Catherine Buell’s prolific work spreads the gamut and includes research in generalized symmetric spaces, visual stylometry, math education, and ethics in mathematics. Despite their diversity, each branch sprung from the same source: social interactions and chance conversations about irresistibly interesting ideas.

Currently, Buell is working with a group of six other pure mathematicians on further generalizing patterns they’ve found in generalized symmetric spaces. While building on Riemannian geometry, they are integrating other number systems than the original real or complex numbers. “What if you do this over a finite field or you do this over the p-adics? What breaks?” It’s the creativity and play of pure math that keep her curious.

While Buell is a pure mathematician, her background as a computer programmer led her to some unexpected collaborators, the farthest a flung being a philosopher of art, who she and Ricky Sethi worked with to create WAIVS, a stylometric tool that analyzes painterly style. Buell and her collaborators were interested in seeing if the computer could find connections that humans didn’t see because they are primed to think with existing frameworks like time period or medium. By asking a computer to consider what style is, WAIVS also helped humans consider what they think constitutes style.

Her stylometric project won an NEH Digital Humanities grant, which spurred on questions about the nature of the humanities. “When I think of the humanities, I think of things that give us perspective on our own humanity. Much of what we teach about mathematics isn’t about the human interactions with each other and with society. It should.”

This sentiment sparked her current and impassioned work on rehumanizing mathematics by engaging mathematicians in the ethics of their work. Buell is concerned with the lack of a code of ethics for mathematicians, the prevalence of ignoring the context to “focus on the math,” and the assumptions that math is pure, “that we’re not affecting anything.” But Cambridge Analytica, the modern banking system, search algorithms all impact humans.

“We mathematicians control who has access and who gets to question it. Mathematics is not neutral. It has never been neutral. But that’s the idea.” Amidst the increased popular interest in the effects of algorithms in everyday life, Buell hopes that now “it’s math’s time of reckoning.”
Augmented Reality Time Machines

BY ELISE TAKEHANA

While Jon Amakawa teaches in the Game Design program, his background and interest in history and visual art are what brought him to the work he does now: creating augmented reality mobile apps for historical sites, museums, and national parks.

Even before getting into interactive media, his interest in documentary films and recapturing the lived experience of visiting an historical place intrigued him. Now, AR and interactive media can be an interesting medium precisely because they can recreate the world. AR offers users the chance to experience history in its place and be immersed in the world of that time. Even more, AR helps bring attention to less prominent historical elements. “It allows for historical information that might not get used in text form, like living history, the core material culture.”

Of course, any representational practice has its perils and while he doesn’t consider himself a historian, he sees his work as being valuable in championing the worth of having broader knowledge of the world and viewing history as an artist might.

Amakawa is currently working on two projects: a client commission for Heart Mountain and an independent project on Dejima. Dejima strikes him because it was a meeting point of cultures in a time when Japan closed its doors to all but the Dutch and Chinese. He is looking to augment recreated buildings on this once artificial island by representing the people who would be working there and blocking out views of modern buildings near the site. But Dejima is “more interesting than I realized. There were Indonesians there, who were working for the Dutch. There were people from Africa.”

Heart Mountain was a Japanese internment camp in Wyoming that housed approximately 13,000 people. The site is currently sparse, so with little infrastructure, Amakawa is working with the Friends of Heart Mountain’s idea of arranging experiences thematically, not geographically.

For Amakawa, developing AR mobile apps for historical sites fits squarely into the larger umbrella of the digital humanities as a method of applying the arts to the outside world, a kind of extroverted artistic practice. While there’s nothing wrong with an introspective or expressive view of art, Amakawa imagines his own work and appreciates others’ work when it helps expand beyond the subjective experience. “I think all artists really need to have a wider range of experiences of the world.”

Hindsight Is a Whole New Story

BY SAVANAH HIPPERT

Throughout life, we encounter moments that impact our personal stories. For Steven Edwards, Associate Professor of English Studies, his recent sabbatical was spent thinking back on his teens and 20s in relation to being a father and enduring turbulent times. Having emerged on higher ground, he’s able to reflect on the past with a different palette of self-knowledge.

In the fall of 2018, Edwards worked on nonfiction essays that explored this personal revelations. To get a glimpse, one essay, “Seeing Private Everyman,” revolves around the similarities between him and his grandfather, a war veteran who was on the cover of Life magazine, and kinship in their experiences. Given his significant war experience, in 1961 Life magazine posed Edward’s grandfather in recreation shots on location (Northern Africa, Sicily, and the beaches of D-Day) to portray the man he was in the past. “It was the perfect metaphor for what I do in my writing too… we’re both recreating the experiences of our youth to tell a story about who we were.”

It’s one thing to tell a story, but another to tell it in a way others will find relevance. “That’s where you get the chance to rise to the occasion and do something original or that hasn’t been done before. It’s hard, but that’s how you know you’re actually doing something.”

We can’t recall every moment of our lives, but there’s a certain excitement in the reimagining of the stories you’re willing to tell. For Edwards, it’s crucial for writers to maintain “the capacity to be surprised… your story might reveal itself to you in a new way.”

continued on page 3
What is the project you’ve been working on?

Over the last three or four years, I’ve been part of a collaborated effort to better understand physical activity habits of Fitchburg residents. Through accelerometers participants attached to their waist, surveys, and focus groups we’ve been measuring how physically active people are and at what intensity. We know that a lack of physical activity increases risk for high blood pressure, high cholesterol, diabetes and a risk for heart disease so we wanted to see that connection within this community.

