

# Tim G Williams

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## Summary

- Postdoctoral researcher in the Environmental Geography Group at Vrije Universiteit Amsterdam
- Interdisciplinary researcher with experience in simulation modelling, risk, resilience, and data science
- Motivated by addressing social and environmental sustainability challenges

## Education

- 2016-21 **University of Michigan**  
*Ph.D. in Industrial and Operations Engineering*
- Advisor: Seth D Guikema
  - Committee: Daniel G Brown, Arun Agrawal, Mark van Oyen
  - Thesis title: "Agent-Based Modeling of Resilience in Smallholder Agriculture: Toward Robust Models and Equitable Outcomes"
- 2016-19 *M.Sc. in Industrial and Operations Engineering*
- 2012-15 **University of Canterbury**  
*B.Eng. with 1<sup>st</sup> class honors in Natural Resources Engineering*
- Thesis topic: "Gravity currents propagating over rough boundaries"

## Employment History

- 2021- **Vrije Universiteit Amsterdam**  
*Postdoctoral Researcher, Environmental Geography Group, Institute for Environmental Studies*
- 2016-21 **University of Michigan**  
*Ph.D. Candidate, Industrial and Operations Engineering*
- 2019 **Helmholtz Centre for Environmental Research** (Umwelt Forschung Zentrum, UFZ)  
*Visiting Scholar*

## Publications

- 2022 Roxburgh, N., Stringer, L. C., Evans, A. J., **Williams, T. G.**, & Müller, B. Wikis as collaborative knowledge management tools in socio-environmental modelling studies. *Environmental Modelling & Software*, 158, 105538. <https://doi.org/10.1016/j.envsoft.2022.105538>
- 2022 Helfenstein, J., Bürgi, M., Debonne, N., Dimopoulos, T., Diogo, V., Dramstad, W., ... **Williams, T.G.**, ..., & Herzog, F. (2022). Farmer surveys in Europe suggest that specialized, intensive farms were more likely to perceive negative impacts from COVID-19. *Agronomy for sustainable development*, 42(5), 1-16. <http://dx.doi.org/10.1007/s13593-022-00820-5>
- 2022 Dressler G., Groeneveld J., Hetzer J., Janischewski A., Nolzen H., Rödig E., Schwarz N., Taubert F., Thober J., Will M., **Williams T.**, Wirth S., Müller B. (2022). Upscaling in socio-environmental systems modelling: Current challenges, promising strategies and insights from ecology. *Socio-Environmental Systems Modelling*. <http://dx.doi.org/10.18174/sesmo.18112>
- 2022 **Williams T.G.**, Brown DG, Guikema SD, Logan TM, Magliocca NR, Müller B and Steger CE "Integrating Equity Considerations into Agent-Based Modeling: A Conceptual Framework and

Practical Guidance" *Journal of Artificial Societies and Social Simulation* 25 (3) 1  
<http://jasss.soc.surrey.ac.uk/25/3/1.html>

