

# PAUL E. SMALDINO

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**Research Interests:** Social and cultural evolution, cooperation, communication, group identity, social categories, collective behavior, game theory, networks, mathematical and computational modeling, philosophy of science

## PROFESSIONAL EXPERIENCE

- 2022- **External Professor**, Santa Fe Institute
- 2022- **Research Affiliate**, Center for Advanced Study in the Behavioral Sciences, Stanford University
- 2020- **Associate Professor**, Cognitive and Information Sciences, University of California, Merced
- 2016- **Faculty Member**, Quantitative and Systems Biology graduate group, UC Merced
- 2016-2020 **Assistant Professor**, Cognitive and Information Sciences, University of California, Merced
- 2015-2016 **Lecturer**, Department of Psychology, University of California, Davis
- 2015-2016 **Postdoctoral Scholar**, Departments of Political Science and Computer Science, University of California, Davis. Advisors: Zeev Maoz and Raissa D'Souza
- 2014-2015 **Postdoctoral Scholar**, Department of Anthropology, University of California, Davis  
Advisor: Richard McElreath
- 2011-2014 **Postdoctoral Fellow**, Center for Advanced Modeling in the Social, Behavioral, and Health Sciences, Johns Hopkins University. Advisor: Joshua Epstein
- 2005-2007 **Research Associate**, Departments of Psychology and Neural Science, New York University

## EDUCATION

- 2011 Ph.D., Psychology (Psychobiology). University of California, Davis.  
Advisor: Jeff Schank
- 2007 M.A., Psychology. New School for Social Research, New York, NY
- 2002 B.A., Physics. Wesleyan University, Middletown, CT

## ADDITIONAL TRAINING

- 2012 Summer Institute on Bounded Rationality. Max Planck Institute for Human Development, Berlin
- 2008 Graduate Workshop in Computational Social Science Modeling. Santa Fe Institute, Santa Fe, NM

## PUBLICATIONS (PDFs at <http://smaldino.com/wp/publications>)

### BOOK

**Smaldino PE.** *Modeling social behavior: Mathematical and agent-based models of social dynamics and cultural evolution.* Forthcoming from Princeton University Press in 2023.

### PREPRINTS & SUBMISSIONS

Powell M, Kim AD, **Smaldino PE.** Hashtags as signals of political identity: #BlackLivesMatter and #AllLivesMatter. *Submitted.* <https://osf.io/preprints/socarxiv/tqs2x/>

Galesic M, Barkoczi D, Berdahl A, Biro D, Carbone G, Giannoccaro I, Goldstone R, Gonzalez C, Kandler A, Kao A, Kendal R, Kline M, Lee E, Massari GF, Mesoudi A, Olsson H, Pescetelli N, Sloman S, **Smaldino PE,**

Stein DL. Beyond collective intelligence: Collective adaptation. *Submitted*.  
<https://osf.io/preprints/socarxiv/5f2ad/>

Tiokhin L, Lakens D, **Smaldino PE**, Panchanathan K. Shifting the level of selection in science. *Submitted*.  
<https://osf.io/preprints/metaarxiv/juwck>

Kohrt F, **Smaldino PE**, McElreath R, Schönbrodt F. Replication of the natural selection of bad science.  
*Submitted*. <https://osf.io/preprints/metaarxiv/sjyp3/>

Hickey D, Schmitz M, Fessler D, **Smaldino PE**, Muric G, Burghardt K. No love among haters: Negative interactions reduce hate community engagement. *Submitted*.

Turner MA, Moya C, **Smaldino PE**, Jones JH. The form of uncertainty affects selection for social learning.  
*Submitted*. <https://osf.io/preprints/socarxiv/brqmn/>

Boroomand A, **Smaldino PE**. Superiority bias and communication noise can enhance collective problem solving. *Submitted*. <https://osf.io/preprints/socarxiv/gp8mj/>

**Smaldino PE**, Pietraszewski D, Wertz AE. On the problems solved by cognitive processes. *Submitted*

**Smaldino PE**, Moser C, Pérez Velilla A, Werling M. Maintaining transient diversity is a general principle for improving collective problem solving. *Submitted*. <https://osf.io/preprints/socarxiv/ykrv5>

## SCHOLARLY PUBLICATIONS

**Smaldino PE**, O'Connor C (2022) Interdisciplinarity can aid the spread of better methods between scientific communities. *Collective Intelligence* 1(2).

