



Global Forum on Urban and Regional

RESILIENCE

2017 Annual Report



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Dr. Charles Steger

In Memoriam:

Our colleague and Director, Dr Charles Steger, passed away on May 6, 2018 at his home. Dr Steger was appointed President of the University in 2000 and served in that capacity until retirement in 2014. At the time of his appointment President Steger was the youngest President to serve in that capacity at the University. Prior to his appointment as President, he had served as Dean of the College of Architecture and Urban Studies, Vice-Provost for Outreach, and Vice-President of Development at the university. Under his leadership as President, the university became a comprehensive university with an enrollment of 31,000. With his guidance, the university increased graduate enrollment by 12 percent; expanded its research to the point where it was within the top thirty research universities as measured by the National Science Foundation; added a school of biomedical engineering, created a new medical school in conjunction with the Carillon Health System; and became a global university with new and expanded facilities in Switzerland and India, and added a new large research facility in the Washington, D.C. region.

Upon leaving the presidency he assumed the Directorship of the Global Forum for Urban and Regional Resilience, a unit created during his time as President in response to the University's strategic plan. His vision for the Forum was for it to be locus of discussion surrounding the role of universities' curricula and research agendas, with a focus on key global strategic issues such as the interdependencies among critical environmental, social, economic and political infrastructures in nations, regions, cities, and communities.

In addition to facilitating global discussions on issues the Forum supported trans-disciplinary research on the important aspects of resiliency, and translated that knowledge to action by producing scholarship on critical issues, by organizing workshops, and by creating knowledge platforms on key topics that helped shape strategic directions for communities over the next decade.

In addition to his role as Director, President Steger led the Forum's initiatives on physical infrastructure resilience and worked to develop close research collaborations with groups on campus and internationally on research themes that would advance our understanding of resilience, its values and ethics, its financial dimensions, and the policy approaches best suited for communities. He served tirelessly on a number of boards for profit and nonprofits organizations and for various state agencies, all for the purpose of advancing the welfare and resilience of the Commonwealth of Virginia and its citizens.

The Forum will remain his legacy as it moves forward maintaining its core mission and advancing its research in its three thematic areas – financial resilience, resilient infrastructure, and the socio-political dimensions of resilience.



Scan this QR
code to access
the Global
Forum website.

Dr. Charles W. Steger appointed to a three-year term as a member of the advisory committee of the National Academy of Sciences

Division of Earth and Life Studies (DELS)



Dr. Steger is also a Fellow in the American Institute of Architects and received the 2004 Compass Award from the New Century Technology Council. Among numerous other awards, he received the 2009 Chief Executive Leadership Award from the Council for the Advancement and Support of Education, District III, and the 2010 Michael P. Malone International Leadership Award from the Association of Public and Land-Grant Universities.

The **National Academy of Sciences (NAS)** is a private, non-profit society of distinguished scholars. Established by an Act of Congress, signed by President Abraham Lincoln in 1863, the NAS is charged with providing independent, objective advice to the nation on matters related to science and technology. Scientists are elected by their peers to membership in the NAS for outstanding contributions to research. National Academy of Sciences (NAS) was founded on March 3, 1863, at the height of the Civil War.

New Faculty



Dr. Sean Bemis
Research Assistant Professor

In August 2017, Dr. Sean Bemis joined the Global Forum on Urban and Regional Resilience as a Research Assistant Professor. His primary research examines earthquakes and earthquake hazards from fundamental and applied perspectives, seeking to reduce risk through site-specific studies and improving the understanding of earthquake recurrence behavior. Current research focuses on the west coast of North America, from Alaska to California, with projects in high risk areas such as Nepal currently in development.

Dr. Bemis earned his Ph.D. in Geological Sciences from the University of Oregon and his M.S. and B.S. degrees in Geology from the University of Alaska Fairbanks. Following his Ph.D., Dr. Bemis was a Mendenhall postdoctoral fellow with the U.S. Geological Survey and an assistant professor in the Department of Earth & Environmental Sciences at the University of Kentucky prior to coming to Virginia Tech to help build a natural sciences component of the interdisciplinary team in the Global Forum.

GFURR Faculty Fellows

Faculty Fellows associated with the Global Forum are faculty members who have teaching and research interests which are corresponding and extending the work of the Global Forum. Affiliated faculty work in collaboration with Global forum faculty and students on research projects and teaching related to the Forum's focus areas.

Global Forum Faculty Fellows and their Virginia Tech affiliation are listed here.

| | |
|-------------------|--|
| Shannon Bell | Sociology |
| C. L. Bohannon | School of Architecture and Design |
| Deborah Brosnan | Adjunct Professor of Biology |
| Margaret Cowell | Urban Affairs & Planning |
| Giselle Datz | Public & International Affairs |
| Julia Gohlke | Population Health Sciences — Vet Med |
| Rebecca Hester | Science & Technology in Society — CLAHS |
| Douglas Lind | Philosophy |
| Michael Moehler | Philosophy |
| George Morgan | Finance – Pamplin College |
| Mark Orr | Biocomplexity Institute - SDAL |
| Thomas Skuzinski | Urban Affairs & Planning |
| Samarth Swarup | Biocomplexity Institute |
| Kowk Ping Tsang | Economics |
| Dale Winling | History |
| Yang Zhang | Urban Affairs & Planning |
| Christopher Zobel | Information Technology – Pamplin College |

More information and faculty bios can be assessed from the website at:
<http://www.globalforum.vt.edu/network.html>

Summer Undergraduate Research Studios

The Global Forum on Urban and Regional Resilience (GFURR) at Virginia Tech, Hollins University, and Roanoke College have collaborated to lead an undergraduate research program in Roanoke this summer. Four faculty members from Virginia Tech and Hollins University mentored and supported 17 students from the three institutions who were accepted to the program.

The Summer Undergraduate Research lab was a 10-week program designed to give undergraduate students the opportunity to conduct research in the city of Roanoke.



Students-researchers focused on two main areas of inquiry:

- **Refugee Populations of Roanoke: Exploring Issues of Civic Engagement**
- **Virginia Tech/Roanoke Innovation Corridor Project**

**GFURR Summer Applied Planning and Policy Lab, Dr. Thomas Skuzinski
Urban Affairs and Planning, School of Public and International Affairs**

The GFURR Summer Applied Planning and Policy Lab engaged undergraduate student-researchers in research relevant to the fields of planning, public policy, public administration, and political science. For 2017, the lab focused on an innovation corridor grounded in health research, technology, and services being developed collaboratively between a major research university and healthcare provider. Student-researchers were introduced to four substantive areas:

Student-researchers gained experience in:

- Developing a clear research question and falsifiable hypotheses;
- Drafting an appropriate research design, including data collection, data management, selection of methodology, and analysis;
- Communicating findings to stakeholders and the scientific community through written reports, oral presentations, and peer-reviewed publications;
- Working with other student-researchers in the lab to develop a collaborative approach to communication about the research process and findings.
- Writing a literature review that integrates both theory and practice;

GFURR Summer Community Engagement Lab, Dr. C.L. Bohannon Landscape Architecture, School of Architecture + Design

Undergraduate students participating in the Summer Community Engagement Lab actively engaged in research that explores one or more components in the design and planning process, from problem definition, design development, and evaluation of design solutions. The lab provided invaluable training for students planning to pursue an advanced research degree or career in landscape architecture, urban planning and design, or architecture.

