

TOM LOGAN

Lecturer in Civil Systems Engineering

Civil and Natural Resources Engineering, University of Canterbury, Christchurch, New Zealand

tom.logan@canterbury.ac.nz

www.tomlogan.co.nz

reckoningrisk.com

EDUCATION

University of Michigan, Ann Arbor, USA

Integrating Risk Science and Urban Planning: Mitigating Hazards and Protecting Our Communities 2019

PhD in Industrial and Operations Engineering

Advisor: [S. Guikema](#)

Johns Hopkins University, Baltimore, USA

Master of Science in Geography and Environmental Engineering 2015

University of Canterbury, New Zealand

Bachelor of Science in Mathematics 2014

Bachelor of Engineering in Natural Resources Engineering with First Class Honours 2013

RESEARCH INTERESTS

Methodological

Risk science, statistical modeling, agent-based and complex-system modeling, data analytics, resilience assessment

Application areas

Climate change adaptation, urban planning, civil systems engineering, coupled natural-human systems

JOURNAL PUBLICATIONS

- Williams, T. G., Logan, T. M., Zuo, C. T., Liberman, K. D., Guikema, S. D. "Parks and safety: a comparative study of green space access and its inequities in five US cities." *Landscape and Urban Planning* *under review*
- Aldarondo, F., Logan, T., Guikema, S. "Assessing Influencing Factors for Evacuation Behavior Under Repeated Hurricanes Using Travel Time Data." *Risk Analysis* *under review*
- Marasco, D., Murray-Tuite, P., Guikema, S., Logan, T. "Time to leave: An analysis of travel times during the approach and landfall of Hurricane Irma." *Natural Hazards* *under review*
- White, A., Guikema, S., Logan, T.M., "Persistent Patterns of Discriminatory Housing Policy and Inequity: A Spatial Analysis." *PLOS One* *under review*
- Bordley, R., Keisler, J., Logan, T. "[Managing projects with uncertain deadlines.](#)" *European Journal of Operations Research* 2018
- Logan, T., Guikema, S., Bricker, J. "[Hard-adaptive measures can increase vulnerability to storm surge and tsunami hazards over time.](#)" *Nature Sustainability* 2018
- Logan, T., Williams, T., Nisbet, A., Liberman, K., Zuo, C. T., Guikema, S. D. "[Evaluating urban accessibility: Leveraging open-source data and analytics to overcome previous limitations.](#)" *Environment and Planning B: Urban Analytics and City Science*. 2017
- Logan, T., McLeod, S., Guikema, S. "[Predictive models in horticulture: A case study with Royal Gala apples.](#)" *Scientia Horticulturae*, 209, 201-213 2016

NON-PEER-REVIEWED PUBLICATIONS

- Logan, T. M., and Arnott, J. "[You've got the power.](#)" *Nature* 2017

INDUSTRY EXPERIENCE

- One Concern**, *Resilience Data Scientist*, Palo Alto, CA, USA 2018
Based on my research, I developed the resilience product for use by cities.
- First Quartile Consulting**, *Data Consultant*, USA 2016
Predictive modelling and data compilation.
- Beca Infrastructure Ltd.**, *Engineering Technician*, Christchurch, NZ 2012
Water team: technical drawing management, winery wastewater regulation, other projects
- Fulton Hogan Christchurch Southern Motorway Project Team**, *Student Engineer*, NZ 2011
Labouring, surveying, quality assurance, and other jobs as required.

Abley Transportation Consultants , <i>Technical Assistant</i> , Christchurch, NZ	2011
I wrote Python code to process NZ transport survey data and conducted traffic surveys.	
Student Bookshelf Ltd. , <i>Director</i> , NZ	2011 - 2013
Co-founder of the online textbook store. Jointly responsible for inventory management, accounting, deliveries.	

TEACHING EXPERIENCE

Lecturer

IOE 460: Decision Analysis, University of Michigan	2017
IOE 460: Decision Analysis (Substitute), University of Michigan	2015
570.210: Computational, Mathematical Modelling (Guest), Johns Hopkins University	2015
ENCN304: Deterministic Mathematical Methods (Guest), University of Canterbury	2014

Graduate Student Instructor

IOE 316: Intro. to Markov Processes, University of Michigan	2018
IOE 460: Decision Analysis, University of Michigan	2016

Undergraduate Student Instructor

ENCN304: Deterministic Mathematical Methods (Coordinator), University of Canterbury	2014
ENCN305: Stoch. Modelling and Programming, University of Canterbury	2014
EMTH171: Math Modelling and Computation, University of Canterbury	2013
EMTH210: Engineering Mathematics 2, University of Canterbury	2011-2014