Frankenhuis WE, Panchanathan K, **Smaldino PE** (in press) Strategic ambiguity in the social sciences. *Social Psychological Bulletin*.

Falandays JB, **Smaldino PE** (2022) The emergence of cultural attractors: How dynamic populations of learners achieve collective cognitive alignment. *Cognitive Science* 46: e13183.

Moser C, **Smaldino PE** (2022) Organizational development as generative entrenchment. *Entropy* 24(7): 879.

Turner MA, Moya C, **Smaldino PE**, Jones JH (2022) Some forms of uncertainty may suppress the evolution of social learning. In *Proceedings of the 44th Annual Conference of the Cognitive Science Society*.

Sutton A, Almquist Z, Hazel A, Kline M, **Smaldino P**, Moya C, Jones JH (2022) Adherence to mask-wearing and trust in government: A Bayesian hierarchical analysis of COVID-19 social behavior in the United States. In *Proceedings of the Population Association of America 2022*: 90-3.

Wu J, O'Connor C, **Smaldino PE** (in press) The cultural evolution of science. In: J Tehrani, R Kendal, & J Kendal (Eds.), *Oxford Handbook of Cultural Evolution*. Oxford University Press.

Garg K, Kello CT, **Smaldino PE** (2022). Individual exploration and selective social learning: Balancing exploration-exploitation trade-offs in collective foraging. *Journal of the Royal Society Interface* 19: 20210915.

van der Does T, Galesic M, Dunivin ZO, **Smaldino PE** (2022) Strategic identity signaling in heterogeneous networks. *Proceedings of the National Academy of Sciences* 119: e2117898119.

Pisor A, Basurto X, Douglass KG, Mach KJ, Ready E, Tylianakis JM, Hazel MA, Kline MA, Kramer KL, Lansing S, Moritz M, **Smaldino PE**, Thornton TF, Jones JH (2022) Effective climate-change adaptation means supporting community autonomy. *Nature Climate Change* 12: 213–215.