Critical to this lab was the notion of scholar activism in which participants interrogated systems and structures of inequality and power distribution and sought to develop authentic relationships between community partners, students, and faculty. In order to achieve this objective this lab used a community engaged research process rooted in discovery, integration, and application.

Student-researchers gained experience in

- ❖ Selection of appropriate literature and writing a literature review that integrates both theory and practice;
- ❖ Developing clear research questions that illustrate the intersection of design socio-political dimension of resilience;
- ❖ Creating an appropriate research design, including data collection, data management, selection of methodology, and data analysis;
- ❖ Co-developing collaborative methods of design practice with community partners;
- ❖ Communicating findings to stakeholders, community members, and the scientific community through written reports, design graphics, oral presentations, and peer-reviewed publications;
- ❖ Working with other student-researchers and community partners to develop a collaborative approach to the design research process and dissemination of findings

GFURR Refugee Summer Lab Dr. Jon Bohland – Hollins University, Dr. Rebecca Hester, Virginia Tech

The GFURR Refugee Summer Lab was envisioned as a research opportunity for six undergraduate students from Virginia Tech, Hollins University, and Roanoke College to engage in community-based research broadly related to the civic engagement, integration, and assimilation of refugees in Roanoke.

As a result of the summer lab, the students gained meaningful research experience, formed new relationships with each other and with refugee service providers in Roanoke, honed their presentation skills, and solidified their interest in researching and helping refugees as a career goal. Several of them went on to take a course at Virginia Tech on the history of refugees and began tutoring refugee children in the area. There was also serious discussion about creating an on-campus organization focused on refugee youth at Hollins and on starting a film series or other form of dialogue on campus to get more students involved in refugee issues at local universities.

The Global Forum hosted two visiting scientists in the fall of 2017

Dr. Julian Reid

In the fall of 2017, the Global Forum hosted renowned scholar of international relations and resilience, Julian Reid. Dr. Reid is the Chair of the International Relations department at Lapland University in Finland where his scholarship advances theories of biopolitics, cultural theory, postcolonial studies, indigenous studies, and critiques liberalism and resilience.



As a Visiting Scholar, Julian gave a public lecture entitled “The Indigenous Subject: Dispossessed, Perseverant, Resilient” which illustrated how indigenous subjectivity has historically been deployed by colonial powers to their own advantages and ends. The lecture reflected upon the possibility of a decolonized study of resilience and examined

the extent to which the West can learn from indigenous thought. In addition to sharing his work with the public, Julian also worked with faculty and students during his stay in Blacksburg. He offered a provocative seminar entitled “Becoming Indigenous: The Ontopolitics of the Anthropocene” where he argued that the dominant trends in indigenous critique are conceptualized in terms of learning to live in a state of perpetual crisis and that this framing myopically disciplines both indigenous and western populations alike.

Dr. Reid’s visit was the result of several collaborative scholarly projects with GFURR faculty Dr. Jennifer Lawrence and Dr. Jim Bohland. Julian contributed a chapter to Dr. Lawrence’s edited volume *Biopolitical Disaster* (2018). The volume posits the biopolitical entanglement of disaster production and response and in his capacity as contributor, Dr. Reid’s chapter “Interrogating the Neoliberal Biopolitics of the Sustainable Development-Resilience Nexus” demonstrates the appropriation of resilience for the (economic) security aims of the state. The scholarly collaboration between Dr. Reid and The Global Forum will be extended into the forthcoming (Routledge, 2018) volume *The Resilience Machine* (eds. Simin Davoudi, Jennifer Lawrence, and Jim Bohland), in which a chapter on “Securing the Imagination: The Politics of the Resilient Self” examines the machinic assemblage of resilience for individual subjects.

Most recently, Dr. Reid’s work has turned to examine issues of indigenous rights and state aims in the Arctic region. To learn more about Julian’s work, follow him on Twitter @JulReid and check out his research profile [https://lacris.ulapland.fi/en/persons/julian-reid\(1a4fe81a-beba-46e3-ba67-7bfe1ff2bb63\).html](https://lacris.ulapland.fi/en/persons/julian-reid(1a4fe81a-beba-46e3-ba67-7bfe1ff2bb63).html)

Dr. Jonathan Pugh



The Global Forum hosted Dr. Jonathan Pugh as a Visiting Scholar at the Global Forum in the fall of 2017. Dr. Pugh is a Senior Academic Fellow in The School of Geography, Politics, and Sociology at Newcastle University where his research interests encompass topics such as: small islands and archipelagos, contemporary developments in the Caribbean, participatory development, and the changing nature of radical politics. During his time as a Visiting Scholar, Jonathan generously offered his time and feedback to faculty and students in The Global Forum, met with university leadership, and offered a public lecture and seminar. Drawing on his scholarship on the relational turn in island studies, Dr. Pugh's public lecture entitled "Participation as Assemblage in the Caribbean"

examined the role of participation in policy initiatives designed to address environmental risk and exposure across seven Caribbean islands. Given the social, political, and economic reverberations from Hurricanes Harvey, Maria, and Irma and their impacts on the Caribbean in the fall of 2017, Dr. Pugh's lecture was especially timely and his work continues to resonate during the recovery from these immense storms. Examining the challenges for participatory development and calling for increasing resilience in the region against the backdrop of climatological pressures closely aligns with the work of The Global Forum.

A seminar entitled "Assemblage, Transversality, and Participation in the Neoliberal University" was led by Dr. Pugh during his time as a Visiting Scholar and sparked a wide-ranging conversation on the contemporary motivations of higher education, new forms of control, and the possibilities for participatory development to respond to the multiple crises that institutions of higher education are working to respond to. In this conversation, students and faculty addressed the pressures that academics face in responding to societal problems and the culture of metrics, evaluation, and instrumentalization that increasingly define higher education. The scholarly collaboration between Dr. Pugh and The Global Forum will be extended into the forthcoming (Routledge, 2018) volume *The Resilience Machine* (eds. Simin Davoudi, Jennifer Lawrence, and Jim Bohland), in which his co-authored chapter along with Dr. Kevin Grove (Florida International University) "Adaptation Machines or the Biopolitics of Adaptation" fuse Dr. Pugh's scholarly interests with the work of GFURR to examine the actors, networks, and agents of resilience-making.

Dr. Pugh also participated in the International Refugee Research Workshop, co-sponsored by the Global Forum on Resilience and Virginia Tech's School of Public and International Affairs, held in Arlington, VA on October 26 and 27, 2017.

To learn more about Jonathan's work, follow him on Twitter @jonnypugh1974 and check out his research profile <http://www.ncl.ac.uk/gps/staff/profile/jonathanpugh.html#background>

GFURR Faculty Fellows Receive NSF award on Disaster Resilience



Serving as Co-Principal Investigators, GFURR faculty fellows, Margaret Cowell, Chris Zobel and Yang Zhang were awarded a three million dollar grant to train graduate students in risk management. Dr. Robert Weiss is the principal investigator on the project.

The project, “Disaster Resilience and Risk Management (DRRM) - Creating quantitative decision making frameworks for multi-dimensional and multi-scale analysis of hazard impact” is open to graduate students from all departments.

Virginia Tech is one of only 17 recipients of the NSF Research Traineeship program awards.

The [Institute for Critical Technology and Applied Sciences](#) at Virginia Tech will provide programmatic space and support.

Other Faculty Fellow Funded Projects:

Hester, R.J. Proposal to the Institute for Society, Culture, and the Environment, Virginia Tech, for seed funding to conduct preliminary research in preparation for developing an NSF grant proposal. \$7,783.61. Funded.

