosed hybrid collaboration pod that addresses acoustic and visual concerns. Inspired by a popcorn kernel, the hard shell reflects sound, while the soft interior absorbs sound. The pods can be reconfigured according to the needs of a meeting, and the components of each pod can also be altered to fit specific needs.



Playing COVID Proteins

Deborah Good, Department of Human Nutrition, Foods, and Exercise
Shannon Mauro, Department of Human Nutrition, Foods, and Exercise
Charles Nichols, School of Performing Arts

With a SEAD grant from the Institute for Creativity, Arts, and Technology, composer Charles Nichols is collaborating with molecular biologist Deborah Good and graduate student Shannon Mauro to sonify the spike proteins of COVID variants in a piece for flute, clarinet, violin, cello, and computer and another for symphony orchestra. He started by converting the skeletal formula of the side chains of twenty amino acids, that link to form the proteins, into musical motives, mapping their chemical symbols to musical notes, employing the cryptograms that Bach, Schumann, and Ravel used to translate names into pitches. The higher the element appears on the periodic table, the more duration the rhythm sustains and the stronger the articulation stresses the corresponding note. Working across the ball and stick model of each amino acid, if a side chain branches, the single melodic line diverges into two instruments and the pitch transposes up and down. To make the sequence more musically interesting, the folding behavior of the amino acid, whether it causes the protein to helix, coil, or sheet, determines a pitch transposition applied to the musical motives. These mappings are just the beginning of exploring COVID genome data sonification.



EXPO 10 AM – 2 PM

The Moss Arts Center at 190 Alumni Mall houses a performance hall, beautiful lobbies, the experimental research, and performance environment knows as the Cube, research studios for immersive sound and virtual/augmented reality research, galleries, and high-tech classrooms.

Cube

Acoustic Invasion

David Franusich, Virginia Tech Institute for Creativity, Arts, and Technology
Joseph Drake, College of Science, Biological Sciences
Grace O'Malley, College of Science, Biological Sciences
Jacob Barney, College of Agriculture and Life Sciences, School of Plant and Environmental Sciences
Meryl Mims, College of Science, Biological Sciences

What does an invaded ecosystem sound like? And how does that change in soundscape impact native flora and fauna? Invasive species are one of the five factors reshaping the biosphere, threatening native biodiversity, ecosystem services on which society depends, and human health. There is an emerging interest in ecology about the changes to the soundscape of invaded habitats and the impacts this has for native species ability to adapt and persist. This ICAT Major SEAD grant is a multidisciplinary collaboration to collect, analyze, and visualize novel audio outcomes of invasion in both the Arizona high desert, and right here in Appalachia. Join us as we present an immersive, multisensory experience showcasing audio and visual changes to invaded landscapes—providing novel data on how these ecosystems are being impacted.

Francis T. Eck Exhibition Corridor

Acting Locally: Rhizome Living-Learning Community

Grant Hamming, College of Architecture, Arts, and Design, Rhizome Living-Learning Community

The first-year students in the Rhizome Living-Learning Community share the design and policy work they have completed for local clients, including Habitat for Humanity and the Town of Blacksburg.

RHIZOME
A VIRGINIA TECH® LIVING-LEARNING COMMUNITY THINKING GLOBALLY AND ACTING LOCALLY

CENI Evaluation

Megan Hebbe, Center for Educational Networks and Impacts
Lauren Melton, Center for Educational Networks and Impacts
Chelsea Haines, Center for Educational Networks and Impacts

CENI offers evaluation services for educational programs. We specialize in playful evaluation, moving beyond the pre-test/post-test worksheet model. Engage with building blocks, stickers, and reflective questions to see how data collection can be unobtrusive and integrated into learning experiences.

CENI Hokie for a Day

Davia Wiley, Center for Educational Networks and Impacts
Yariane Soto, Center for Educational Networks and Impacts
Phyllis Newbill, Center for Educational Networks and Impacts

Hokie for a Day is a weekly event that allows fifth-grade students from Title I schools to take a field trip to Virginia Tech and have an overview of what it is like to be a college student. They get a college orientation presentation, tour around campus, hands-on STEM activity, lunch in D2 with the Corps of Cadets, Cassell Coliseum, and Lane Stadium. They have the opportunity to hear from current students and athletes at Virginia Tech. Each student receives a folder from Virginia Career VIEW (Vital Information for Education and Work) filled with information about college/career preparation, financial aid, and advice for studying. Through the program, students become comfortable talking about access to a college education and embrace the possibility of becoming college students in the future.