**Smaldino PE** (2022) Models of identity signaling. *Current Directions in Psychological Science* 31: 231–237.

- Smaldino PE**, Turner MA (2022) Covert signaling is an adaptive communication strategy in diverse populations. *Psychological Review* 129: 812–829.
- Boroomand A, **Smaldino PE** (2021) Hard work, risk, and diversity in a model of collective problem solving. *Journal of Artificial Societies and Social Simulation* 24(4): 10.
- McDiarmid AD, Tullett AM, Whitt CM, Vazire S, **Smaldino PE**, Stephens EE (2021) Psychologists update their beliefs about effect sizes after replication studies. *Nature Human Behaviour*.
- Peréz Velilla A, Moser CJ, **Smaldino PE** (in press) Hidden clusters beyond ethnic boundaries [commentary on Uchiyama et al]. *Behavioral and Brain Sciences*.
- Turner MA, **Smaldino PE** (2022) Mechanistic modeling for the masses [commentary on Yarkoni]. *Behavioral and Brain Sciences* 45: e33.
- Smaldino PE** (2022) Five models of science, illustrating how selection shapes methods. In G Ramsey & A De Block (Eds.), *The dynamics of science: Computational frontiers in history and philosophy of science*. University of Pittsburgh Press.
- Moser C, Ackerman J, Dayer A, Proksch S, **Smaldino PE** (2021) Why don't cockatoos have war songs? [commentary on Mehr et al. and Savage et al.] *Behavioral and Brain Sciences* 44: e108.
- Falandays JB, **Smaldino PE**. (2021) The emergence of cultural attractors: An agent-based model of collective cognitive alignment. In *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*.  
\*\*\*Winner of the Marr Prize for best student paper\*\*\*
- Smaldino PE**, Jones JH (2021) Coupled dynamics of behaviour and disease contagion among antagonistic groups. *Evolutionary Human Sciences* 3: E28.
- Brand CO, Mesoudi A, **Smaldino PE** (2021) Analogy as a catalyst for cumulative cultural evolution. *Trends in Cognitive Sciences* 25: 450–461.
- Yarkoni T, Eckles D, Heathers JAJ, Levenstein MC, **Smaldino PE**, Lane J (2021) Enhancing and accelerating social science via automation: Challenges and opportunities. *Harvard Data Science Review*.  
<https://doi.org/10.1162/99608f92.df2262f5>
- Smaldino PE** (2020) How to build a strong theoretical foundation. *Psychological Inquiry* 31: 297–301.
- Moya C, Cruz y Celis P, Kline MA, **Smaldino PE** (2020) Dynamics of behavior change in the COVID world. *American Journal of Human Biology* 32: e23485.
- Smaldino PE** (2020) How to translate a verbal theory into a formal model. *Social Psychology* 51: 207–218.
- Smaldino PE** (2020) Evolutionary social science needs programmatic training in how models work. *Evolution and Human Behavior* 41: 460–461.
- Turner MA, **Smaldino PE**. (2020) Stubborn extremism as a potential pathway to group polarization. In *Proceedings of the 42st Annual Conference of the Cognitive Science Society*.
- Zefferman MR, **Smaldino PE** (2020) Integrating models of cognition and culture will require a bit more math [commentary on Veissière et al]. *Behavioral and Brain Sciences* 43: e90, 54–55.
- Lukaszewski A, Gurven M, von Rueden C, **Smaldino PE**. (2020) Toward integration of the niche diversity hypothesis with other explanations for personality covariation: Reply to Međedović's (2019) commentary on Lukaszewski et al. (2017). *Social Psychological and Personality Science* 11: 574–576.
- Smaldino PE** (2019) Better methods can't make up for mediocre theory. *Nature* 575: 9.