Powell, Katrina, **Rebecca Hester**, Brett Shadle, Jennifer Lawrence, C.L. Bohannon, Rachel Weaver, Jon Catherwood-Ginn, Khaled Hassouna, Katherine Randall, Laura McCarter, Tarryn Abrahams, Ren Harman, "Sharing stories: Understanding place, identity, and narrative for policy change," Proposal submitted to the Policy Strategic Growth Area Planning Grant, \$2,500.00.

Hester, R.J. Proposal to the Dean's Advisory Committee for International Initiatives (DACII) to bring Stefan Elbe, Professor of International Relations and Director of the Centre for Global Health Policy. \$500.

David Weinreich (PI), **Thomas Skuzinski** (Co-PI), and Shima Hamidi (Co-PI)
Project title: Local Barriers to Regional Transportation: Understanding Transit System Fragmentation from an Institutionalist Perspective
Funder: U.S. Dept. of Transportation University Transportation Center--Center for Transportation Equity, Decisions, and Dollars
Amount: \$64,464.65
Performance period: 09/01/17 to 08/31/18

Thomas Skuzinski (PI)
Project title: Reimagining metropolitan fragmentation: The Local Autonomy Project
Funder: Regional Studies Association
Amount: \$12,241.00
Performance period: 11/13/17 to 11/12/18

Thomas Skuzinski (PI), Tripp Shealy (Co-PI), and Robin Panneton (Co-PI)
Project title: Decision Sciences for Resilience Communities: Research Experiences for Undergraduates (REU) Pilot Lab
Funder: Virginia Tech Institute for Critical Technologies and Applied Sciences (ICTAS)
Amount: \$10,000.00
Performance period: 11/01/17 to 07/01/18

CRISP Type 2: Collaborative Research: Resilience Analytics: A Data-Driven Approach for Enhanced Interdependent Network Resilience"

Funding Source: NSF-CRISP (subaward through Penn State) - Award #1541155

Funding Amount: \$291,153 (total: \$2,209,129)

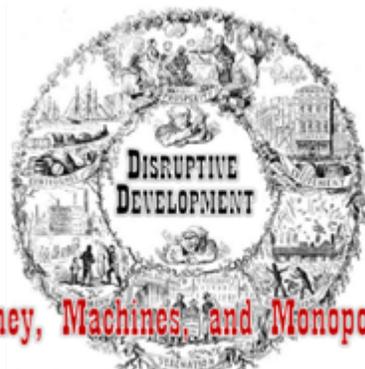
Submitted: 10/15/15 – 10/14/18

Principal Investigator: Dr. Christopher **Zobel**, Business Information Technology, VT

Global Forum Teaching Classes through the Honors College

The Global Forum added teaching classes in Virginia Tech's Honors College in academic year 2017/18. These classes, taught by Dan Simundza, are part of the Honors College's Discovery and Innovation Studios series, which offers students the opportunity to discover, define, and work on real-world problems within VT's Destination Areas and Strategic Growth Areas.

In Fall 2017, the Global Forum offered its first class, "Wall Street," which studied the development of money, credit, and financial systems.



The class provided students with a historical perspective of the development of finance, including the development of credit institutions in the ancient world, the development of joint stock corporations in the middle ages, and more recent applications of information technology to financial markets. Throughout,

the class's focus was on how innovations disrupt the status quo, both within the financial world and society more broadly. Students in this class developed and wrote policy proposals on topics including the impact of financial innovation on financial inclusion, the removal of the federal debt ceiling, and the possibility of a wholly digital US Dollar.

In Spring 2018, the Global Forum offered the class "Fintech," which studied the impact of modern technology on the financial arena. Our primary focus was on what promises to be the most transformative technology in a generation, the blockchain. While best known as the backbone of the cryptocurrency bitcoin, blockchain is also utilized in applications as diverse as trade finance, property registries, supply chain management, and online voting mechanisms. The class also investigated the impacts of algorithms on the financial world, with applications including robo-advisors and high-frequency trading. As final projects, the students are producing podcasts on topics including the cryptocurrency landscape at Virginia Tech, how human fallibility impacts the security of blockchains, and techniques used to value cryptocurrencies.

Over the next year, the Global Forum will roll out two new courses in addition to the Wall Street and Fintech courses. Together, these four courses will constitute a suite of classes in the Honors College, titled "Disruptive Development: Money, Machines, and Monopolies." The general themes for these courses will be set, but year-to-year the topics and focus will be determined by the students' interests and the projects on which they decide to work. For Fall 2018, we will debut a new course titled "Robots: AI, Algorithms, and the Smart Machines (R)evolution."

Global Forum Seminar Series

This year The Global Forum continued the seminar series focusing on issues that are related to the overarching theme of resilience. The seminars bring together faculty, students, and affiliated scholars and are intended to initiate a conversation amongst the academic communities at Virginia Tech and beyond who are working on various facets of resilience.



Presenters and titles for the seminar series are listed below:

Spring 2017

January, 2017:

Dr. Sarah Clinton, Associate Professor at School of Neuroscience at Virginia Tech

Title: Using Experimental Animal Models to Study Stress Coping and Resilience

February, 2017:

Dr. James Bohland, Principal Research Associate - Global Forum, Virginia Tech

Title: Valuing Resilience Policy from a Value Perspective: Research Agenda for Resilience

May, 2017:

Vanessa Guerra, PhD candidate, Environmental Design and Planning, College of Architecture and Urban Studies, Global Forum, Virginia Tech

Title: The Extent of Informal Car Share in Quito, Ecuador

Fall 2017

September, 2017

Dr. Julian Reid | Professor of International Relations, Lapland University

Title: “Becoming Indigenous: “The Ontopolitics of the Anthropocene”

October, 2017

Dr. Susan Gates | Visiting Professor School of Public and International Affairs, Virginia Tech

Title: “Days of Slaughter”

October, 2017

Dr. Jonathan Pugh | Senior Academic Fellow, Newcastle University

Title: “Participation as Assemblage in the Caribbean”

October, 2017

Dr. Jonathan Pugh | Senior Academic Fellow, Newcastle University

Title: “Assemblage, Transversality and Participation in the Neoliberal University”

November, 2017

Dr. Andy Scerri | Assistant Professor of Political Science, Virginia Tech

Title: “Taking Sustainability Seriously in the Piedmont Sprawl Belt?”

November, 2017

Michael Vadman | PhD Student in Department of Geosciences and Global Forum, Virginia Tech

Title: “Looking for Off-Fault Deformation and Measuring Strain Accumulation During the Past ~70 years on a Portion of the Locked San Andreas Fault”

November, 2017

Dr. Dan Simundza & Simone Franzi | Research Scientist at the Global Forum/PhD Student, PGG

Title: “Mapping Innovation Networks in the Financial Industry: Geographies of Blockchain Consortia”

December, 2017

Dr. Shannon Bell | Assistant Professor, Department of Sociology, Virginia Tech

Title: “Cultural Manipulation, Friends of Coal, and the Socially Constructed Barriers to a Resilient Economy in Central Appalachia”

ECOLOGIES OF



A PANEL DISCUSSION SHOWCASING ENVIRONMENTAL JUSTICE RESEARCH

Jennifer Lawrence, Panel Moderator

The Global Forum on Urban and Regional Resilience hosted a panel discussion entitled "**Ecologies of Injustice**" on April 10, 2017 held at The Inn at Virginia Tech.