CENI Science Festival

Jennifer Huang, Center for Educational Networks and Impacts
Phyllis Newbill, Center for Educational Networks and Impacts

“Science is bigger than you think.” The Virginia Tech Science Festival is a celebration of scientific thinking in a safe, fun, and educational way. The festival is a collaboration across most of the colleges and research institutes on campus, as well as many community members. Organized by the Center for Educational Networks and Impacts, and supported by the College Access Collaborative and Cooperative Extension, the festival is open to the public and funds buses for school field trips from area schools, as well as charter buses from three outlying regions in the state. Our mission is to increase awareness of how science is part of every discipline, including the arts, business, and humanities. The audience will learn how this event meets our goals of exposing young learners to potential careers in STEM and encouraging engagement between learners and scientists.

Grand Lobby

Brain Waves to Sound Waves: Real-time Sonification of Electroencephalography

Noor Tasnim, Fralin Biomedical Research Institute at Virginia Tech Carilion, Graduate Program in Translational Biology, Medicine, and Health

How can we better understand our communities and one another through art? Using input data on one's emotional well-being through the form of a survey, Community Pulse creates a continually updated art piece that integrates one's unique emotional "color" into a colorful and abstract fine arts piece.

Bridging Cultures in VR: The Virtual Model of Sheikh Isa house, Bahrain

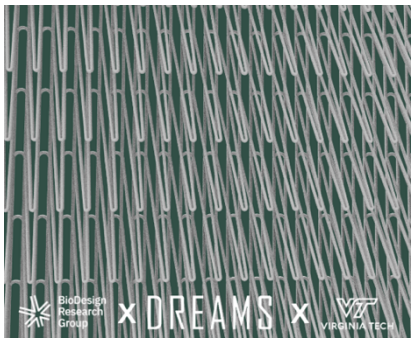
Eiman Elgewely, College of Architecture, Arts, and Design, Architecture
Mohamed Ali, College of Architecture, Arts, and Design, Architecture
Saeed Sakhdari, College of Architecture, Arts, and Design, Architecture

This exhibition allows the visitors to explore a historic house to learn about the sustainable traditional architecture and the culture of the Arab world through an educational VR application. Sheik Isa's house is in Muharaq, Bahrain, and is part of the UNESCO Pearling Path.

Cerberus

Brook Kennedy, College of Architecture, Arts, and Design, Industrial Design, BioDesign Research Group

An in-progress overview of a new additive manufacturing technology: a multi nozzle 3d printing head with conveyor for producing performance textiles for the built environment. Artifacts, images, and video will convey the progress and potential of this emerging project. One specific outcome is how this machine could produce more efficient, stronger fog water harvesting mesh textiles eventually at a lower cost as the proposed technologies mature.



Commercial screen-based devices for children's connection and engagement with remote contacts

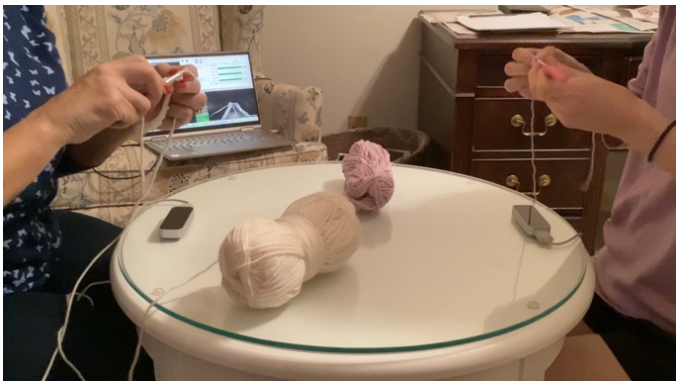
Neelma Bhatti, Computer Science
Derek Haqq, College of Engineering, Computer Science
Morva Saaty, Computer Science
D. Scott McCrickard, Computer Science

Want to know what happens when a funded study faces unexpected obstacles? Delve into the story of unforeseen challenges: technology discontinuation, PI relocation, and graduate students juggling commitments. Learn how the team adapted, improvised, and completed the study successfully despite these obstacles.