- Smaldino PE**, Lukaszewski A, von Rueden C, Gurven M (2019) Niche diversity can explain cross-cultural differences in personality structure. *Nature Human Behaviour* 3: 1276–1283.
- Smaldino PE**, Palagi E, Burghardt GM, Pellis SM (2019) The evolution of two types of play. *Behavioral Ecology* 30: 1388–1397.
- Smaldino PE** (2019) A modeling approach that integrates individual behavior, social networks, and cross-cultural variation. *Trends in Cognitive Sciences* 23: 818–820.
- Smaldino PE**, Spivey MJ (2019) Mills made of grist, and other interesting ideas in need of clarification [commentary on C Heyes]. *Behavioral and Brain Sciences* 42: e182.
- Hilbert M, Barnett G, Blumenstock J, Contractor N, Diesner J, Frey S, González-Bailón S, Lamberson PJ, Pan J, Peng TQ, Shen C, **Smaldino PE**, van Atteveldt W, Waldherr A, Zhan J, Zhu JJH (2019) Computational communication science: A methodological catalyzer for a maturing discipline. *International Journal of Communication* 13: 3912–3934.
- Smaldino PE** (2019) The evolution of the social self: Multidimensionality of social identity solves the coordination problems of a society. In AC Love & WC Wimsatt (Eds.), *Beyond the meme: Development and structure in cultural evolution* (pp. 445–469). University of Minnesota Press.
- 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: 190194.
- Smaldino PE** (2019) Social identity and cooperation in cultural evolution. *Behavioural Processes* 161: 108–116.
- Turner MA, **Smaldino PE** (2018) Paths to polarization: How extreme views, miscommunication, and random chance drive opinion dynamics. *Complexity* 2018: 2740959.
- Contreras Kallens P, Dale R, **Smaldino PE** (2018) Cultural evolution of categorization. *Cognitive Systems Research* 52: 765–774.
- Smaldino PE**, Aplin LM, Farine DR (2018) Sigmoidal acquisition curves are good indicators of conformist transmission. *Scientific Reports* 8: 14015.
- Smaldino PE** (2018) Modeling the evolution of strategies for learning and decision making. *Evolutionary Behavioral Sciences* 12: 173–176.
- Smaldino PE**, Flamson TJ, McElreath R (2018) The evolution of covert signaling. *Scientific Reports* 8: 4905.
- Smaldino PE**, D’Souza R, Maoz Z (2018) Resilience by structural entrenchment: Dynamics of single-layer and multiplex networks following sudden changes to tie costs. *Network Science* 6: 157–175.
- Marriott C, Borg JM, Andras P, **Smaldino PE** (2018) Social learning and cultural evolution in artificial life. *Artificial Life* 24: 5–9.
- Smaldino PE**, Janssen MA, Hillis V, Bednar J (2017) Adoption as a social marker: Innovation diffusion with outgroup aversion. *Journal of Mathematical Sociology* 41: 26–45.
- Waring TM, Goff SH, **Smaldino PE** (2017) The coevolution of economic institutions and sustainable consumption via cultural group selection. *Ecological Economics* 131: 524–532.
- Smaldino PE** (2017) Models are stupid, and we need more of them. In R Vallacher, SJ Read, & A Nowak (Eds.), *Computational social psychology* (pp. 311–331). New York: Psychology Press.
- Smaldino PE**, McElreath R (2016) The natural selection of bad science. *Royal Society Open Science* 3: 160384.
- Makowsky MD, **Smaldino PE** (2016) The evolution of power and the divergence of cooperative norms. *Journal of Economic Behavior & Organization* 126: 75–88.

- Richerson PJ, Baldini R, Bell A, Demps K, Frost K, Hillis V, Mathew S, Newton EK, Naar N, Newson L, Ross C, **Smaldino PE**, Waring TM, Zefferman MR (2016) Cultural group selection plays an essential role in explaining human cooperation: A sketch of the evidence [target article]. *Behavioral and Brain Sciences* 39: e30.
- Smaldino PE** (2016) Not even wrong: Imprecision perpetuates the illusion of understanding at the cost of actual understanding [commentary on RF Baumeister et al]. *Behavioral and Brain Sciences* 39: e137.
- Smaldino PE** (2016) It's all connected, man. A review of César Hidalgo's *Why Information Grows: The Evolution of Order, from Atoms to Economies*. *Clodynamics* 7: 175–180.
- Smaldino PE**, Calanchini J, Pickett CL (2015) Theory development with agent-based models. *Organizational Psychology Review* 5(4): 300–317.
- McElreath R, **Smaldino PE** (2015) Replication, communication, and the population dynamics of scientific discovery. *PLOS ONE* 10(8): e0136088.
- Schank JC, **Smaldino PE**, Miller ML (2015) Evolution of fairness in the dictator game by multilevel selection. *Journal of Theoretical Biology* 382: 64–73.
- Waring TM, Kline MA, Brooks JS, Goff SH, Gowdy JM, Janssen MA, **Smaldino PE**, Jacquet J (2015) A multi-level evolutionary framework for sustainability analysis. *Ecology and Society* 20(2): 34.
- Smaldino PE**, Epstein JM (2015) Social conformity despite individual preferences for distinctiveness. *Royal Society Open Science* 2: 140437.
- Klein EY, Chelen J, Makowsky MD, **Smaldino PE** (2015) The need for more integrated epidemic modeling, with emphasis on antibiotic resistance. In R Melnik (Ed.), *Mathematical and computational modeling: With applications in the natural and social sciences, engineering, and the arts* (pp. 121–134). New York: Wiley.
- Smaldino PE**, Newton EK (2015) Teaching as an exaptation [commentary on MA Kline]. *Behavioral and Brain Sciences* 38: e66.
- Smaldino PE** (2014) The cultural evolution of emergent group-level traits [target article]. *Behavioral and Brain Sciences* 37(3): 243–295.
- Smaldino PE**, Lubell M (2014) Institutions and cooperation in an ecology of games. *Artificial Life* 20: 207–221.
- Smaldino PE**, Newson L (2014) Parent-offspring conflict in mate choice: A commentary on the study by van den Berg, Fawcett, Buunk, and Weissing. *Evolution and Human Behavior* 35: 155–157.
- Smaldino PE**, Waring TM (2014) Let the social sciences evolve [commentary on DS Wilson et al]. *Behavioral and Brain Sciences* 37(4): 43.
- Smaldino PE**, Newson L, Schank JC, Richerson PJ (2013) Simulating the evolution of the human family: Cooperative breeding increases in harsh environments. *PLOS ONE* 8(11): e80753.
- Smaldino PE** (2013) Cooperation in harsh environments and the emergence of spatial patterns. *Chaos, Solitons & Fractals* 56: 6–12.
- Smaldino PE**, Schank JC, McElreath R (2013) Increased costs of cooperation help cooperators in the long run. *The American Naturalist* 181: 451–463.
- Smaldino PE** (2013) Measures of individual uncertainty for ecological models: Variance and entropy. *Ecological Modelling* 254: 50–53.
- Smaldino PE**, Richerson PJ (2013) Human cumulative cultural evolution as a form of distributed computation. In P Michelucci (Ed.), *Handbook of human computation* (pp. 979–992). New York: Springer.