- 2021 **Williams T.G.**, Brown D.G, Agrawal A., Guikema S.D. "Let the Farmer Decide: Examining Smallholder Autonomy in Large-Scale Land Acquisitions with an Agent-Based Model." *Environmental Research Letters* 16 (10): 105011. <http://dx.doi.org/10.1088/1748-9326/ac2933>
- 2021 **Williams T.G.**, Trush S., Sullivan J., Liao C., Chesterman N., Agrawal A., Guikema S.D., Brown D.G. "Land-use changes associated with large-scale land acquisitions in Ethiopia" *Ecology and Society* 26 (4). <https://doi.org/10.5751/ES-12825-260434>.
- 2021 **Williams T.G.**, Dreßler G., Stratton A.E., Müller B. "Ecological and financial strategies provide complementary benefits for smallholder climate resilience: insights from a simulation model" *Ecology and Society* 26 (2). <https://doi.org/10.5751/ES-12207-260214>.
- 2021 Logan T.M., Anderson M.J., **Williams T.G.**, Conrow L. "Measuring inequalities in urban systems: An approach for evaluating the distribution of amenities and burdens" *Computers, Environment, and Urban Systems* <http://dx.doi.org/10.1016/j.compenvurbsys.2020.101590>
- 2021 Bakhtsiyarava M., **Williams T.G.**, Verdin A., Guikema S.D. "A nonparametric analysis of household-level food insecurity and its determinant factors: Exploratory study in Ethiopia and Nigeria" *Food Security* <http://dx.doi.org/10.1007/s12571-020-01132-w>
- 2020 **Williams T.G.**, Guikema S.D., Brown D.G, Agrawal A. "Assessing model equifinality for robust policy analysis in complex socio-environmental systems" *Environmental Modelling & Software* <http://dx.doi.org/10.1016/j.envsoft.2020.104831>
- 2020 **Williams T.G.**, Guikema S.D., Brown D.G, Agrawal A. "Resilience and equity: quantifying the distributional effects of resilience-enhancing strategies in a smallholder agricultural system" *Agricultural Systems* <http://dx.doi.org/10.1016/j.agry.2020.102832>
- 2020 **Williams T.G.**, Logan T.M., Zuo C., Liberman K., and Guikema S.D. "Parks and safety: a comparative study of green space access and its inequities in five US cities" *Landscape and Urban Planning* <http://dx.doi.org/10.1016/j.landurbplan.2020.103841>
- 2019 Logan, T. M., **Williams, T. G.**, Nisbet, A. J., Liberman, K. D., Zuo, C. T., and Guikema, S. D. "Evaluating urban accessibility: Leveraging open-source data and analytics to overcome existing limitations." *Environment and Planning B – Urban Analytics and City Science* <http://dx.doi.org/10.1177/2399808317736528>
- 2017 Zhou, J., Cenedese, C., **Williams, T.**, Ball, M., Venayagamoorthy, S., Nokes, R. "On the propagation of gravity currents over and through a submerged array of cylinders." *Journal of Fluid Mechanics* <http://dx.doi.org/10.1017/jfm.2017.604>

## Conference Contributions

\* indicates presenting author

## Workshops

- 2021 **Williams T.G.\***, "Modeling bias." Module in workshop titled: Environmental Justice and Equity, Human Health Risk Assessment, and Modeling: A practical workshop for the risk assessment, risk modeling and regulatory communities. *Society for Risk Analysis Annual Meeting*

## Oral presentations

- 2022 **Williams T.G.**, Bui S., Conti C., Debonne N., Levers C., Swart R., Verburg P.H. "Who exercises the power in European agri-food systems? A meta-study of the diversity of actors and network configurations" *International Sustainability Transitions Conference 2022*.
- 2022 **Williams T.G.**, Bui S., Conti C., Debonne N., Levers C., Swart R., Verburg P.H. "Who exercises the power in European agri-food systems? A meta-study of the diversity of actors and network configurations" *Social Simulation Conference 2022*.
- 2022 **Williams T.G.**, Brown DG, Guikema SD, Logan TM, Magliocca NR, Müller B and Steger CE "Integrating equity considerations into agent-based modeling: A conceptual framework and

practical guidance" *International Environmental Modelling & Software Society (iEMSs) Conference*