The aim of the panel conversation was to bring together community members and scholars whose work addresses concerns of environmental justice in effort to increase our understanding of the ways in which the social, political, economic, and environmental landscape of injustice operates -- and what efforts are being made to intervene into the systemic conditions that produce injustice at all levels. Seven panelists (see attached participant biographies) provided wide-ranging perspectives, addressing environmental disproportionality on topics such as agriculture, extraction, and administration. The conversation was capped off with a plenary lecture by Dr. Simin Davoudi (Newcastle University) who urged the crowd to centrally locate a fundamental question of environmental justice within their work -- "When does unfairness become injustice?"

International Refugee Workshop

The Global Forum on Urban and Regional Resilience (GFURR) and the VT School of Public and International Affairs (SPIA) sponsored the International Refugee Research Workshop held at VT Arlington, VA campus. The workshop was held on October 26 and 27, 2017.

Undergraduate students from Virginia Tech and Hollins University presented their summer undergraduate research project centered around the Roanoke refugee community. This program was sponsored by GFURR, Hollins University and Roanoke College.



GFURR summer undergraduate students presented the results of their research

Objectives and Outcomes from the Conference include:

- Helping to prioritize outcomes for constituents: people seeking refuge
- Creating and supporting digital collaboration spaces
- Making research and policy impacts both systematic and pragmatic
- Focusing on needs of at local/municipal/small cities levels
- Assessing existing funding networks/sources that influence population statistics reference (PSR) resettlement and integration
- Developing research that responds to current and predictable political landscapes/contexts by showing feasibility for funding opportunities
- Making the necessary institutional, organizational, and individual commitments
- Maintaining an undergraduate and graduate student focus in fostering other areas of research, policy impacts, and public service
- Fostering a regional coalition of higher education institutions and organizations in Southwest Virginia: involving Hollins University and Roanoke College
- Enhancing publicservice opportunities for PSRs

Conference Presentations

Presentations by Graduate Students

Emma Buchanan

Association of Collegiate Schools of Planning — October 12-16, 2017



Masters of Urban and Regional Planning student, Emma Buchanan, along with Forum Fellow, Yang Zhang, presented research completed on the impact of Hurricane Sandy on housing transitions in NYC at the ACSP conference. The presentation was a part of the session titled, “Responding to Hazards & Hazardous Events,” which is part of the Housing and Community Development conference track. The presentation highlighted the work that Emma and Yang completed from the summer of 2016 through December of 2016. The research began as an opportunity for undergraduate research at the Forum.

Vera Smirnova

American Association of Geographers — 2017



'Territorialization of Crisis: Enclosure and Capitalist Appropriation of Land in the Late Imperial and Post-Soviet Russia'. PhD student, Vera Smirnova presented in a session titled "Contested Territories" which was devoted to exploring the struggles around the triad of land, territory, and power. This year AAG has focused more on the issues of racial and gender exploitation - starting with a talk by Nancy Fraser titled "From Exploitation to Expropriation: Geographies of Racialization in Historical Capitalism" and Noam Chomsky's reflection on the state of the world order today, to a critical understanding of capitalism's internal contradictions by David Harvey.

Simone Franzi

FinTech Risks and Opportunities: An Interdisciplinary Approach
Third Annual Financial Stability Conference
November 16-17, 2017



Doctoral student, Simone Franzi attended the conference FinTech Risks and Opportunities, co-organized by the US Office of Financial Research (OFR) and the Center on Finance, Law, and Policy at the University of Michigan.

The audience and the panelists were divided among scholars, students, and representatives of different US executive agencies (regulators). The topics discussed (see details below) can be categorized in two main areas: consumer financing and investments finance. The discussions progressed around the opportunities and the risks that new technological innovations are

opening (as the title suggests). As a first consideration, the activities started in the financial cluster of the Global Forum on Urban and Regional Resilience were talked to only tangentially. There is ample space for academic activities to study further digital currencies and the financial applications of the distributed ledger technologies (DLT). At this conference, these two topics were only a side note of scholars and regulators. In addition, members of the OFR have shown interest in the Global Forum activities and are to be considered as potential speakers to be invited in Blacksburg for guest and/or public lectures. Also, the FinRegLab startup is an entity to keep an eye on. Melissa Koida, former assistant deputy secretary at the US Treasury and founder of FinRegLab has shown interest in our activities and she would like to create an academic network of experts in financial regulation. She is interested in visiting Blacksburg and she could be invited for guest and/or public lectures. In sum, the conference was a good indicator of where scholars and regulators are focusing their attention and showing a possible research gap that the Global Forum could fill in. The conference was also a good opportunity to network with scholars and regulators.

The Great Regional Awakening: New Directions
June 4th-8th, 2017 Dublin Ireland

Simone Franzi attended the Annual Conference of the Regional Studies Association (RSA) in Dublin, Ireland where he presented the research of the Financial Resilience cluster at the Global Forum on Urban and Regional Resilience. Simone's presentation was part of a special session on the "Geographies of Fintech", where economic geographers from the United Kingdom, Belgium, and Brazil exposed their research results. The special session was organized by the FinGeo network, an open and interdisciplinary network of academics, practitioners and experts interested in research on the spatiality of money and finance. Simone presented "Mapping Innovation Networks in the Financial Industry: Geographies of Blockchain Consortia" and showed the differences and similarities of the emerging fintech sector, operating with blockchain and distributed ledger technology (DLT), with the broader structure of the financial industry. At the conference, he was also invited to chair a session on "innovation networks and spaces of collaboration." The conference was an opportunity to share ideas and results with other students and scholars around the role of regions in local and global economies. It was a successful networking event towards establishing the Global Forum as a leading institution in financial resilience research.

Michael Vadman



American Geophysical Union Fall Meeting
December 11-15 - New Orleans, LA

Presented Poster - Title: "Looking for Off-Fault Deformation and Measuring Strain Accumulation During the Past ~70 years on a Portion of the Locked San Andreas Fault"

Workshop

2017 Crustal Deformation Modeling Tutorial and Workshop,
June 26 - June 30, Golden, CO

The Crustal Deformation Modeling Tutorial and Workshop, run by the Computational Infrastructure for Geodynamics, is designed to teach computer



modeling and foster scientific discussions of crustal processes. The tutorial section teaches Pylith, CUBIT/Trelis, and Paraview, which together act as a full suite for finite-element modeling. There are formal talks from speakers as well as small group round-table discussions on the state of the field. At this workshop Michael learned how to integrate the

products of modeling into his research and contributed to discussions on problems in imaging fault slip.

Michael Vadman

Field Study

Carrizo Plain Fieldwork
June and September 2017

Modern techniques that measure movement of the Earth's crust at rates of millimeters/year can illuminate the properties of faults that produce major earthquakes; however, the period of time covered by this data is very short relative to the typical time between earthquakes. To expand this time window of high-resolution measurements, we are attempting to use historical aerial photographs to generate 3D surface displacement maps similar to those available from modern techniques.

To create these maps, we use a high-accuracy GNSS receiver to collect ground control points (GCP) that correspond to points on the aerial photographs. With the gathered GCP and aerial photography, we generate a time series of high-resolution point clouds with structure-from-motion photogrammetric techniques. From the time series, we can compute 3D surface displacements to look at deformation that occurred within each time interval.

Products from this fieldwork will be presented at the annual American Geophysical Union meeting in Fall 2017 and in future manuscripts.