**Smaldino PE** (2013) Book review of ‘Complex human dynamics: From minds to societies,’ edited by A Nowak, K Winkowska-Nowak, D Brée. *Journal of Artificial Societies and Social Simulation* 16(14).

**Smaldino PE**, Pickett CL, Sherman JW, Schank JC (2012) An agent-based model of social identity dynamics. *Journal of Artificial Societies and Social Simulation* 15(4): 7.

**Smaldino PE**, Schank JC (2012) Movement patterns, social dynamics, and the evolution of cooperation. *Theoretical Population Biology* 82: 48-58.

**Smaldino PE**, Richerson PJ (2012) The origins of options. *Frontiers in Neuroscience* 6: 50.

**Smaldino PE**, Schank JC (2012) Human mate choice is a complex system. *Complexity* 17(5): 11–22.

**Smaldino PE**, Schank JC (2012) Invariants of human emotion [commentary on KA Lindquist et al]. *Behavioral and Brain Sciences* 35: 164.

**Smaldino PE**, Lubell M (2011) An institutional mechanism for assortment in an ecology of games. *PLOS ONE* 6(8): e23019.

Pickett CL, **Smaldino PE**, Sherman JW, Schank JC (2011) Agent-based modeling as a tool for studying social identity processes: The case of optimal distinctiveness theory. In RM Kramer, GJ Leonardelli, & RW Livingston (Eds.), *Social cognition, social identity, and intergroup relations: A festschrift in honor of Marilynn Brewer* (pp. 127-143). New York: Psychology Press.

Blümel R, **Smaldino PE** (1999) Induction accelerator for crystalline beams. *Physics Letters A* 260: 495–501.

#### WORKS IN PROGRESS (manuscript draft written)

Turner MA, **Smaldino PE**. Group polarization emerges from stubborn extremism. *In prep.*

Steiglechner P, Merico A, **Smaldino PE**. Interplay of in-group bias and homophily impedes consensus formation but occasionally accelerates it. *In prep.*

Moser C, **Smaldino PE**. The network science of collective innovation. *In prep.*

Dunivin ZO, **Smaldino PE**. Dynamics of covert identity signaling. *In prep.*

Garg K, Kello CT, **Smaldino PE**. Evolution of explorative and exploitative search strategies in collective foraging and their effect on group search efficiencies.

