

Millard McElwee

CONTACT INFORMATION

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EDUCATION

University of California, Berkeley

Ph.D. Candidate, Civil Engineering (expected May 2020)

- Dissertation Topic: Transportation simulations coupled with urban analytic metrics can identify vulnerabilities in networks subject to natural hazards
- Advisor: Kenichi Soga

M.Eng. in Civil Engineering, Fall 2016

Carnegie Mellon University

B.S. in Civil Engineering, Spring 2015

RESEARCH INTERESTS

- | | |
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| <input type="checkbox"/> Traffic Simulations | <input type="checkbox"/> System Interdependencies |
| <input type="checkbox"/> Geographic Information Systems | <input type="checkbox"/> Natural Hazards |
| <input type="checkbox"/> Environmental Justice | <input type="checkbox"/> Machine Learning and Data Analytics |
| <input type="checkbox"/> Community Resilience | <input type="checkbox"/> Energy Systems |

EMPLOYMENT HISTORY

National Institute of Standards and Technology

Guest Researcher, 2016–2018

- Worked in the community resilience department at NIST on modeling dependencies of electrical and telecommunication systems to assist in hazard mitigation.
- Developed a framework in Matlab for mapping the recovery time of these systems which is crucial for communities who are interested in improving their resilience.
- Computed Monte Carlo simulations to determine the repair cost of various networks after a tornado incident.

Clark Construction Group

Project Management Intern, Summer 2015

- Conducted field and project engineering tasks for the Dulles Metrorail Silver Line Phase 2 Project (2.6 billion).
- Assisted project managers with writing scopes for subcontractors, performed quantity takeoffs, and recorded and verified fieldwork.
- Supervised the removal, temporary placement, and permanent installation of overhead traffic signs along highway.

Delmar Systems

Engineering Intern, 2013–2014

- Wrote code in Visual Basics Applications (VBA) to calculate the capacity of 120 offshore suction anchor piles simultaneously.
- Collaborated with geotechnical engineers to develop two modern anchor designs for offshore stiff soils.
- Submitted a proposal to the CEO to fund a research division and was approved and funded within six months.

TEACHING EXPERIENCE	Spring 2020	University of California, Berkeley Graduate Student Instructor E7 Intro to Computer Programming for Scientists and Engineers
	Summer 2019	Carnegie Mellon Summer Academy Mathematics and Science Project Instructor, Engineering Resilience Under Natural Disasters
	Summer 2019	Carnegie Mellon Artificial Intelligence For All Project Instructor, Neural Networks in Disaster Resilience
	Summer 2018	Carnegie Mellon Summer Academy Mathematics and Science Project Instructor, Sensor Networks for Monitoring Natural Water Systems
	Summer 2018	Carnegie Mellon Artificial Intelligence For All Project Instructor, Geospatial Data Analytics
PUBLICATIONS (PREPARATION)		M. McElwee and T. McAllister, <i>Community Resilience of Electric Power Networks and Telecommunication Networks Exposed to Tornado Hazards</i> , submitting to Sustainable and Resilient Infrastructure. (December 2019).
		M. McElwee and B. Zhao <i>Resilience of Transportation Networks Subject to Short-Notice Evacuation due to Fire Hazards</i> , submitting to Transportation Research Interdisci- plinary Perspectives. (December 2019).
PUBLICATIONS		L. Comfort, K. Soga, M. Stacey, M. McElwee, C. Ecosse, J. Dressler, and B. Zhao <i>Collective Action in Communities, Exposed to Recurring Hazards: The Camp Fire, Butte County, California, November 8, 2018</i> , Natural Hazards Center Quick Response Reports. (2019).
		M. McElwee, B. Zhao, and K. Soga, <i>Real-time Analysis of City Scale Transportation Networks in New Orleans Metropolitan Area using an Agent Based Model Approach</i> , MATEC Web of Conf. 271 (2019), https://doi.org/10.1051/mateconf/201927106007 .
CONFERENCE TALKS		<i>Simulation Frameworks For Assessing Community Resilience Under Natural Hazards</i> , Pacific Earthquake Engineering Research (PEER) Annual Meeting, Los Angeles, CA. (January 2019).
OTHER TALKS		<i>Real-time Analysis of City Scale Transportation Networks Using an Agent-Based Model Approach</i> , Carnegie Mellon University (April 2019),
HONORS AND AWARDS	2011–Present	Gates Millennium Scholar
	2016–2018	National Physical Science Consortium (NPSC) Fellow
	2014–2015	American Society of Civil Engineers (ASCE) 2014-2015 American Bridge Leadership Award
STUDY ABROAD	Spring 2014	Clean Energy Development in Beijing, China
	Summer 2012	Infrastructure Development in Manila, Philippines
LICENSES		Qualifying Party for Louisiana State Licensing Board for Contractors (Highway, Street, and Bridge Construction)
GRANTS	2019	University of California, Berkeley Center for Information Technol- ogy in the Interest of Society Seed Funding (60,000)
	2019	University of Colorado, Boulder Natural Hazards Quick Response Grant (4,320)
	2019	University of California, Berkeley Global Metropolitan Studies Summer Research Award (2,000)

REFERENCES

Kenichi Soga, Donald H. McLaughlin Chair in Mineral Engineering and Chancellor Professor, University of California, Berkeley, (510) 664-7534, soga@berkeley.edu

James Garrett Jr., University Provost and Thomas Lord Professorship of Civil and Environmental Engineering, Carnegie Mellon University, (412) 268-5090, garrett@cmu.edu

David Dzombak., Hamerschlag University Professor and Department Head, Civil and Environmental Engineering, Carnegie Mellon University, (412) 268-2946, dzombak@cmu.edu