Looking southwest over the San Andreas fault and the Carrizo Plain in the Temblor Ranges of California

Vanessa Guerra

Regional Studies Association, Latin America Division Conference –
Sao Paulo, Brazil – 2017



Doctoral candidate, Vanessa Guerra attended several sessions of the Regional Studies Association (RSA) conference. Among the many topics, she focused on: spatial justice and inequalities, urban land issues, urbanization in the global south and governance of metropolises providing her with different perspectives and material that other researchers in the same discipline. One particular example includes the different ways of addressing informality in Latin American cities, not only from regulatory processes perspectives but also from the recognition that cities and its governments have a lot to learn from these emerging systems.

Her presentation, “The Extent of Informal Car-Share,” helped her to positionate Ecuador’s Informal Car-Share systems in the

discussion and more importantly, provided valuable feedback. Among the main points include suggestions on the analysis of multidimensional poverty as a more objective way of measuring developing (as a way of measuring development beyond income) and suggestions of case study that could be relevant to my study.

March – April 2017: Poster Presentation

Vanessa presented a poster in the MASCARO Center for Sustainable Innovation at Pittsburg, PA and at the GSA Graduate Research Symposium at Virginia Tech. Her research focus on the extent of Informal Car Share Systems in the periphery of the City of Quito. Informal Car Share corridors—and the communities they connect—, were mapped and represented in the cartography of the City of Quito. Vanessa’s participation was awarded a Bronze Award by the GSA Graduate Research Symposium.

October – 2017: Paper Presentation, International Conference on Sustainable Infrastructure. American Association of Civil Engineers.

New York, NY

Vanessa presented a paper at the International Conference on Sustainable Infrastructure in New York, NY. Abstract: In Quito, Ecuador, the city periphery is dominated by vulnerable and disadvantaged households who must travel excessively long distances to access urban amenities and who are not served by the city’s formal public transport system. The lack of accessibility to formal public transportation led to the creation of an Informal Car Share (ICS) system, a network of private cars, vans, and

trucks. Although such systems provide a practical solution, they may lack the reliability, capacity, safety, and sustainability of their formal counterparts. In this paper, we build a foundation for future research on the effects and policy implications by describing the operation and geography of Quito's ICS and positioning it in the global landscape

Invited Speaker at Cityworks (Xpo), Roanoke, VA

Vanessa was an invited speaker at Cityworks (Xpo) 2017 to present her research regarding informal systems in Latin American cities. Vanessa's presentation focus on the the contribution of Informal Car Share systems in Quito to the resiliency of the city. Cityworks (Xpo) is one of the longest running placemaking conferences in the United States which focus remains on promoting and fostering Big Ideas for Better Places.

Vanessa Guerra Invited Speaker for TEDx - Quito, Ecuador

June 2017: Invited Speaker at TEDxQuito

Vanessa presented her research about the informal city at TEDx Quito last June 10th.



Among 20 local and international speakers, Vanessa convinced the audience at Teatro Sucre, a historic landmark in Quito established in 1890, that informality “is neither a mistake nor something cities should hide; it is a powerful force at the moment of shaping our cities, and it should be acknowledged like that”. Vanessa made her point by dispelling current paradigms about informality which were accompanied by international examples and a Quito’s case study. TEDx Quito is an independently organized TED event, devoted to share worldwide ideas worth spreading.

Presentations by GFURR Faculty

David Bieri



Invited Keynote presentations and lectures — 2017

“Gradual and Cataclysmic Money Revisited: How Detroit’s Turbulent Financial History Matters for Urban Theory.”

Glenn H. Beyer Memorial Lectureship. Cornell University, Ithaca, NY. (Keynote)

Abstract: Jane Jacobs' observation of a perpetual tension between "cataclysmic" and "gradual" capital flows across the urban hierarchy has gained new currency in the wake of the Great Financial Crisis. This talk reengages with these half-century-old claims by examining the evolution of the monetary-financial system and urban development as a joint historical process. Specifically, Bieri develops the case of Detroit as an urban center of "frontier finance" that plays a unique role in modern U.S. financial history — a tale that includes a major default on railroad bonds (1835), two national banking crises with Detroit at their origin (1837 and 1931), near-bankruptcy (1958), and actual bankruptcy (2013). As such, Detroit's variegated monetary-financial history typifies the urbanization of credit as a turbulent process that involves the clash of monopolists, corporate fraud, financial Ponzi schemes, enduring corruption, organized crime, and federal insurance abuse and bailouts that range from the great Free Banking experiment of the 1830s to the Obama administration's emergency rescue of Detroit's auto industry. Finally, this talk also offers a tale of one of Detroit's great success stories: The lasting iron grip on the city's economic fate by its financial robber barons — a two-century-old struggle over ownership and control that arcs across several regimes of accumulation from Charles Trowbridge, Detroit's first privateer-financier, to his present-day pendant, Dan Gilbert.

“Monetary Amnesia: How Regional Science Abandoned Monetary Thought.”

Cornell University, Ithaca, NY.(Seminar)

Abstract: From highly localized mass foreclosures to extreme municipal fiscal stress, the Great Financial Crisis has been a powerful reminder that the monetary-financial system—always and everywhere—matters for the evolution of the space-economy. Yet, the current literature in regional science and urban economics has little to say about monetary phenomena and their spatial consequences. The widespread disengagement of regional scientists with respect to money, credit, and banking represents a drastic break with the discipline’s intellectual origins over three-quarters of a century ago. This talk reexamines the monetary content of some of the foundational works in regional science. In particular, Bieri argues that August Lösch (1906–45) and Walter Isard (1919-2010), the former a student of Joseph Schumpeter and the latter a student of Alvin Hansen, both represent important branches in the long lineage of 20th century Continental and U.S. monetary thought, respectively. In doing so, this talk also outlines key elements of a research agenda that reengages with regional aspects of money and credit, casting them as central pillars of a Lösch-Isard synthesis.

“Money in Space: August Lösch’s Monetary Theory and its Relevance for the Regional Economics of Distribution.”

History of Economics Society, German Economic Association. Universität Siegen. (Lecture)

Abstract: The contemporary canon of economics has enshrined—especially under the influence the anglophone literature—the classical dichotomy and therefore contains only a few theoretical points of departure to deal with the spatial dimensions of monetary and credit phenomena. Such a disengagement with respect to regional phenomena of money and credit represents a break with the intellectual tradition of a long ancestry of spatial economists, stretching as far back as the seminal writings of Heinrich von Thünen’s. A reassessment of August Lösch’s (1906-1945) theoretical work on money—with special reference to his major work *Die räumliche Ordnung der Wirtschaft* (1940, 1944) and his posthumously published fragment “Die Theorie der Währung” (1949)—shows that Lösch, who in many respects can

be considered one of the most important founders of modern spatial economics, considers monetary and credit-theoretical elements to be integral aspects of analyzing spatial imbalances and regional economic distribution issues through the lens of the transfer problem. However, these aspects of the Löschian system are now almost completely forgotten. Thus, questions about the spatial neutrality of money, as well as its endogenous creation, are central elements in Lösch's work that can be traced directly to Schumpeter's monetary thought. In this context, Bieri further argues that Lösch's theoretical reflections on money also exhibit aspects of a credit view which was slowly establishing itself in the last years of the Weimar Republic. Thus, Lösch's treatment of money forms a central pillar of his ambition to develop a “theory of the business cycle in space”, the main focus of which is not on location choice, but on the reciprocal effects of trade and international economic activity on endogenously determined economic regions. On these grounds alone, the lack of recognition of Lösch's contributions to a spatially-oriented theory of money, let alone his (albeit rudimentary) attempts to link real and monetary elements in a synthesis of a theory of economic space with a theory of credit—consistent with “Ohlin's dream”—represents a historical curiosity, if not a puzzle.