Pérez Velilla A, **Smaldino PE**. The evolution of reciprocal sharing networks under risk and uncertainty. *In prep.*

Werling M, **Smaldino PE**, Fusaroli R. Unfriending can prevent polarization: Co-evolution of opinion and network dynamics. *In prep.*

#### POPULAR PRESS AND GUEST BLOGGING

Frankenhuis W, Panchanathan K, **Smaldino P** (2021, May 11) Strategic ambiguity or unknown unknowns? *Medium*. <https://leonidtiokhin.medium.com/strategic-ambiguity-or-unknown-unknowns-fe1596e887f3>

Tiokhin L, Panchanathan K, **Smaldino P**, Lakens D (2021, April 20) Why indirect contributions matter for science and scientists. *Medium*. <https://leonidtiokhin.medium.com/why-indirect-contributions-matter-for-science-and-scientists-6c9bf827bc7d>

**Smaldino PE** (2019, Sep 16) Social complexity and personality. *Nature: Behind the Paper*. <https://socialsciences.nature.com/users/302255-paul-smaldino/posts/53720-social-complexity-and-personality>

**Smaldino PE** (2017, Nov 29) On preprints. *Academic Life Histories*.  
<http://academiclifehistories.weebly.com/blog/on-preprints>

**Smaldino PE** (2016, Sep 20) Why isn't science better? Look at career incentives. *The Conversation*.  
<http://theconversation.com/why-isnt-science-better-look-at-career-incentives-65619>

**Smaldino PE** (2016, Aug 15) Bad science evolves. Stopping it means changing institutional selection pressures.  
*SPSP Character & Context Blog*. <http://spsp.org/news-center/blog/bad-science-evolves>

## SELECTED MEDIA COVERAGE

*Complexity Podcast*: TBA

*Game Changer Podcast*: What Twitter can teach us about identity signaling (February 15, 2022)

*BJKS Podcast*: Cubist chickens, formal models, and the psychology curriculum (January 8, 2021)

*Aeon*: Personality is not only about who but also where you are (December 20, 2019)

*Science Daily*: Differences in personality structure among humans (September 16, 2019)

*Ars Technica*: The replication crisis may also be a theory crisis (February 16, 2019)

*Nature*: The mathematics of science's broken reward system (November 16, 2016)

*The Economist*: Why bad science persists (September 24, 2016)

*Pacific Standard*: Where does bad science come from (September 23, 2016)

*The Atlantic*: The inevitable evolution of bad science (September 21, 2016)

*Times Higher Education*: 'Bad science' spreads through natural selection (September 21, 2016)

*BBC World Service*: Why bad science is rewarded (September 21, 2016)

*The Guardian*: Cut-throat academia leads to 'natural selection of bad science' (September 20, 2016)

*Vox*: The 7 biggest problems facing science (September 7, 2016)

*New Scientist*: Evolutionary forces are causing a boom in bad science (July 8, 2016)

*AndrewGelman.com*: "The natural selection of bad science" (June 1, 2016)

*Sydney Morning Herald*: The hipster formula revealed (June 18, 2015)

*Daily Mail*: Why all hipsters look the same (March 10, 2015)

*Pacific Standard*: Can rebellion breed conformity (March 6, 2015)

*Discover*: Math explains why hipsters all look the same (March 4, 2015)

*International Business Times*: Math helps explain why we all look the same (March 5, 2015)

## RESEARCH GRANTS

2021 *Exploring Information Architectures (IAs) as Sociotechnical Competitions*. Templeton World Charity. PI; \$234,000.

2020 *RAPID: Coupled Contagion, Behavior-Change, and the Dynamics of Pro- and Anti-Social Behavior During the COVID-19 Pandemic*. NSF. Co-PI; \$197,622.

2020 *Hiding Radical Speech in Plain Sight: Covert Identity Signaling on Social Media*. Army Research Office. PI; \$299,577.

2019 *Models of Social Dynamics: An Introductory Module*. John Templeton Foundation. PI; \$6,519.

