

Robert Ward

Doctoral Candidate
School of Public Policy
Georgia Institute of Technology

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rward48@gatech.edu
robertnward.github.io

Education

- └ **Georgia Institute of Technology**
Ph.D. in Public Policy, *Ongoing*
Dissertation: Essays on the Organization of Science
Committee: John P. Walsh, Cassidy R. Sugimoto, Marc Santolini, Alex Oetl, Gordon Kingsley
M.S. in Computer Science, *Ongoing*
- └ **The Ohio State University**
M.P. A. John Glenn College of Public Affairs, 2019
B.S. Molecular Genetics, 2017

Positions

- └ **Stanford University**
Department of Bioengineering
Visiting Student Researcher with Megan Palmer and Drew Endy, Oct 2022, Jun-Sep 2023
- └ **Université Paris Cité / Inserm Learning Planet Institute**
Division of Systems Engineering and Evolution Dynamics
Visiting Student Researcher with Marc Santolini, Interaction Data Lab, 2019 – present
- └ **Georgia Institute of Technology**
School of Public Policy
Research Assistant with Cassidy R. Sugimoto, 2021-
Research Assistant with John P. Walsh, 2022
Research Assistant with Jan Youtie and Philip Shapira, STIP Group, 2019-21
- └ **The Ohio State University**
Battelle Center for Science, Engineering, and Public Policy
Graduate Research Associate, 2018 – 2019
- └ **The Ohio State University**
Department of Molecular Genetics
Research Assistant with Jay B. Hollick, 2014-16

Research Interests

⟨ Social and Information Networks, Hypergraphs ⟩ ⟨ Organizations: *Formal and Informal Structure, Self-Organization, Design* ⟩ ⟨ Science, Technology and Innovation ⟩ ⟨ Computation: *Artificial Intelligence, Natural Language Processing, Simulation* ⟩

Papers

In Print

- ⊔ Quantifying the rise and fall of scientific fields. *PLoS ONE*, 2022.
C. Singh, E. Barme **R. Ward**, L. Tupikina and M. Santolini.
Press coverage in *Le Monde*
- ⊔ Exploring new approaches to understanding innovation ecosystems.
Technology Analysis & Strategic Management, 2021. J. Youtie, **R. Ward**, P. Shapira,
R. S. Schillo & E. L. Earl.
- ⊔ Corporate engagement with nanotechnology through research publications. *Journal of Nanoparticle Research*, 2021. J. Youtie, **R. Ward**, P. Shapira, A. Porter,
N. Newman.
- ⊔ Profiling and predicting the problem-solving patterns in China's research systems.
Quantitative Science Studies, 2021. Y. Zhang, M. Wu, Z. Hu, **R. Ward**
X. Zhang, A. Porter

Preprints

- ⊔ iGEM: A Model System for Team Science and Innovation. <https://arxiv.org/abs/2310.19858>
M. Santolini, M.J. Palmer, L. Blondel, **R. Ward**, R. Jerayam, A. Krishna and A.L. Barabasi.

In Progress

‡Joint first-authors.

- ⊔ Interdisciplinarity and Reception (*preparing for submission*)
R. Ward.
- ⊔ Interventions on Network Formation (*analysis*)
R. Ward and M. Santolini.
- ⊔ Who Contributes What in Science? (*analysis*)
R. Ward‡, C. Esposito‡, F. Xu, E. Duede, J. Evans
- ⊔ Collaboration and Integration (*data building*)
R. Ward‡, C. Esposito‡, J. Evans
- ⊔ Endogenous Division of Labor (*data collection*)
R. Ward and M. Santolini.

- ⌞ Novel Science, Status and the Burden of Evidence (*data collection*)
R. Ward, S. Woo and C. Sugimoto
- ⌞ A Theory of Pragmatic Collectives (*design*)
R. Ward

Talks

‡Presented by coauthor.