Cro-Create: A Crochet Music Maker

Jacqueline Bruen, College of Engineering, Computer Science Mind Music Machine Lab

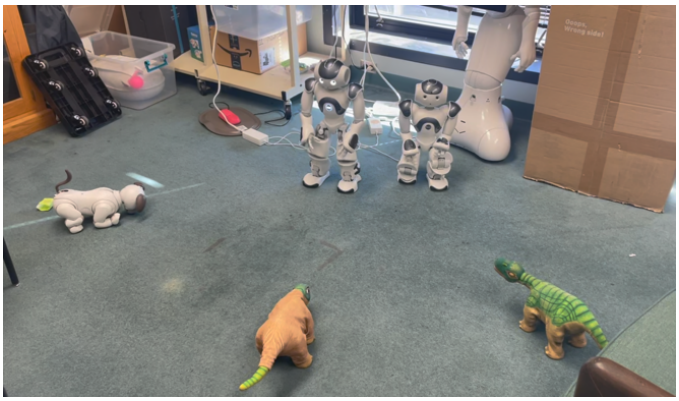
Cro-Create allows users to share the process of crocheting by themselves or with others through sound. Using hand motion detection, a single user's palm movements allow them to make sound. When two users' crochet gestures are in sync, the sonification is augmented to reflect this synchronicity.



Effects of Sentiment-Based Sonification on Fairy Tale Listening Experience

Ziming Fang, College of Engineering, Computer Science

A robot agent will provide audiences with fairy tales with different sonifications. After listening to all fairy tales, audiences and researchers will have a discussion session to share their experiences and thoughts.



Giving a leg up: Using hybrid models (3D printed bones and E-specimens) for teaching and training veterinary and medical students.

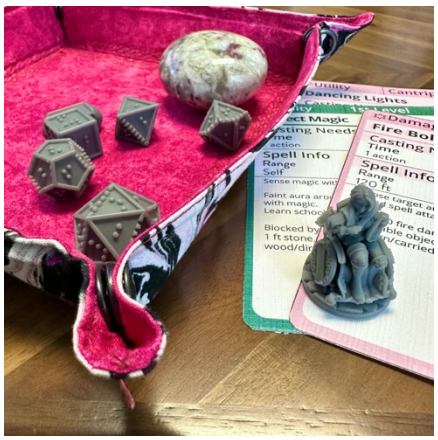
Fawzy Elnady, Virginia-Maryland College of Veterinary Medicine, Biomedical Sciences & Pathobiology
Maryam Elnady, Virginia-Maryland College of Veterinary Medicine, Population Health Sciences

Animal specimens are preserved with the Elnady technique (E-specimens). Appreciate how they could be used in teaching and training. Some are mounted on 3-D-printed bones. Examples are a horse's distal limb, the viscera of a hedgehog, a cat, a newly born goat, a dog, and cow embryos, and dog limbs.

Grappling with Gorgons: Accessibility Tools for Tabletop Roleplaying Games

Elizabeth McLain, College of Architecture, Arts, and Design, School of Performing Arts, Virginia Tech Accessible Gaming Research Initiative
Alice Rogers, University Libraries, Virginia Tech Accessible Gaming Research Initiative

Games like Dungeons and Dragons can be overwhelming, but our tools will help you join the party. Hold magic in your hand with our redesigned spell cards, find your class through our storytelling-based character creation, and use our decision guide to explore a fantasy world.



MechaCollaboration

RJ Weaver, College of Architecture, Arts, and Design, Architecture
Shokoufeh Bozorgmehrian, College of Architecture, Arts, and Design, Architecture

The MechaCollaboration Team will be conducting live demonstrations of their “easiest robotic programming workflow.” ICAT Day attendees will be able to draw shapes with a marker, and a 6-axis robotic arm will translate their drawings into 3D-printed sculptures in front of them in real-time!

Safety Tank: Violence Data Tracker

John Do, College of Architecture, Arts, and Design, College of Engineering, Industrial Design, Biomedical Engineering and Mechanics, Computer Science

Put on an instrumented vest and jump on a crash mat. If your linear or angular acceleration reaches a high enough value, you’ll set off a silent alarm. This exhibit demonstrates a feature of the data tracker we are developing to record force and kinematic information about interpersonal violence.