2019 *The Evolution of Identity: The Roles of Culture and Context*. Hellman Faculty Fellows Grant, University of California, Merced. PI; \$25,000.

2017 *Models of Selection in Scientific Ecosystems*. DARPA. PI; \$115,302.

2017 *RR: Collaborative Research: Tracking Scientific Progress in Social Psychology*. NSF. Collaborator (PI: Alexa Tullett, University of Alabama); \$324,458.



## INVITED WORKSHOP AND WORKING GROUP PARTICIPATION

Augmented Intelligence Workshop. Virtual (September 2022)  
A New Synthesis for the Science of Science. Santa Fe Institute (May 2022)  
Computational Social Science Synergy Retreat (**keynote**). UC Davis (April 2022)  
Constructing and Deconstructing Collectives: Signals to Space and Society. Santa Fe Institute (January 2022)  
NSF Predictive Intelligence for Pandemic Prevention “Human” Workshop (March 2021)  
Adaptation, Optimality, and Risk Management: What Do the Human Evolutionary Sciences and the Climate Sciences Have to Offer Each Other? SESYNC (September 2021)  
Model-Based Research and Reproducibility Workshop. Center for Open Science (February 2020)  
Metascience Symposium. Stanford University (September 2019)  
Cultural Evolution Symposium. University of Pennsylvania (May 2019)  
The Role of Information in Complex Conflict. Santa Fe Institute (February 2019)  
Research Quality & Design Symposium: Public Trust In Science, UC Davis, January 2019  
Technical Exchange on Complex Social Systems. Center for Open Science (August 2018)  
Understanding the Mechanisms and Evolution of Play. Konrad Lorenz Institute (July 2018)  
Integrating Different Perspectives on Social Learning. Santa Fe Institute (April 2018)  
Re-Computing the Social Sciences. University of California, Davis (May 2017)  
Beyond the Meme: Articulating Dynamic Structures in Cultural Evolution. Univ of Minnesota (October 2014)  
Human Computation Roadmap Summit. Woodrow Wilson Center, Washington, DC (June 2014)  
Evolution of Sustainability Working Group. National Institute for Mathematical and Biological Synthesis (NIMBioS), University of Tennessee (March 2014, November 2014)  
Evolutionary Approaches to Sustainability and Social-Ecological Systems: A Catalyst Workshop. University of Maine, Schoodic Education and Research Center (May 2013)  
Simulating Cultural Evolution Retreat. University of Maine (February 2013)  
Epistemology Think Tank: New Measures for Models. MIDAS Center, University of Pittsburgh (May 2011)

## PRESENTATIONS (videos at <https://youtube.com/playlist?list=PLqyCiWK61Vyea3rQ68DCkvwVEPxGAtvoP>)

### INVITED TALKS

Center for Interdisciplinary Digital Sciences, TU Dresden, September 2022  
UM6P School of Collective Intelligence, March 2022  
ReproducibiliTea, McMaster University (remote), March 2022  
Santa Fe Institute, August 2021  
Simulations of Scientific Inquiry Group, Eindhoven University of Technology (remote), May 2021  
Computational Demography Working Group, University of Washington (remote), May 2021  
Netherlands Institute of Advanced Study, University of Amsterdam (remote), March 2021  
ReproducibiliTea journal club, University College London (remote), March 2021  
Stockholm Resilience Centre, Stockholm University (remote), March 2021  
Center for Behavior, Evolution, and Culture, UCLA, February 2021  
Department of Developmental Psychology, Utrecht University (remote), December 2020  
Social, Decision, and Organizational Sciences Program, University of Maryland (remote), November 2020  
National Institute for Mathematical and Biological Synthesis, University of Tennessee (remote), October 2020  
Department of Archaeology, University of Cambridge (remote), June 2020  
Centre for Culture and Evolution, Brunel University London (remote), June 2020  
Department of Communication, UC Davis (remote), May 2020  
Center for Social, Cognitive, and Affective Neuroscience, University of Glasgow (remote), May 2020  
Cognition and Language Workshop, Stanford University, February 2020  
Department of Environmental Science and Policy, UC Davis, November 2019  
Department of Psychology, UC Davis, November 2019  
Santa Fe Institute, July 2019  
School of Human Evolution and Social Change, Arizona State University, November 2018  
Department of Anthropology, University of Missouri, September 2018  
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany, August 2018