- ⌞ Invited Talk, *Korea Advanced Institute of Science & Technology (KAIST)*, 2024
- ⌞ Invited Talk, *ESMT Berlin*, 2023
- ⌞ Invited Talk, *Google*, 2023
- ⌞ Invited Talk, Clauset Lab Seminar, *University of Colorado, Boulder*, 2023
- ⌞ ‡ New Geography of Work PDW, *Academy of Management Annual Meeting*, 2023
- ⌞ Invited Talk, Knowledge Lab Seminar, *University of Chicago*, 2023
- ⌞ Invited Talk, Network Science and Complex Systems Physics Seminar, *Skolkovo Institute of Science and Technology (SKOLTECH)*, 2022
- ⌞ Invited Talk, C-EENRG, *University of Cambridge*, 2022
- ⌞ Invited Talk, *International Genetically Engineered Machines Competition (iGEM)* Paris, France, 2022
- ⌞ Invited Talk, Center for the Science of Science and Innovation, *Northwestern University*, 2022
- ⌞ Invited Talk, Knowledge Lab Seminar, *University of Chicago*, 2022
- ⌞ *1st International Conference on the Science of Science and Innovation (ICSSI)*. Jun 6-9, 2022. National Academy of Sciences, Washington DC
- ⌞ Invited Talk, Workshop on Original Policy Research, *Georgia Institute of Technology*, 2022
- ⌞ *Association for Public Policy and Management (APPAM) Fall Research Conference*. Mar 27-29, 2022 (Online).
- ⌞ ‡ NetSciX, Porto, Portugal, Feb 8-11, 2022
- ⌞ *6th Summer School on Data and Algorithms for Science, Technology & Innovation Studies*. Aristotle University of Thessaloniki-KU Leuven, Sep 22-24 (Online)
- ⌞ *10th Global TechMining Conference*. Nov 11–13, 2020, Atlanta, Georgia
- ⌞ Invited Talk, *Just One Giant Lab*, 2020

Workshops and Summer Schools

- ⌞ *Santa Fe Institute*, Graduate Workshop on Computational Social Science, June 18-30, 2023
- ⌞ Atlanta Academy on Science and Innovation Policy, *Georgia Institute of Technology* March 21-25, 2022

- └ Society of Young Network Scientists (SYNS) Networks Pre-Conference Workshop. Jun 26, 2021 (Online)
- └ Science of Science Summer School, iSchool, *Syracuse University*. Jul 26-Aug 8, 2021 (Online)

Funding and Awards

- └ Outstanding Doctoral Student Award
School of Public Policy, Georgia Institute of Technology, 2023
- └ Travel Support (\$2,875)
School of Public Policy, Georgia Institute of Technology, 2023
- └ The Endogenous Division of Labor (\$2,480)
Ivan Allen College SODA Grant, Georgia Institute of Technology, 2023
- └ Travel Support (\$3,956)
School of Public Policy, Georgia Institute of Technology, 2022
- └ iGEM Team Interaction Study (\$6,000)
Google and University of Vermont OCEAN Grant, 2022
- └ Quantitative assessment of open collaborations in science and engineering (€278,064)
Supporting author with PI: Marc Santolini
French National Research Agency AAPG2021, 2022-24.
- └ S4 Fellowship. (\$2,000)
Subaward from NSF #1933675 shared with Alec McGail and Aaron Mendon-Plasek, 2021.
- └ President's Fellowship. (\$22,000)
Georgia Institute of Technology, 2019-2023

Teaching

- └ Instructor for Computing Bootcamp, 2022
Georgia Institute of Technology
- └ Coinstructor for International Genetically Engineered Machines Competition Team, 2019
The Ohio State University

Service

Organizer

- └ Volunteer Coordinator *Atlanta Conference on Science and Innovation Policy* May 27, 2023. Georgia Institute of Technology, Atlanta, Georgia.
- └ *Workshop on the Organization of Science*. Oct 25, 2022. LPI, Paris, France.

- ⌞ *NetOpen21: Modeling open innovation communities with network science.*
Satellite at Networks 2021: A Joint Sunbelt and NetSci Conference.
Co-organizer with Marc Santolini, Liubov Tupikina and Juniper Lovato.
Jun 30, 2021 (Online). interactiondatalab.com/netopen21

Reviewer

- ⌞ Research Policy, 2019-
- ⌞ IEEE TEM, 2019

Consulting and Other Projects

- ⌞ *Mass Customizable and On-demand Integrated Circuits, 2021-22.*
PIs: Michael Filler and Eric Vogel
- ⌞ *Technology Forecasting, 2021-22.* United States Army Research Lab
- ⌞ *Corporate Entry into Nanotechnology, 2020.*
NSF Subcommittee on Nanoscale Science Engineering and Technology (NSET)
- ⌞ *Social Network Analysis, 2020-22.*
Southeastern Nanotechnology Infrastructure Corridor (SENIC) Georgia Tech / NSF
- ⌞ *Scientific Impacts of the Georgia Sea Grant, 2019.*
University of Georgia Marine Extension and Georgia Sea Grant
- ⌞ *Social Network Analysis, 2019.*
Georgia Institute of Technology Center for Space Technology and Research (CSTEP).
- ⌞ *Improving the Cybersecurity and Cost Effectiveness of USAF Industrial Control Systems, 2019.*
United States Air Force Installation Contracting Agency (AFICA/KA).