Utilizing Extended Reality Platforms for Diverse and Inclusive Recruitment

Atlas Vernier, College of Engineering, College of Liberal Arts and Human Sciences
Mary Pletcher, College of Engineering, Industrial and Systems Engineering
Jake Pierson, College of Engineering, Industrial and Systems Engineering
Leanne Shahin, College of Engineering, Industrial and Systems Engineering
Jacob Kerstiens, College of Engineering, Industrial and Systems Engineering
Rafael Patrick, College of Engineering, Industrial and Systems Engineering

Users will be able to explore a new open-world recruitment tool that is being developed for the future of Virginia Tech! Using a VR headset, you can learn about one of the programs here at VT: from academics to research to future outlooks.

Your play is our work! Updates from the VT G.A.M.E.R. Lab

James Ivory, School of Communication, College of Liberal Arts and Human Sciences

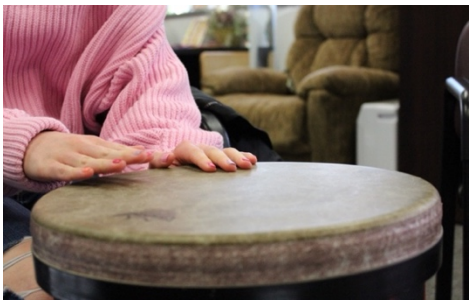
Come see students' creative work and research with games using game users' data on topics ranging from mental health to local environmental concerns to couples' gaming habits to political affiliations of game users. Plus, preview a new VT course on game design and analysis debuting in Fall 2023!

Grand Lobby- Grand Staircase

IMAGINE Lab // Watch your BRAIN in musical action!

Harshini Venkat, College of Science, Neuroscience
Masoom Modi, College of Liberal Arts and Human Sciences, Human Development and Family Science
May Kretzer, College of Science, Neuroscience
Rowena Gaughan, College of Liberal Arts and Human Sciences, College of Science, Neuroscience
Hannah Campsie, IMAGINE Lab

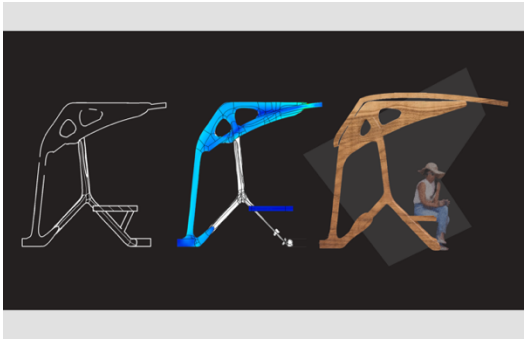
Want to see what happens in your brain when you are listening to music? What about when you are MAKING music? Try on an EEG cap, pick a song and play up a drum. Bring a friend and see how your brains interact with one another while making music and having fun together!



Mass Timber Modification Through Technology

Kayla McKinney, College of Architecture, Arts, and Design, Architecture
Tadeusz (Tadek) Kosmal, College of Engineering, Mechanical Engineering

This project explores hybrid Mass Timber laminate structures formed with digital design technologies. We seek to share our process for designing, optimizing, and fabricating the next generation of high-performance timber structures.

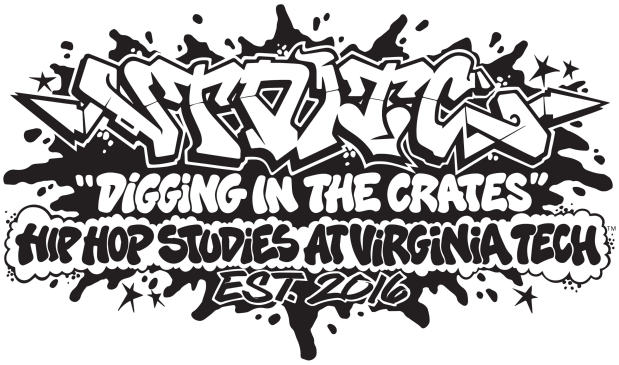


Media Building

VTDITC: Hip Hop Studies at Virginia Tech

Craig Arthur, University Libraries

Join the VTDITC team as we demonstrate and explain the science, technology, engineering, art, and mathematics of the Hip Hop arts. You'll get to witness a variety of Hip Hop culture's traditional creative practices: DJing (both mixing and scratching), beat making, and maybe even rapping. After we explain the science behind what we do, we'll happily answer any questions you have and provide advice on how you can start creating. We look forward to learning with you!