HONOURS AND AWARDS

Distinguished Leadership Award, College of Engineering, University of Michigan	2019
J X Kasperson Student Paper Award , American Association of Geographers annual meeting	2019
Rackham Predoctoral Fellowship , University of Michigan	2018
Honourable mention, Industrial & Operations Engineering Bonder Fellowship , University of Michigan	2017
Conference Travel Grant, Rackham Graduate School, University of Michigan	2017
Professional Development Grant, Rackham Graduate School, University of Michigan	2017
Poster prize: 1st Industrial & Operations Engineering. Michigan Student Symposium for Interdisciplinary Statistical Sciences .	2016
Poster prize: 4 th Civil & Environmental Engineering. Michigan Engineering Graduate Symposium .	2016
Gordon Croft Fellowship from JHU Environment, Energy, Sustainability, Health Institute	2014
Dean Robert H. Roy Fellowship for graduate study at Johns Hopkins University	2014
Fulbright New Zealand Science and Innovation Graduate Award	2013
John R Templin Trust Postgraduate Scholarship	2013
Allan Wilson Centre Research Scholarship	2013
Environment Canterbury Prize in Natural Resources Engineering	2012
Tonkin and Taylor Prize for Hydrology and Hydraulic Engineering	2012
First Prize in Sophomore Civil & Natural Resource Engineers' Communication Portfolio	2011
University of Canterbury's Mathematics Research Scholarship	2010
University of Canterbury's Emerging Leaders' Scholarship	2010

UNIVERSITY SERVICE

Industrial and Operations Engineering Department , <i>PhD mentor program co-coordinator</i>	2017 - 2019
Michigan University-wide Sustainability and Environment (MUSE) Workshop , Rackham Interdisciplinary Workshop, University of Michigan, <i>Co-convenor</i>	2017 - 2019

Michigan University-wide Sustainability and Environment (MUSE) Conference, <i>Organising Committee, Logistics & Webmaster</i>	2017 - 2019
Graduate student outdoor club (aka. ARRO), University of Michigan, <i>Founder and co-president</i>	2017 - 2019
Institute for Operations Research and Management Science, Student Chapter at the University of Michigan, <i>Secretary</i>	2017
Michigan Student Symposium for Interdisciplinary Statistical Sciences, <i>Organising committee</i>	2016 -2017
Epsilon Eta, Professional Environmental Fraternity, University of Michigan, <i>Graduate advisor</i>	2015 -2017

PROFESSIONAL SERVICE

Editorial Board, <i>Journal of Infrastructure Systems</i>	2019 - present
Reviewer, <i>Journal of Risk Analysis</i>	2016 - present
Reviewer, <i>Journal of Infrastructure Systems</i>	2016 - present
Project mentor, <i>Seattle City for All hackathon,</i> Seattle	2017

OTHER CERTIFICATIONS AND TRAINING

Santa Fe Institute, Complex Systems Summer School	2017
New England Complex Systems Institute, Winter School	2015

SKILLS

Programming
Experienced: Python • R
Familiar: Bash • SQL • HTML • Git • Docker • PostGreSQL
Tools/Applications
MATLAB • Adobe CS • MS Office • ArcGIS

AFFILIATIONS

Society for Risk Analysis (SRA)	2015 –
Foundations of Risk Analysis Specialty Group	
Engineering and Infrastructure Specialty Group	
Chair, Students and Young Professionals (2018 -)	
Institute for Operations Research and Management Sciences (INFORMS)	2015 – 2019
Secretary, Student Chapter at the University of Michigan (2017)	
American Association of Geographers (AAG)	2018 –
American Statistical Association (ASA)	2016 –2017
American Society of Civil Engineers (ASCE)	2015 – 2017
Generation Zero, New Zealand	2014
Transportation Team Leader, Christchurch	
Engineers Without Borders New Zealand (EWBNZ)	2012 – 2017
IT assistant (2012 – 2017)	
Newsletter Editor (2013 – 2015)	
President Canterbury Students' Chapter (2013)	

CONFERENCE PRESENTATIONS

Logan, T. M., Bricker, J., and Guikema, S. "Neglecting Behavioral Feedbacks in Quantitative Risk Assessment Can Lead to Maladaptation to Natural Hazards." <i>American Association of Geographers Annual Meeting,</i> Washington, DC	2019
Logan, T.M, Larsen, L., Guikema, S. "Co-benefits of urban density on public health in the 500 largest US cities." <i>Michigan University-Wide Sustainability and Environment (MUSE) Conference.</i>	2019
Logan, T. M., Bricker, J., and Guikema, S. "Neglecting Behavioral Feedbacks in Quantitative Risk Assessment Can Lead to Maladaptation to Natural Hazards." <i>Society of Risk Analysis Annual Meeting,</i> New Orleans, LA	2018

