

Matthew Adam Turner

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Education

Ph.D. candidate, Cognitive and Information Sciences, *University of California, Merced*. Expected Spring 2021. Adviser: Paul E. Smaldino; Committee: Christopher T. Kello, Teenie Matlock, and Jeffrey Yoshimi.

M.S. with thesis, Applied Physics, *Rice University*, 2012. Adviser: Kevin F. Kelly.

B.S. Mathematics, Physics. *Syracuse University*, 2008.

Professional experience

2014 - 2016 **Research Software Developer**, *Northwest Knowledge Network, University of Idaho*, Moscow, ID, USA. Led development of the “Virtual Watershed” modeling and data analysis & management system and associated tools (see Volk & Turner, 2019, and Gregory, et al., 2020, listed below). Integrated contributions of faculty, graduate students, and other professional software developers.

2012 - 2014 **Data Engineer**, *Economic Modeling Specialists Int’l*, Moscow, ID, USA. Ported legacy PHP code and SQL queries for large-scale economic data processing and forecasting to the D programming language. Developed novel approaches and applied best-practices to large-scale economic forecasts.

Publications

Turner MA & Smaldino PE. Is Group Polarization Real? A generative model of false group polarization detection. *In preparation*.

Smaldino PE & **Turner MA**. (Forthcoming) Covert Signaling is an Adaptive Communication Strategy in Diverse Populations. *Psychological Review*. Preprint: <https://osf.io/preprints/socarxiv/j9wyn/>

Turner MA & Smaldino PE (2020). Stubborn Extremism as a Potential Pathway to Group Polarization. *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*. <https://cogsci.mindmodeling.org/2020/papers/0153/>

- Gregory A, ..., **Turner MA** (2020). Efficient Model-data Integration for Flexible Modeling, Parameter Analysis & Visualization, and Data Management. *Frontiers in Water*. <https://doi.org/10.3389/frwa.2020.00002>
- Smaldino PE, **Turner MA**, Contreras Kallens PA (2019). Open Science and Modified Funding Lotteries Can Impede the Natural Selection of Bad Science. *Royal Society Open Science*, 6(8), 191249. <https://doi.org/10.1098/rsos.191249>
- Volk JM & **Turner MA** (2019). PRMS-Python: A Python framework for programmatic PRMS modeling and access to its data structures. *Environmental Modelling and Software*, 114, 152–165. <https://doi.org/10.1016/j.envsoft.2019.01.006>
- Turner MA** & Smaldino PE (2018). Paths to Polarization: How Extreme Views, Miscommunication, and Random Chance Drive Opinion Dynamics. *Complexity*. <https://doi.org/10.1155/2018/2740959>
- Turner MA** (2012) *Experimental and Numerical Investigations of Novel Architectures Applied to Compressive Imaging Systems*. Master's thesis. Rice University. Houston, Texas. ([link](#))
- Xu L, Davenport MA, **Turner MA**, Sun T, Kelly K (2011) Compressive Echelle Spectroscopy. *Proceedings of the SPIE – The International Society for Optical Engineering*.
- Kanbur SM, Marconi M, Ngeow C, Musella I, **Turner MA**, et al. (2011) Period–colour and amplitude–colour relations in classical Cepheid variables – VI. New challenges for pulsation models. *Monthly Notices of the Royal Astronomical Society*, 408 (2), 695-700.
- Kanbur SM, Marconi M, Ngeow C, Musella I, **Turner MA**, et al. (2009) Multiphase PC/PL Relations: Comparison Between Theory and Observations. AIP Conference Proceedings, Stellar Pulsations: Challenges for Theory and Observation, 1170 (September), 18-22.
- Acevedo R, Lombardini R, **Turner MA**, Kinsey JL, Johnson BR (2008) Quantum and electromagnetic propagation with the conjugate symmetric Lanczos method. *Journal of Chemical Physics*, 128.

Patent

- Kelly KF, Baraniuk RG, Woods G, Sun T, **Turner MA**. U.S. Patent No. 9,124,755. “Apparatus and method for compressive imaging and sensing through multiplexed modulation”. September 1, 2015.

Presentations

- Turner MA**, (2021, February) Statistical Models of Group Polarization: Putting Theory into Practice. Society for Personality and Social Psychology. Poster. Online.