- 2021 **Williams T.G.\***, Dreßler G., Stratton A.E., Müller B. "Ecological and financial strategies provide complementary benefits for smallholder climate resilience: insights from a simulation model" *American Association of Geographers Annual Meeting*
- 2020 **Williams T.G.\***, Dreßler G., Stratton A.E., Müller B. "Strategies for climate resilience: Harnessing complementarity over time" *Society for Risk Analysis Annual Meeting*
- 2020 **Williams T.G.\***, Guikema S.D., Brown D.G, Agrawal A. "Acknowledging uncertainty in models for future food security: a framework for robust policy analysis" 4<sup>th</sup> *International Conference on Global Food Security - Online Edition*
- 2020 **Williams T.G.\***, Dreßler G., Stratton A.E., Müller B. "Ecological and financial strategies provide complementary benefits for smallholder climate resilience: insights from an agent-based model" *Michigan University-Wide Sustainability and Environment (MUSE) Conference*
- 2019 Logan, T. \*, Gray, S., Caines, M., **Williams, T.**, Rachunok, B., Chapman, B. "Roundtable: Tomorrow's Perspective on Today's Risk: Technology, Environment, and Society" *Society for Risk Analysis Annual Meeting*
- 2019 **Williams T.G.\***, Guikema S.D., Brown D.G, Agrawal A. "Acknowledging uncertainty in models for sustainable development: a framework for robust policy analysis" *Society for Risk Analysis Annual Meeting*
- 2019 Smith, A. \*, Southworth J., Agrawal, A., Brown, D., Liao, C., Khatami R., Sullivan, J., **Williams, T.**, Muir, C., Trush, S., Ayana, A. "A comparative analysis of the social-ecological impacts of LSLAs in Ethiopia and Tanzania in the context of sustainable development" *Global Land Programme 4<sup>th</sup> Open Science Meeting*
- 2019 **Williams, T.\*** "Computation and data science for food security" *Michigan University-Wide Sustainability and Environment (MUSE) Conference*
- 2019 **Williams, T.\***, Logan, T, Zuo, C., Liberman, K., and Guikema, S. "Parks and safety: a comparative study of green space access and its inequities in five US cities" *Michigan University-Wide Sustainability and Environment (MUSE) Conference*
- 2018 **Williams, T.\***, Guikema, S. "Modeling climate resilience in smallholder agricultural systems: an agent-based approach" *Society for Risk Analysis Annual Meeting*
- 2018 **Williams, T.\***, Guikema, S. "Modeling climate resilience in smallholder agricultural systems: an agent-based approach" *Sustainable Development Conference*
- 2017 **Williams, T.\***, Logan, T, Zuo, C., Liberman, K., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." *INFORMS Annual Meeting*
- 2017 Logan, T. M., **Williams, T. G.\***, Nisbet, A. J., Liberman, K. D., Zuo, C. T., and Guikema, S. D. "Measuring accessibility to core urban services." *Michigan University-Wide Sustainability and Environment (MUSE) Conference*.

#### **Poster presentations**

- 2018 **Williams, T.\***, Guikema, S. "Modeling climate resilience in smallholder agricultural systems: an agent-based approach" *University of Michigan Engineering Graduate Symposium*
- 2018 **Williams, T.\***, Logan, T, Zuo, C., Liberman, K., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." *Michigan University-Wide Sustainability and Environment (MUSE) Conference*.
- 2018 **Williams, T.\***, Logan, T, Zuo, C., Liberman, K., and Guikema, S. "How accessible are our cities? A cross-sectional analysis of access to green space." *University of Michigan Engineering Graduate Symposium*

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

## Service and Leadership

### Reviewer

Journals: *Environmental Research Letters, Risk Analysis, Landscape and Urban Planning, Socio-Ecological Practice Research, International Journal of Agricultural Sustainability*

### Societies and organizations

- 2022 Diversity, Equity and Inclusion working group coordinator, Institute for Environmental Studies (IVM), VU Amsterdam
- 2020-21 Graduate Employees' Organization department steward
- 2020 Society of Risk Analysis Students and Young Professionals Committee
- 2018-20 MUSE (Michigan University-wide Sustainability and Environment) Initiative: Workshop Co-Coordinator
- 2018-19 MUSE Conference 2019: Agenda Management
- 2017-18 MUSE Conference 2018: Workshops Organizer
- 2017-19 University of Michigan Adventure Racing, Rogaining, and Orienteering (ARRO) Club President
- 2014-15 University of Canterbury Meditation Club President
- 2014 Engineers Without Borders (EWB) Canterbury Students Committee member
- 2013-14 EWB Conference Team