“Binary Economics and Why We Should Care About the History of Economic Ideas.”

In *VT Advancing the Human Condition Symposium*. Virginia Tech (Panelist).

“Innovation, Entrepreneurship, and the Business Cycle. In *Entrepreneurship and Collective Action in Economic Development.*”

Office of International Research, Education and Development, Virginia Tech, Blacksburg, VA. (Workshop)

David Bieri

Media interviews

Morning News, Tax Cuts and Jobs Act series concludes ahead of 2018 implementation, WFIR News Talk Radio, 12/29/2017 (Radio)

How Much Rent Can You Really Afford? Experts Weigh In, Housing affordability, Earnest.com, 10/30/2017 (Online financial advising)

Is there—or is there not—an affordable housing crisis in the Twin Cities?, Housing affordability, MinnPost, 10/04/2017 (Newspaper)

Morning News, CBO realignment push by GOP called “partisan play”, WFIR News Talk Radio, 07/31/2017 (Radio)

Earn minimum wage in the US? You can afford to live in exactly 12 counties, Housing affordability, The Guardian Newspaper, 06/07/2017 (Newspaper)

Morning News, VT Prof doesn't think scrapping NAFTA was actually an option for Trump, WFIR News Talk Radio, 05/01/2017 (Radio)

Morning News, VT Prof: Exclusion of CEA chair could allow less mainstream economists to step up, WFIR News Talk Radio, 02/13/2017 (Radio)

News at 11, Trump's Inauguration Could Impact the Economy, WDBJ7 (CBS), 01/23/2017 (Television)

News at 11, Political Experts Weigh in on Economic Impact of Trump Presidency, WFXR (Fox), 01/20/2017 (Television)

Morning News, VT prof: More optimistic than others on economic impact of President Trump, WFIR News Talk Radio, 01/20/2017 (Radio)

New rules of spending, Housing affordability, MoneySense, 11/09/2016 (Online financial advising)

Jennifer Lawrence



Workshops and panels

Advancing the Human Condition Symposium | November 28th - 30th, 2017 | Blacksburg, VA

Title: Interconnected Ecologies: Socio-Environmental Pressures and Global Systems of Production

We are witnessing an extraordinary struggle for social, economic, and environmental justice. Such a momentous interval warrants renewed attention to the ways that inequitably-distributed environmental benefits and burdens impact all of society. This calls for outside-the-box thinking in search of creative ways to address glaring disparities. The contemporary relationship between society and the environment reflects longstanding structural inequalities. As climate change exacerbates unequal access to resources, the concerns of environmental scholars—fairness, truth, equity, and concern for future generations—permeate public discourse and are forming part of a larger conversation. Contemporary environmental pressures are proliferating in a range of material contexts including the quest for energy security, and the struggle for just infrastructures, and all of these circulate through extractive governing rationalities. Please join us in a conversation as we address these intersections and draw links to larger global phenomena such as environmentally forced migration and displacement, loss of biodiversity, and failures of environmental regulatory regimes.

Anthropocene Campus Philadelphia | October 22nd - 26th, 2017 | Philadelphia, PA

- [*Writing Global Histories in the Anthropocene*](#): Engaging the Anthropocene as historical genre: Periodization, scales, directionality, causality and other explanatory commitments are all on the table.
- [*Voice and Representation in the Anthropocene*](#): How have ideas of equity, security and inclusion become central to scholarship and policy of the Anthropocene?
- [*Slow Disaster*](#): Characterizing disaster as imminent and unexpected is a choice--what is revealed through the politics of pace in disasters? What if we calculated disasters of decades or centuries?
- [*Envirning Technology*](#): Considers the processes of environmental change and extreme environments mediated by and through technology: sensing and measuring are key.

International Refugee Research Partnership: Evidence For Smart Policy I October 26th - 27th, 2017 | Arlington, VA

The “refugee crisis” has become part of 21st century global reality. Whether due to war, famine, poverty, economic opportunity, human trafficking, environmental realities, or a combination of all, the number of refugees today are nearing the record number of displaced people during World War II. Persisting ‘frozen conflicts’ or the internal breakdown of the rule of law leading to factional conflicts suggest that this state of affairs will continue. Ideologues and media pundits frequently assert negative portrayals of those seeking refuge as a burden on society, a drain on a country’s resources, a source of criminal activity, or threats to security. The danger and despair from which many refugees flee is often recreated and intensified in their journey to safety and in the camps where they cluster, waiting for governments to decide their fate. Support and advocacy groups across the globe work to highlight and relieve the misery and danger refugees must endure, and to alter the perception and build support for refugees. Some scholars, and refugees themselves argue that more attention should be paid to the actions of refugees themselves to shape their own lives and secure their futures. Often this means *avoiding* governmental and non-governmental agencies. In Africa, for example, since the 1960s many refugees have tried to keep out of camps and not register with governments, because of the various dangers, bureaucratic nightmares, and paternalism involved in the ‘refugee regime.’ Research into refugee agency is an especially important part of any research on how refugees contribute economically (they often contribute in ways that UNHCR does not control or encourage) and how they integrate (often making personal connections outside of official channels). The reasons for the refugee influx, their ability to integrate in another country, their contributions – or not – to the societies in which they emigrate are some of the questions that loom large for decision makers across the globe. Comprehensive research based on carefully vetted empirical evidence, including refugee testimonies and conventional data analytics, can help shine a light on the complex circumstances contributing to the suffering of people seeking refuge. Research guided by new and emerging best practices can, therefore, influence decision-making, policy analysis, and complex coordination of different entities attempting to respond to migration crises in realistic and humane ways.

Invited Lectures:

November 2017 | University of Denver --
“Resilience in Socio-Ecological Systems”

October 2017 | ASPECT Books at the Library -- "Biopolitical Disaster"

September 2017 | St. Olaf College --
“Governing Disaster, Sustaining Degradation”

September 2017 | Guest Lecture for Technoscience & the Anthropocene Course in STS
at Virginia Tech --
“Complex Technologies and Manufactured Risk”

April 2017 | Winthrop University --
“Living With Disaster” and “Manufacturing Biopolitical Disaster”

March 2017 | Student Coalition for Progressive Education at Virginia Tech --
“Capitalism, High-Modernism, and Architecture”

February 2017 | Roanoke College --
“Cascading Disaster and Deepwater Horizon”

GFURR geologists explore the relationship between earthquakes and volcanos in central Oregon



Fissure

Looking through a large ground fissure within a fault zone ~1 km from the south end of a chain of volcanic features and related lava flows. The elevation change from right to left is due to displacement across the fault zone occurring through multiple prehistoric earthquakes.

GFURR research professor Sean Bemis and PhD student Michael Vadman spent a week in central Oregon conducting a reconnaissance survey of a poorly studied region of widespread active faulting and volcanism. While our understanding of earthquake and volcanic hazards in the Pacific Northwest is dominated by the potential for large subduction zone earthquakes along the coast and the highly visible volcanoes such as Mt. St. Helens and Mt. Rainier, there are additional earthquake and volcano sources throughout the region whose hazard is unconstrained. Despite decades of research geologic hazard studies, there is still a widespread need for basic observations about the timing, size, and frequency these potentially damaging events. In particular, in a region where these hazards exist together, we seek to understand whether earthquakes are capable of triggering volcanic eruptions, and if so, what are the geologic controls on these relationships.

