

# TOM LOGAN

Industrial and Operations Engineering, University of Michigan, Ann Arbor, USA  
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## EDUCATION

<b>University of Michigan</b> , Ann Arbor, USA	
PhD in Industrial and Operations Engineering (expected)	In progress
<i>Advisor: S. Guikema</i>	
<b>Johns Hopkins University</b> , Baltimore, USA	
Master of Science in Geography and Environmental Engineering	2015
<b>University of Canterbury</b> , New Zealand	
Bachelor of Science in Mathematics	2014
Bachelor of Engineering in Natural Resources Engineering with First Class Honours	2013

## RESEARCH INTERESTS

### Methodological

Risk analysis, 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

Aldarondo, F., Logan, T., Guikema, S. "Assessing Influencing Factors for Evacuation Behavior Under Repeated Hurricanes Using Travel Time Data." <i>Risk Analysis</i>	<i>under review</i>
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." <i>Natural Hazards</i>	<i>under review</i>
White, A., Guikema, S., Logan, T.M., "Persistent Patterns of Discriminatory Housing Policy and Inequity: A Spatial Analysis." Intended for <i>PLOS One</i>	<i>under review</i>
Bordley, R., Keisler, J., Logan, T. "Managing projects with uncertain deadlines." <i>European Journal of Operations Research</i>	2018
Logan, T., Guikema, S., Bricker, J. "Hard-adaptive measures can increase vulnerability to storm surge and tsunami hazards over time." <i>Nature Sustainability</i>	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." <i>Environment and Planning B: Urban Analytics and City Science</i> .	2017
Logan, T., McLeod, S., Guikema, S. "Predictive models in horticulture: A case study with Royal Gala apples." <i>Scientia Horticulturae</i> , 209, 201-213	2016

## NON-PEER-REVIEWED PUBLICATIONS

Logan, T. M., and Arnott, J. "You've got the power." <i>Nature</i>	2017
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## INDUSTRY EXPERIENCE

<b>One Concern</b> , <i>Resilience Data Scientist</i> , Palo Alto, CA, USA	2018
Based on my research, I developed the resilience product for use by cities.	
<b>First Quartile Consulting</b> , <i>Data Consultant</i> , USA	2016
Predictive modelling and data compilation.	
<b>Beca Infrastructure Ltd.</b> , <i>Engineering Technician</i> , Christchurch, NZ	2012
Water team: technical drawing management, winery wastewater regulation, other projects	
<b>Fulton Hogan Christchurch Southern Motorway Project Team</b> , <i>Student Engineer</i> , NZ	2011
Labouring, surveying, quality assurance, and other jobs as required.	
<b>Abley Transportation Consultants</b> , <i>Technical Assistant</i> , Christchurch, NZ	2011
I wrote Python code to process NZ transport survey data and conducted traffic surveys.	
<b>Student Bookshelf Ltd.</b> , <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

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 <sup>th</sup> 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, PhD mentor program co-coordinator	2017 -
Michigan University-wide Sustainability and Environment (MUSE) Workshop, Rackham Interdisciplinary Workshop, University of Michigan, Co-convenor	2017 -
Michigan University-wide Sustainability and Environment (MUSE) Conference, Organising Committee, Logistics & Webmaster	2017 -
Graduate student outdoor club (aka. ARRO), University of Michigan, Founder and co-president	2017 -
Institute for Operations Research and Management Science, Student Chapter at the University of Michigan, Secretary	2017
Michigan Student Symposium for Interdisciplinary Statistical Sciences, Organising committee	2016 -2017

**Epsilon Eta**, Professional Environmental Fraternity, University of Michigan, *Graduate advisor* 2015 -2017

## PROFESSIONAL SERVICE

**Reviewer**, *Journal of Risk Analysis* 2016 - present

**Reviewer**, *Journal of Infrastructure Systems* 2016 - present

**Project mentor**, *Seattle City for All hackathon*, 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 –

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, Larsen, L., Guikema, S. "Co-benefits of urban density on public health in the 500 largest US cities." *Sustainable Development Conference*, 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." 2018

*Intergovernmental Panel on Climate Change (IPCC) Cities Conference*, Edmonton, Canada

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." *Society of Risk Analysis Annual Meeting*, 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." *Research Symposium 2017: Urban Environment. Environmental Science and Policy Program*. 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." *INFORMS Annual Conference*, 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." *INFORMS Annual Conference*, Houston. 2017

Logan, T. M. and Guikema, S. D. (2017). "Urban development alongside ¿man-made? disasters." 2017  
*Michigan University-Wide Sustainability and Environment (MUSE) Conference.*

Logan, T. M., Williams, T. G.\*, Nisbet, A. J., Liberman, K. D., Zuo, C. T., and Guikema, S. D. (2017). 2017  
 "Assessing parcel-resolution multi-modal accessibility to core services." *Michigan University-Wide Sustainability and Environment (MUSE) Conference.*