## Awards and Fellowships

- 2020 Student Merit Award, Risk & Development Specialty Group, Society for Risk Analysis
- 2020 Rackham Predoctoral Fellowship
- 2019 JR Templin Scholarship
- 2016 Industrial and Operations Engineering Department Fellowship
- 2015 John Blackett Prize
- 2015 University of Canterbury Natural Resources Engineering Prize
- 2015 Environment Canterbury Natural Resources Engineering Prize
- 2014 IPENZ Rivers Group UC Prize
- 2014 Tonkin & Taylor Hydrology and Hydraulic Engineering Prize
- 2014 Beca Engineering in Society Scholarship
- 2014 URS Scholarship
- 2014 MWH New Zealand Ltd Geotechnical Engineering Prize
- 2014 C S McCully Scholarship
- 2014 Ian McMillan Prizes
- 2014 Vice Chancellor's Excellence Award
- 2013 MWH / Jim McFarlane Memorial Prize
- 2013 College House Rowley Scholarship
- 2012 University of Canterbury Emerging Leaders Scholarship
- 2012 University of Canterbury Undergraduate Entrance Scholarship
- 2011 NZQA Scholarship Physics

### Educational Workshops / Courses

2020	Preparing Future Faculty Workshop ( <i>University of Michigan</i> )
2019	Summer Session in Epidemiology: Spatial Statistics for Epidemiological Data ( <i>University of Michigan</i> )

### Teaching Experience

2022, 2023	Guest lectures in master-level course Land-use Change and Ecosystems (lecture title: Agent-based modelling)
2022	Guest lecture in bachelor-level course Introduction to Environmental Science (lecture title: Navigating social trade-offs)
2018	Graduate Student Instructor for IOE460: Decision analysis (University of Michigan)
2015	Tutor for ENCN342: Fluid mechanics (University of Canterbury)
2014	Tutor for ENGR102: Engineering mechanics (University of Canterbury)
2013-14	Miscellaneous private tutoring for freshman-level engineering classes

### Industry Experience

2016	<b>Beca Ltd</b> <i>Graduate Environmental Engineer</i> , Auckland Water Team Design, analysis, and report writing for: water treatment plants; pipeline routing; landfill leachate tank design
2014-15	<b>Beca Ltd</b> <i>Summer Intern</i> , Auckland Water Team Wrote and edited engineering design reports; GoldSim modeling
2013-14	<b>Geotechnics Ltd</b> <i>Summer Intern</i> , Auckland Calibrated and repaired geotechnical engineering testing equipment

### Key Strengths

Gallup Strengths Finder® strengths:

- **Harmony:** I believe that little is gained from conflict, and aspire to unite people via their similarities.
- **Achiever:** I have a constant need for attainment.
- **Relator:** I derive pleasure and strength from forming close relationships with people.
- **Includer:** I want to include people and make them feel a part of the group. I am instinctively accepting of others, regardless of race, sex, nationality, personality, or faith.
- **Learner:** I constantly strive to learn and improve. The process of learning is as important as the knowledge I gain.

### Other Skills

- Programming: experienced in Python and R
- Data analysis: worked with empirical (household survey, satellite) and simulated data, including statistical analysis and geospatial processing
- Languages: English (mother tongue), German (conversational-fluent)

### Interests

- Running: Amsterdam Marathon (2022), Dexter-Ann Arbor Half Marathon (2018), RAGNAR del Sol (2015), Shotover Moonlight mountain marathon (2014), Speights West Coaster 21K (2014), Speights West Coaster 30K (2013), Port Hills crater rim 28K (2013)
- Adventure racing, rogaining, and orienteering: Naine Rouge gaine (2018), Flying pig (2017), Python rogaine (2016, 2017, 2018), Sleeping Bear Adventure Race (2016), TWALK (2013, 2014, 2016), Castle hill bouldergaine (2014), Golden Road rogaine (2014), Heights of Winter rogaine (2013)
- Cross country skiing: USCSA Nationals (2017), Michigan cup races (2017)

## References

Available upon request.