Motivating our research in this region is that, although there are no large historic earthquakes in central Oregon, landforms produced during prehistoric earthquakes are abundant in topographic data and satellite imagery of the region. Likewise, the widespread presence of volcanic deposits and landforms indicates a long history of persistent volcanic eruptions.

The primary focus of our fieldwork was to test what kind of information is available to determine when prehistoric earthquakes occurred on faults in our target region. To do this, we excavated small trenches across the landforms that record a prehistoric break in the ground surface. In the walls of these trenches we map layers of subsurface sediment and soils, looking to document deformation and offset of these layers that cannot be explained by non-earthquake related processes. For example, our excavations uncovered a thick layer of volcanic ash known as the 'Mazama tephra' on top of gravelly sediment exhibiting properties that show it was the ground surface prior to the deposition of the Mazama tephra. This gravelly sediment and the Mazama tephra are offset across three distinct breaks. The offsets are characteristic of earthquake-related deformation near the ground surface, and the fact that the Mazama tephra is offset demonstrates that the earthquake occurred after



Davis-Wickiup-fault

View looking south across Wickiup Reservoir toward Davis Mountain. An exposure of a fault appears just above lake level near the right edge of the photo. This fault continues southward and cuts across Davis Mountain. One of our trench excavations was on this fault, ~700 meters to the north (behind the camera). This fault is just one of at least 5 that cut across Wickiup Reservoir. The haze across Davis Mountain is from forest fires in the Cascade Range to the west.

the deposition of that volcanic ash. The source of the Mazama tephra was the huge eruption that formed Crater Lake (of Crater Lake National Park fame) 90 km to the south-southeast, which occurred ~7700 years ago. Additional work will be required to refine this earthquake further, but our results are very promising for the prospects of developing earthquake records for this fault and the numerous others in the region through continuing research.

We also visited a spectacular location where lavas have erupted out of a fault zone. Along this fault zone to the south past where the lavas are present, there is a large, open ground fissure (see picture) that likely opened during multiple prehistoric earthquakes. Future work will target dating these lava flows and the timing of earthquakes as a test for whether earthquakes on this fault zone can induce the production of lava.



*South Twin Lake
scarp*

One of our trench sites on an earthquake-related landform near South Twin Lake. These landforms can be difficult to see in the field, and is expressed here by the gentle change in elevation from left to right across the photo. This subtle step is continuous in a nearly straight line for over a kilometer.

This spring we will be preparing a manuscript describing the faults in the region and our evidence for an earthquake on one of our target faults within the past 7700 years. We are also working with volcanologist colleagues to prepare a National Science Foundation proposal to support a multi-year project documenting the complex history of volcano and earthquake activity in central Oregon and using this to test hypotheses about ability of earthquakes to trigger volcanic eruption and what conditions might be required for this to occur.

Global Forum Partnerships

Social Decisions and Analytics Laboratory (SDAL)

In 2017, the Global Forum on Urban and Regional Resilience contributed to several projects defined below in support of the Social and Decision Analytics Laboratory (SDAL). As a result of this work, partially funded by GFURR, SDAL's research is expanding to include human services, parks and recreation, and libraries.



Roanoke, Virginia

In collaboration with and funding from GFURR, SDAL addressed two questions about measuring (1) the integration of refugees into host communities and countries and (2) the economic impact of refugees on host communities and countries. The research involved computing a Refugee Location Index (RLI) and a Socioeconomic Vulnerability Index using American Community Survey data and local data; creating an economic characterization of the Roanoke and surrounding areas and conducting sentiment analysis of local news focused on refugees. The research was conducted to establish the feasibility of addressing the two questions through local and national data. SDAL delivered a report to GFURR in the Fall: "Characterizing Refugees and Vulnerable Populations of Roanoke, Virginia."

Arlington County, Virginia County Manager’s Office, Communications –

SDAL examined current call center operations and identified opportunities for streamlining and coordinating operational call centers within and across lines of services in Arlington County. Four options were presented ranging from no change, to consolidation at the department level, to providing a single number information line, to a fully integrated 311 call center.

Department of Community Planning, Housing and Development – (1) SADL used local real estate tax assessment data to identify the availability of affordable housing in Arlington. The analysis included computing diversity indexes using housing value as a proxy for wealth. The Arlington demographers used the findings in their long-run planning analyses to predict school age populations and housing needs.

2020 Census Local Update of Census Addresses Operation (LUCA) – Using GIS data obtained through the Arlington County Open Data website, SDAL has developed software to obtain address data for each unit in an apartment or condominium building and to validate the address through checks against other data sources, such as US Postal Service addresses and other commercial products. (3) Among regional governments, funding for services such as public transportation often relies on accurate estimates of local employment. To capture a clearer picture of its working population, SDAL assessed the feasibility of new methods for filling in the gaps left by federal employment data.

Department of Human Services – SDAL is conducting a pilot with DHS to link their data across two divisions using the Virginia Tech Secure Anonymous Linkage Method (SAFR-Link) to enable record-level data from DHS systems to be accessed, linked, and integrated for analysis. The research will allow DHS to answer questions such as the number customers DHS serves on any given day, the demographics of the customers that they are serving, the distribution of customers compare with overall county demographics, and identification of emerging subpopulations and eligible individuals that may not being served by DHS.

Department of Parks and Recreation (DPR) – SDAL analyzed DPR registration data to identify whether they are reaching all possible customers who could benefit from fee reductions. SDAL created vulnerability indexes to by Census Block Group and for each school and identified the Census Block Groups in which the vulnerability index is in the top quartile and less than 10 households receiving fee discount. These are potential areas that DPR could increase outreach

Fire/EMS – SDAL conducted several projects to improve the situational awareness of the Fire Chief through 911 data, combined with other local sources of data, for example: (1) built a predictive model to identify areas of the county where homes are less likely to have working smoke detectors; (2) modeled response time by fire station for structure fires; (3) identified location of frequent callers and frequent locations such as senior homes and rehabilitation centers; (4) calculated utilization of fire engine and medical units over time.

Office of Emergency Management – SDAL conducted a pilot study to identify messaging patterns that keep users engaged with their regional emergency alert systems, allowing officials to focus outreach efforts toward populations with the lowest levels of enrollment.

Information Technology Division - Working with Arlington County's chief digital officer, students in SDAL's Data Science for the Public Good program established a comprehensive set of criteria that can be used to develop and improve any open data portal.

Arlington County Police Department (ACPD) – (1) SDAL is conducting research to analyze the impact of the ACPD's Arlington Restaurant Initiative (ARI) to assess whether ARI lowers crime. ACPD goal is to keep people safe, so instead of putting inebriated people in jail they put them in a cab home. SDAL is developing a multi-source data-driven measurement tool to allow the ACPD the ability to analyze the economic and social impact of their program; (2) SDAL modeled three specific crime types that are of particular interest to the police department: Domestic Violence, Illegal Drugs, Mental Health Issues and to characterize Arlington communities that are vulnerable to these specific crime types. Through the research, 23 different types of Points of Interest (relevant venues that provide information about neighborhood functions) were identified.

Fairfax County, Virginia, Department of Human Services – Fairfax Health and Human Services (HHS) is interested in developing the capacity for data-driven approaches to gain insights on current issues and build forecasts to inform future issues. They would like to expand internal HHS capacity to access and integrate Fairfax County, state, and federal data in useful ways to address critical problems. In this context, SDAL is working with DHS on two projects related to youth to characterize factors at the county and sub-county level and to create an exploratory model to inform policy options: (1) obesity and (2) depression.