Logan, T.M, Larsen, L., Guikema, S. "Co-benefits of urban density on public health in the 500 largest US cities." <i>Sustainable Development Conference</i> , Ann Arbor, Michigan	2018
Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness of adaptive measures in reducing long-term vulnerability to natural hazards." <i>Intergovernmental Panel on Climate Change (IPCC) Cities Conference</i> , Edmonton, Canada	2018
Logan, T. M. and Guikema, S. D. "Engineered climate adaptations can increase vulnerability to natural hazards." <i>Michigan University-Wide Sustainability and Environment (MUSE) Conference</i> .	2018
Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness of adaptive measures in reducing long-term vulnerability to natural hazards." <i>Society of Risk Analysis Annual Meeting</i> , Arlington, VA	2017
Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness of adaptive measures in reducing long-term vulnerability to natural hazards." <i>Research Symposium 2017: Urban Environment. Environmental Science and Policy Program</i> . Michigan State University.	2017
Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness of adaptive measures in reducing long-term vulnerability to natural hazards." <i>INFORMS Annual Conference</i> , Houston.	2017
Williams, T. G., Logan, T. M., Liberman, K., Zuo, C., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." <i>INFORMS Annual Conference</i> , Houston.	2017
Logan, T. M. and Guikema, S. D. "Urban development alongside ¿man-made? disasters." <i>Michigan University-Wide Sustainability and Environment (MUSE) Conference</i> .	2017
Logan, T. M., Williams, T. G.*, Nisbet, A. J., Liberman, K. D., Zuo, C. T., and Guikema, S. D.. "Assessing parcel-resolution multi-modal accessibility to core services." <i>Michigan University-Wide Sustainability and Environment (MUSE) Conference</i> .	2017
Logan, T. M., Guikema, S., O'Meara, K., Zaitchik, B.F., Liberman, K., Zuo, C., and Nichols, R. "Turning up the heat on urban temperature data." <i>Society of Risk Analysis Annual Meeting</i> , San Diego.	2016
Logan, T. M., Bricker, J., and Guikema, S. "Tsunamis, seawalls, and memory: urban development alongside natural hazards." <i>INFORMS Annual Conference</i> , Nashville.	2016
Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with Royal Gala apples." <i>Joint Statistical Meeting</i> , Chicago.	2016
Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with Royal Gala apples." <i>INFORMS Annual Conference</i> , Philadelphia.	2015
Zaitchik, B.F.*, O'Meara, K.*, Guikema, S.D., Scott, A., Bessho, A., and Logan, T.M. "Visualizing and Understanding Socio-Environmental Dynamics in Baltimore." <i>Proc., American Geophysical Union Fall Meeting</i>	2015

* indicates presenting author, when not first

POSTER PRESENTATIONS

Logan, T. M. and Guikema, S. "Measuring urban resilience using access to essential services: Case study with Hurricane Florence." <i>Michigan University-Wide Sustainability and Environment (MUSE) Conference</i> .	2019
Logan, T. M. and Guikema, S. "Measuring urban resilience using access to essential services: Case study with Hurricane Florence." <i>Society of Risk Analysis Annual Meeting</i> , New Orleans, LA	2018
Logan, T. M. and Guikema, S. "Measuring urban resilience using access to essential services: Case study with Hurricane Florence." <i>University of Michigan Engineering Graduate Symposium</i> , Ann Arbor.	2018
Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness of adaptive measures in reducing long-term vulnerability to natural hazards." <i>University of Michigan Engineering Graduate Symposium</i> , Ann Arbor.	2017
Williams, T. G., Logan, T. M., Liberman, K., Zuo, C., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." <i>University of Michigan Engineering Graduate Symposium</i> , Ann Arbor.	2017
Williams, T. G., Logan, T. M., Liberman, K., Zuo, C., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." <i>Research Symposium 2017: Urban Environment. Environmental Science and Policy Program</i> . Michigan State University.	2017

- Logan, T. M., Bricker, J., and Guikema, S. "Tsunamis, seawalls, and memory: urban development alongside natural hazards." *University of Michigan Engineering Graduate Symposium*, Ann Arbor. 2016
- Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with Royal Gala apples." *Joint Statistical Meeting*, Chicago. 2016
- Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with Royal Gala apples." *Michigan Student Symposium for Interdisciplinary Statistical Sciences*, Ann Arbor. 2015