Logan, T. M., Guikema, S., O'Meara, K., Zaitchik, B.F., Liberman, K., Zuo, C., and Nichols, R. 2016  
 "Turning up the heat on urban temperature data." *Society of Risk Analysis Annual Meeting, San Diego.*

Logan, T. M., Bricker, J., and Guikema, S. "Tsunamis, seawalls, and memory: urban development 2016  
 alongside natural hazards." *INFORMS Annual Conference, Nashville.*

Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with 2016  
 Royal Gala apples." *Joint Statistical Meeting, Chicago.*

Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with 2015  
 Royal Gala apples." *INFORMS Annual Conference, Philadelphia.*

Zaitchik, B.F.\*, O'Meara, K.\*, Guikema, S.D., Scott, A., Bessho, A., and Logan, T.M. "Visualizing and 2015  
 Understanding Socio-Environmental Dynamics in Baltimore." Proc., American Geophysical Union Fall Meeting

\* indicates presenting author, when not first

## POSTER PRESENTATIONS

Logan, T. M. and Guikema, S. "Measuring urban resilience using access to essential services: 2018  
 Case study with Hurricane Florence." *University of Michigan Engineering Graduate Symposium, Ann Arbor.*

Logan, T. M., Bricker, J., and Guikema, S. "The role of behavior in undermining the effectiveness 2017  
 of adaptive measures in reducing long-term vulnerability to natural hazards." *University of Michigan Engineering Graduate Symposium, Ann Arbor.*

Williams, T. G., Logan, T. M., Liberman, K., Zuo, C., and Guikema, S. "How accessible are our 2017  
 cities? A cross-sectional analysis of access to green space." *University of Michigan Engineering Graduate Symposium, Ann Arbor.*

Williams, T. G., Logan, T. M., Liberman, K., Zuo, C., and Guikema, S. "How accessible are our 2017  
 cities? A cross-sectional analysis of access to green space." *Research Symposium 2017: Urban Environment. Environmental Science and Policy Program. Michigan State University.*

Logan, T. M., Bricker, J., and Guikema, S. "Tsunamis, seawalls, and memory: urban development 2016  
 alongside natural hazards." *University of Michigan Engineering Graduate Symposium, Ann Arbor.*

Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with 2016  
 Royal Gala apples." *Joint Statistical Meeting, Chicago.*

Logan, T. M., McLeod, S., and Guikema, S. "Predictive models in horticulture: A case study with 2015  
 Royal Gala apples." *Michigan Student Symposium for Interdisciplinary Statistical Sciences, Ann Arbor.*

## JOURNAL PAPERS IN PROGRESS

Bordley, R., Logan, T., Pollock, S. "Reducing the Underestimation Bias in PERT/CPM's 2019  
 Calculation of Schedule Risk." Intended for *Management Science* Estimated submission 1-2 weeks

Guikema, S.D., Quiring, S.M., Buckstaff, K., Beck, M., McRoberts, B., Nateghi, R., Logan, T.M. 2019  
 "Storm Damage and Restoration Labor Estimation: An All-Weather Model." Intended for *IEEE Access*

Flage, R., Guikema, S., Logan, T., Johnson, C., Kabir, E., Schell, K. "Conceptualizing and handling 2019  
 uncertainty in predictive data models for risk analysis." Intended for *Risk Analysis*

Logan, T.M., Zaitchik, B., Guikema, S. "Drivers of urban land surface temperature: diurnal and 2018  
 nocturnal." Intended for *Remote Sensing of Environment* December

Logan, T.M., Larsen, L., Guikema, S. "Co-benefits of urban density on public health in the 500 2018  
 largest US cities." Intended for *Landscape and Urban Planning* December

Logan, T.M., Guikema, S. "Measuring urban resilience using access to essential services: Case 2019  
 study with Hurricanes Florence and Michael." Intended for *Natural Hazards* January

Williams, T.G., Logan, T. M., Zuo, C., Liberman, K., Guikema, S., "Congested and dangerous: is 2-4 weeks  
 this the state of green space for minorities in the USA?" Intended for *PLOS One*

**PERSONAL ACHIEVEMENTS**

1 <sup>st</sup> place over-all, Python Rogaine, 6hr navigational on/off trail running, Ohio	10/2018
1 <sup>st</sup> place over-all, Gold Rush 12 Hour Summer Challenge, California	6/2018
Qualified for USA Adventure Racing National Championship	
1 <sup>st</sup> place over-all, Nain Rouge Gaine, 6hr navigational on/off-trail running, Michigan	4/2018
1 <sup>st</sup> place over-all, Frozen Beaver Rogaine, 6hr navigational on/off trail running, Ohio	2/2018
1 <sup>st</sup> place over-all, Michigan Adventure Race: Winter Edition, 3hr, Michigan	1/2018