Perform Studio

Solar System Explorer

Clara McDaniel, College of Engineering
Leah Ican, College of Engineering, Computer Science
Chelsea Haines, Institute for Creativity, Arts, and Technology
Hayoun Moon, Industrial and Systems Engineering

Virtual reality (VR) experiences are becoming popular among consumers due to technological advancements and affordable VR head-worn devices (HWDs). While VR HWDs can offer high levels of immersion to users when experiencing virtual environments (VEs), VR HWDs are poorly suited to some users. For example, children and those who experience HWD-induced headaches or nausea are discouraged from wearing VR HWDs due to health concerns. In addition, people who wear makeup, have coarsely textured hair, or wear prescription glasses may not be willing to wear VR HWDs due to the discomfort or inconvenience that would result.

Users wearing VR HWDs might experience discomfort and isolation, triggering a struggle with acceptability in their social context. In addition, there are contexts in which interactive content is designed to engage a group of users, for example, science museums, exhibitions, recreational games, and classroom activities. In such settings, not only can we not expect everyone to wear VR HWDs, but the content is also designed for multiple users. For example, in an informal learning setting like a science museum, children are the primary visitors, and they should not wear HWDs due to health concerns.

In this work, we mainly focus on understanding dynamic, group-based, immersive experiences, expanding on previous works involving mobile-based MR. Using mobile-device-only MR offers users the benefit of maintaining awareness in both the real world and a virtual world, turning any VR content into an MR experience.

Sandbox

Exploring Restorative Potential of Interior Design in Virtual Reality

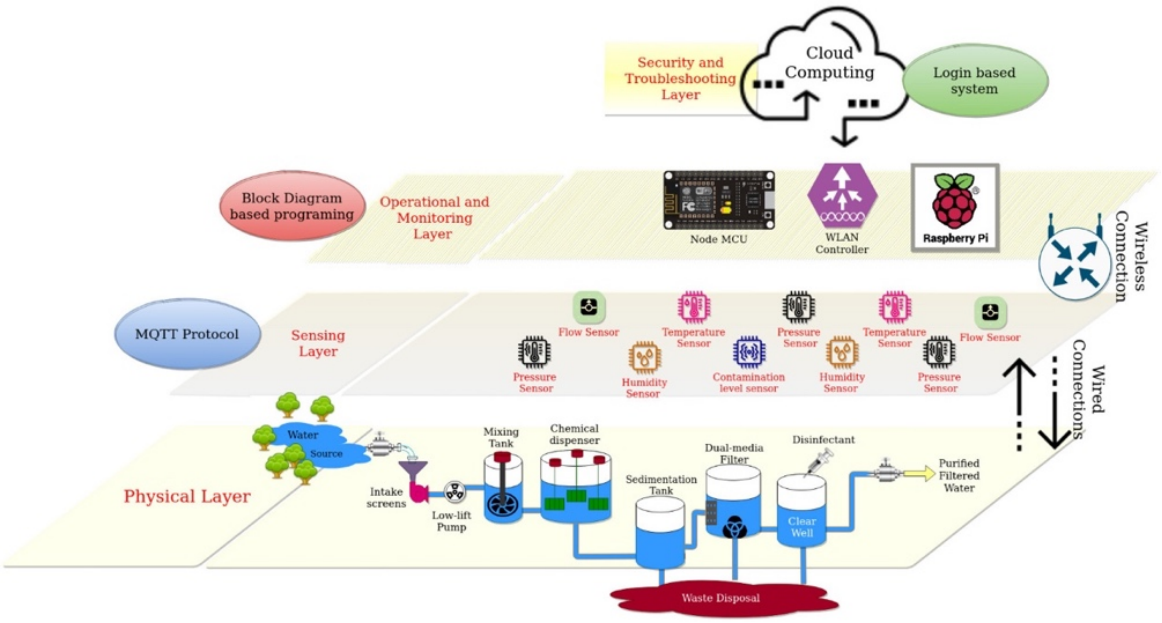
Alp Tural, College of Architecture, Arts, and Design, Interior Design

This exhibit will include several digital renders of the same interior space where the outside view content, degrees of biophilic design and interior design elements (such as finishes and space geometry) vary. The audience will be able to visualize those on a computer screen and using a VR headset.