- Turner MA**, (2021, January) Social structure from repeated social interaction. Philosophy of Science Association. Poster. Online.
- Turner MA** & Smaldino PE, (2020, August) Group polarization via stubborn extremism. 42nd Annual Meeting of the Cognitive Science Society. Online. [Paper](#). [Video](#).
- Turner MA** & Smaldino PE, (2020, July) Group polarization via stubborn extremism. 6th International Conference on Computational Social Science. Online.
- Kello C, **Turner MA**, Alviar C, (2019, August) A Statistical Model of Hierarchical Temporal Structure. The Guy Van Orden UConn Workshop on Cognition and Dynamics, XIV. University of Connecticut.
- Turner MA**, Bernacchi L, Maglio PP, Matlock T, (2018, December) How regulations strangle business: Lessons for science communication based on violence metaphors in the 2016 presidential election. eLightning talk at the American Geophysical Union meeting in Washington, D.C. <https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/451955>
- Turner MA** & Smaldino PE, (2018, October) Cultural polarization depends on whom we learn from and how well we communicate. Lightning talk during plenary session presented at the Cultural Evolution Society meeting in Tempe, Arizona.
- Turner MA**, Maglio PP, Matlock, T, (2017, July) A corpus analysis of the dynamics of violence metaphors in cable news programming on US politics. Talk presented at the 14th International Cognitive Linguistics Conference in Tartu, Estonia.
- Turner MA**, Bernacchi, L, Maglio, PP, Matlock, T, (2017, June) Breaking news: the EPA is strangling the economy! An analysis of metaphorical violence and US environmental regulators. Talk presented at the 2017 Conference on Communication and the Environment.
- Turner MA**, Miller, SJ, Gregory, AE, Cadol, DD, Stone, MC, Sheneman, L, (2016, December). Coupled RipCAS-DFLOW (CoRD) Software and Data Management System for Reproducible Floodplain Vegetation Succession Modeling. Poster presented at the American Geophysical Society meeting in San Francisco, CA.
- Turner MA**, Koskela R, Vardigan M, Dubin D, Sheneman L. (2015, September). Linked Interdisciplinary Data Discovery. Poster presented at the 6th RDA Plenary in Paris, France.

Awards

- NSF Research Training (NRT) Program in Intelligent Adaptive Systems, September 2020 - August 2021.
- Research Data Alliance Early Career Fellow, May 2015 ([info](#)).
- NSF Integrative Graduate Education and Research Traineeship (IGERT) Fellow, August 2010

- May 2012.

- NSF International Research Experience for Students (IRES) at UFSC, Santa Catarina, Brazil, Summer 2008; astrophysical research and autonomous telescope network development.

Teaching experience

- Invited by Prof. Heather Bortfield to give lecture and workshop on cultural evolution and open science best-practices, Spring 2021
- Led hands-on workshop in Smaldino lab group on how to use the on-campus supercomputing cluster at UC Merced, Spring 2020
- TA/Computing lab instructor, Introduction to Artificial Intelligence, Prof. David Noelle, Fall 2017, 2018, & 2019
- TA/Computing lab instructor and guest lecturer, Modeling Social Systems, Prof. Paul Smaldino, Spring 2019
- TA, Contemporary Moral Problems, Prof. David Jennings, Spring 2018
- TA, Introduction to Ethics, Prof. David Jennings, Spring 2017
- TA, Introduction to Cognitive Science, Prof. Rick Dale, Fall 2016

Mentorship

- Mentored and supervised several UC Merced students in 2017 who contributed to Metacorps, the web application I developed for annotating metaphor found on cable news. Students were Gloria Quintana, Amy Tang, Sebastian Lavenant, Isabella Methot, Danny Zamora, and Conor Aaron.
- Mentored and supervised undergraduate Joy Dai on a signal processing project using MATLAB for one semester of research at Rice University, 2011.

Preprints

Turner MA, Maglio PP, Matlock T (2018) Metaphorical Violence in Political Discourse. <https://doi.org/10.31235/osf.io/t8yg9>

Turner MA (2018) A neural network to classify metaphorical violence on cable news. <https://arxiv.org/abs/1810.08677>

Reviewer

Psychological Review · Cognitive Systems Research

Skills

Programming languages: Python; R; NetLogo; bash/shell scripting; HTML/CSS/JavaScript; Java; D; MATLAB; Mathematica; Clojure.

Technical proficiencies: Agent-based modeling, computational modeling; IPython and R notebooks; Cluster computing; Git/GitHub; Web servers; L^AT_EX; MongoDB and SQL; REST APIs and API development.

Languages: English; some experience with Portuguese, French, and Spanish.