How are you conducting this study?

This past summer we switched our methods to now compare a survey tool along with an accelerometer that participants wear for a week. The monitor records accelerations from movement and provides an objective measure of physical activity so we can compare the two to see if there really are discrepancies.

We’ve also added focus groups to learn more about what influences physical activity behaviors. The project has been located out in the city, so we’ve gone out into different neighborhoods, different sites in the community and approached people there to participate in this study.

Who is the main focus of the study?

We’re trying to get at the whole mix of Fitchburg. We’re trying to get a broad range of different ethnicities, income level, educational backgrounds and their physical activity habits.

What has been the most interesting discovery of the study?

I would say the fact that our second-year study reaffirmed our first-year study where 80% of people were recording moderately active to active on their surveys, but their health indicators didn’t match up with that. We measured their blood pressure, cholesterol, and obesity levels in the study. This suggests a mismatch between what people think they’re doing and what they’re actually doing or don’t understand what qualifies as moderate or vigorous physical activity. We hope the focus groups and health literacy survey we’ve added to the study will help shed light on this.

What’s have been some challenges with this study?

Recruitment can be a challenge when you’re approaching people in the community, we’re kind of at their mercy at times whether they want to participate or not. What’s been great is people haven’t seemed to mind wearing the monitors though. Also, as a research team we’re learning how to do community-based research, which for me is very new as I’m trained more as a lab scientist.

What are some of the goals of this project?

Down the road we’d love to make interventions in the community based on the data we find to help more people engage in physical activity. We’ve already surveyed people about the local parks to determine their awareness and use of parks. One thing we want to understand is not just what they’re doing, but why. We’re trying to get at the motivators to physical activity, what the barriers are to physical activity, and how things like culture, the family environment, or other social aspects can be influencing whether people choose to engage in physical activity or not. We’re looking forward to being able to combine the quantitative and qualitative data from both the actual recorded physical activity along with the focus groups to better gather the whole picture.
Research Live
The Center for Faculty Scholarship
Co-Coordinator: Eric Budd and Elise Takehana
Newsletter Staff: Savanah Hippert and Kurtis Kendall
If you are interested in having your research featured in Research Live, contact Elise Takehana at etakehan@fitchburgstate.edu
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Events

Please send details of events related to faculty research or intellectual life to etakehan@fitchburgstate.edu for inclusion on the Center for Faculty Scholarship's calendar and newsletter.

10 07 19
12:30 CTL
Professor of biology, Dr. Erin Rehrig, opens the Faculty Speaker Series with her talk “The Evolution of Sex.” Refreshments served and ample time for Q&A.

10 15 19
3:30 in Ellis White
Panel discussion with Profs. Katherine Jewell, Benjamin Lieberman, and Kisha Tracy addresses the origins and contemporary uses of Nazi symbolism in the US.

10 15 19
2:00 online session
NIH grantee, Brenda Hann, speaks on creating a proposal writing timeline and the NIH review process. Contact Karen Frank-Mays for login information.

10 17 19
3:30 Hammond S03

10 21 19
3:30 Hammond S03
Prof. Adem Elveren’s book talk on his 2019 The Economics of Military Spending as well as his 2018 book, Brain Drain and Gender Inequality in Turkey.

10 22 19
3:30 Library HA-101
Prof. Kisha Tracy and Renée Fratantonio’s lead a hands-on workshop that fact checks memes and analyzes artifacts that white supremacy groups misuse.

10 24 19
7:30pm Kent Recital Hall
Faculty recital including performances by Profs. Robin Dinda, Jane Fiske, Jonathan Harvey, and Amy McGoLthin. Concert is free and open to the public.

11 04 19
12:30 CTL
Prof. of Art History, Jessica Robey's Faculty Speaker Series talk “The Roadside Mythology of Peter Beerits” with refreshments and a Q&A to follow.

11 07 19
3:30 Ellis White
A screening of Dan Habib’s documentary film Intelligent Lives followed by a panel discussion with Jordan and Cheryl Caira, Christine and Liam Fitzgerald, Stacey Levine-Lavely and Jagger Lavely.

11 14 19
2:00 online session
Information on ACLS fellowships for the social sciences and humanities, tips on applying, and past funded projects. Contact Karen Frank-Mays for login info.

11 14 19
3:30 CTL
The CFS hosts the travelling social hour. Come and convene with colleagues for the sheer joy of each other’s company.

12 02 19
12:30 CTL
Jeff Warmouth appears in the Faculty Speaker Series with his talk “Urgent Blowout: How I Learned to Stop Worrying and Enjoy the Process.” Q&A to follow.

TBA
TBA
The CFS hosts “If I Knew Then What I Know Now” a panel discussion featuring the insights of senior faculty on academic life.

New Books

The Chronicle of Higher Education reports on Occidental College’s decision to turn a conference room in the administration building into a cozy faculty lounge in “Faculty Want Intellectual Community. If Only They Had The Time.”

On a similar note, Steelcase Education put out “The Future of the Faculty Office” on redesigning faculty office spaces to enhance community.

Authors of The Slow Professor sit for an interview with CBC Radio Canada to discuss “reclaiming the intellectual life of the university.”

Reading and Listening
Share recommendations on articles, books, and podcasts that colleagues might enjoy. We can commune over and discuss our thoughts at the CFS coffee, tea, and treats hour at 3:30 on Nov. 14 in Library 212.

New Books

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