Office of Emergency Management – SDAL analyzed Fairfax Emergency Alert data to address their questions about number of sign-ups by time and geography and opportunities to increase registrations, with a focus on vulnerable populations.

State Council for Higher Education for Virginia (SCHEV) – College Going Cultures
SDAL conducted a pilot study across two clusters of counties in the Richmond area and Appalachia to understand the factors that might explain why the percentage of the population that does not obtain postsecondary education is high in some of these counties. Using the literature about 'college-going cultures', SDAL collected publicly available local and state data for each of the high schools in the 7 counties studied. Using these data, a variety of modeling approaches, based on those used in political campaigns, were used to predict post-high school outcome plans to go to attend college.

Publications

Book Chapters:

- **Bieri, D.S.** (forthcoming): “Back to the Future: Lösch, Isard, and the Role of Money and Credit in the Space-Economy,” in *Regional Research Frontiers: The Next Fifty Years*, edited by R. L. JACKSON AND P. V. SCHAEFFER. Springer, Heidelberg and New York.
- **Cowell, M.**, DeSouza, K. (in press). “Micro-scale Disasters and Local Resiliency,” in *The Resiliency Challenge: Transforming Theory to Action*. **James Bohland** and Jack Harrald (Eds.) (Ed.), Charles C Thomas Press.
- **Lawrence, Jennifer L.** “Manufacturing Biopolitical Disaster: Instrumental (Ir)Rationality and the Deepwater Horizon Disaster” in “Biopolitical Disaster.” Routledge (Interventions). 2017.
- **Lawrence, Jennifer L.** ”Living With Disaster” in “Biopolitical Disaster.” Co-authored with Sarah Wiebe. Routledge (Interventions). 2017.
- **Lawrence, Jennifer L.** “Commodifying Crisis” in “Biopolitical Disaster.” Routledge (Interventions). 2017.
- **Lawrence, Jennifer L.** “Governmentalities of Disaster” in “Biopolitical Disaster.” Routledge (Interventions). 2017.
- **Skuzinski Thomas** and Evangeline Linkous. (forthcoming, December). “Transfer of Development Rights in the United States” in *Instruments of Land Policy: Dealing with Scarcity of Land*. Gerber, Jean-David, Thomas Hartmann, and Andreas Hengstermann (Eds.) Routledge
- **Zobel, C.W.**, Baghersad, M., and Zhang, Y. (2017). “An approach for quantifying the multidimensional nature of disaster resilience in the context of municipal service provision,” In A. Fekete and F. Fiedrich (Eds.), *Urban Disaster Resilience and Security*: Springer, 239-259.
- Wiens, M., Schätter, F., **Zobel, C.W.**, and Schultmann, F. (2017). “Collaborative Emergency Supply Chains for Essential Goods and Services,” In A. Fekete and F. Fiedrich (Eds.), *Urban Disaster Resilience and Security*: Springer, 145-168.

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- **Orr, M.G.**, Galea, S., Kaplan, G.K. (2016:In Press). "Understanding macrosocial policy using complex systems methods: A case study in population health." Policy approaches to In Kaplan, G. K., (Eds), *Growing Inequality: Bridging Complex Systems, Population Health, and Health Disparities*. Westphalia Press: Washington, DC.
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- **Orr M. G.**, Chen D.Y., Zhi Q., Gershon, R.R. (2016). Are we ready for mass fatality incidents? Preparedness of the US mass fatality infrastructure. *Disaster Medicine & Public Health Preparedness*, (10) 1 87-97.
- **Orr M.G.**, Chen D. "Systems of behavior and human health." (2016) Galea S, El-Sayed A, eds. New York: Oxford University Press; *Systems Science and Population Health*.
- **Orr M.G.**, Chen D., Ziemer K. (2016) "Computational models of health behavior" In: Vallacher R, Nowak A, Read S, eds. *Computational Models in Social Psychology*. New York: Psychology Press/Routledge; In Press.
- Todd, C.S., Stanekzai, M.R., Nasir, A., Fiekert, K., **Orr M.G.**, Strathdee, S. A., Vladhov, D. (2016). "Change in attitudes and knowledge of problem drug use and harm reduction among a community cohort in Kabul, Afghanistan." *Eastern Mediterranean Health Journal*, (22) 3, 107-116.
- **Pugh, J.** (2018) 'Relationality and island studies in the Anthropocene', *Island Studies Journal*, e-pub ahead of print. <https://doi.org/10.24043/isj.48>
- **Pugh J.** and Grove, K. Assemblage, Transverality and Participation in the Neoliberal University, *EPD: society and space*, 2017, 35, 6, 1134–1152.
- **Pugh, J.** (with The Analogue University) Academic identities in the managed university: Neoliberalism and resistance at Newcastle University, UK, *Australian University Review*, 2017, 59, 2, 23-36.

- **Pugh J.** ([with The Analogue University](#)) [Control, resistance and the 'Data University': towards a third wave critique.](#) Antipode 2017. <https://antipodefoundation.org/2017/03/31/control-resistance-and-the-data-university/>
- **Pugh J.** [A sceptical approach to 'the everyday': Relating Stanley Cavell and Human Geography.](#) Geoforum 2017, 79, 36-45.
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- **Simundza, D.** (2016) "When Should Governments Reveal Criminal Histories?" *Review of Law and Economics*, (12) 2, 311-331.
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- Arnette, A. and **Zobel, C.W.** (2016) "Investigation of Material Convergence in the September 2013 Colorado Floods," *Natural Hazards Review*, 17(2).

Invited Lectures:

- **Bieri, D. S.** (2017). Gradual and Cataclysmic Money Revisited: How Detroit's Turbulent Financial History Matters for Urban Theory. In *Glenn H. Beyer Memorial Lectureship*. Cornell University, Ithaca, NY.(Keynote)
- **Bieri, D. S.** (2017). Monetary Amnesia: How Regional Science Abandoned Monetary Thought. In *Regional Science Colloquium*. Cornell University, Ithaca, NY.(Seminar)
- **Bieri, D. S.** (2017). Binary Economics and Why We Should Care About the History of Economic Ideas. In *VT Advancing the Human Condition Symposium*. Virginia Tech (Panelist).
- **Bieri, D. S.** (2017). Innovation, Entrepreneurship, and the Business Cycle. In *Entrepreneurship and Collective Action in Economic Development*. Office of International Research, Education and Development, Virginia Tech, Blacksburg, VA. (Workshop)
- **Lawrence, J. L.**, "Resilience in Socio-Ecological Systems", University of Denver, Denver, Colorado, November 2017.
- **Lawrence, J. L.**, "Biopolitical Disaster, " ASPECT Books at the Library, Virginia Tech, October 2017.
- **Lawrence, J. L.**, "Governing Disaster, Sustaining Degradation," St. Olaf College, Northfield, Minnesota, September 2017.
- **Lawrence, J. L.**, "Complex Technologies and Manufactured Risk," Guest Lecture for Technoscience & the Anthropocene Course in STS at Virginia Tech, September 2017
- **Lawrence, J. L.**, Winthrop University, Rock Hill, South Carolina
"Living With Disaster" and "Manufacturing Biopolitical Disaster," April 2017.
- **Lawrence, J. L.**, Student Coalition for Progressive Education at Virginia Tech --
"Capitalism, High-Modernism, and Architecture," March 2017.
- **Lawrence, J. L.**, "Cascading Disaster and Deepwater Horizon," Roanoke College, Roanoke, Virginia, February 2107.