Modeling Smart Grid: Functionality and Cybersecurity

Denis Gracanin, College of Engineering, Computer Science
Slynn McMinn, CCI's VT-VMI Cybersecurity High School Internship
Nathan Bennett, CCI's VT-VMI Cybersecurity High School Internship
Brandon Duong, CCI's VT-VMI Cybersecurity High School Internship
Bryson Fisher, CCI's VT-VMI Cybersecurity High School Internship
Zander Gray, CCI's VT-VMI Cybersecurity High School Internship
Kade Hamilton, CCI's VT-VMI Cybersecurity High School Internship
Korbinian Huber, CCI's VT-VMI Cybersecurity High School Internship
Jackson Lawrence, CCI's VT-VMI Cybersecurity High School Internship
Toby Liu, CCI's VT-VMI Cybersecurity High School Internship
Jackson Neurater, CCI's VT-VMI Cybersecurity High School Internship
Mitch Parker, CCI's VT-VMI Cybersecurity High School Internship
Ariya Patel, CCI's VT-VMI Cybersecurity High School Internship
Bisan Rai, CCI's VT-VMI Cybersecurity High School Internship
Staley Reed, CCI's VT-VMI Cybersecurity High School Internship
Honzik Schenk, CCI's VT-VMI Cybersecurity High School Internship
Mariana Soto-Martinez, CCI's VT-VMI Cybersecurity High School Internship

A model of a smart grid is used to demonstrate what are the smart grid components and how they work together. A virtual reality interface provides an intuitive way to interact with the model and its components as well as to explore cybersecurity challenges.

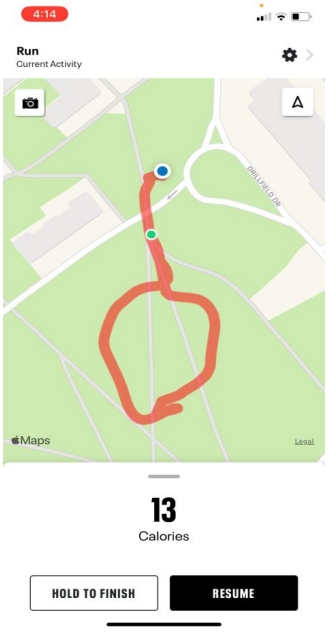


The Moss Portico

Digital Outdoor Games: Tech Approaches for Learning and Fun Outdoors

Scott McCrickard, College of Engineering, Computer Science Virginia Tech
Morva Saaty, College of Engineering, Computer Science
Jaitun Patel, College of Engineering, Computer Science

Visitors will learn about and try out mobile apps that help raise awareness of science, history, fitness, and the environment. Topics include games for identification of plants; digitally enhanced historic walks; and exercise games that leverage location data.



Underwater Wonders of Toms Creek

Thomas Bustamante, College of Natural Resources and Environment, Fish and Wildlife Conservation
Samantha Brooks, College of Natural Resources and Environment, Fish and Wildlife Conservation

We will have a booth with a display of pictures and artwork that we have created over the last year with community members, our portable "flume" to show how chub nests respond to environmental changes, and possibly a projection of chub videos and/or a tank with live fish to help explain what we have done and what we study.

Credits

ICAT
Benjamin Knapp, executive director
Lisa McNair, deputy executive director (ICAT) and director of Center for Educational Networks and Impacts (CENI)
Doug Bowman, director of Center for Human-Computer Interaction (CHCI)
Andrea Kavanaugh, associate director, CHCI
Gustavo Araoz, facility and production coordinator, Creativity and Innovation District
Kevin Ayoub, building operations coordinator, CID LLC
David Franusich, multimedia designer
Kasia Fthenos, administrative coordinator
Chelsea Haines, associate director of broader impacts, CENI
Brandon Hale, technical assistant
Phyllis Newbill, associate director of educational networks, CENI
Dylan Parker, web developer
Tanner Upthegrove, immersive audio specialist
Holly Williams, director of administration
Melissa Wyers, business operations coordinator

CENI STUDENT NETWORK
Ashley Costello, graduate research assistant
Megan Hebbe, data analyst assistant
Jennifer Huang, marketing and outreach assistant
Calvin Jeter, undergraduate learning assistant, engineering education
Baitong Liu, evaluation assistant
Lauren Melton, marketing and outreach assistant
Baibhav Nepal, data analyst assistant
Allie Phillips, student office assistant
Yariane Soto, marketing and outreach assistant
Nicolas Spring, undergraduate research assistant
Katie Weyrich, graphic design student assistant
Davia Wiley, marketing and outreach assistant