Department of Earth System Science, Stanford University, January 2018  
Te Pūnaha Matatini, Auckland, New Zealand, December 2016  
Department of Biochemistry, Otago University, Dunedin, New Zealand, December 2016  
Faculty of Medical and Health Sciences, University of Auckland, New Zealand, December 2016  
Institute of Natural and Mathematical Sciences, Massey University, Auckland, New Zealand, December 2016  
Social Dynamics and Complexity Group, University of California, Irvine, November 2016  
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany, October 2016  
Institute for Advanced Study, Toulouse, France, May 2016  
Center for Behavior, Evolution, and Culture, UCLA, February 2016  
Department of Psychology, UC Davis, December 2015  
Department of Communication, UC Davis, May 2015  
Berkeley Institute for Data Science, UC Berkeley, April 2015.  
Santa Fe Institute, December 2013  
Center for the Study of Complex Systems, University of Michigan, November 2013  
National Socio-Environmental Synthesis Center (SESYNC), University of Maryland, October 2013  
School of Human Evolution and Social Change, Arizona State University, February 2013  
Computational Biology Group, National Institutes of Health, December 2012  
Department of Emergency Medicine, Johns Hopkins University, April 2011  
Department of Physics, University of California, Davis, November 2010  
Department of Environmental Science and Policy, University of California, Davis, April 2010

#### CONFERENCE TALKS AND KEYNOTES

Cultural Evolution Society Meeting. Aarhus, Denmark. September 2022.  
Social Simulation Conference (**keynote**). Milan, Italy. September 2022.  
NeurIPS Pre-registration Workshop (**keynote**). Remote only. December 2021.  
Cultural Evolution Society Meeting. Sapporo, Japan (remote). June 2021.  
American Anthropological Association Meeting. San Jose, CA. November 2018.  
Cultural Evolution Society Meeting. Tempe, AZ. October 2018.  
California Workshop on Evolutionary Social Science. Santa Barbara, CA. May 2018.  
Cultural Evolution Society Meeting. Jena, Germany. September 2017.  
Human Behavior and Evolution Society Meeting. Boise, ID. May 2017.  
The Science of Evolution and the Evolution of the Sciences. Institute of Philosophy, KU Leuven, Belgium.  
October 2016.  
Conference on Complex Systems (\*\*starred talk). Tempe, AZ. October 2015.  
Cultural Evolution of Technology (CCS satellite workshop). Tempe, AZ. October 2015.  
Society for Experimental Social Psychology Conference. Denver, CO. September 2015.  
International Society for the History, Philosophy, and Social Science of Biology Meeting. Montreal, Canada.  
July 2015.  
Human Behavior and Evolution Society Meeting. Columbia, MO. May 2015.  
Society for Personality and Social Psychology Meeting, Pre-conference on Dynamical Systems and  
Computational Modeling. Long Beach, CA. February 2015.  
Society for Personality and Social Psychology Meeting, Pre-conference on Dynamical Systems and  
Computational Modeling. Austin, TX. February 2014.  
European Human Behaviour and Evolution Association Conference. Amsterdam, Netherlands. March 2013.  
Society for Personality and Social Psychology Meeting, Pre-conference on Dynamical Systems and  
Computational Modeling. New Orleans, LA. January 2013.  
International Conference for Complex Systems. Boston, MA. June 2011.  
European Human Behaviour and Evolution Association Conference. Geißen, Germany. March 2011.  
Midwest Political Science Association Conference. Chicago, IL. March 2011.  
Regional Graduate Student Conference on Animal Behavior, Davis, CA. February 2009.

#### POSTERS

Smaldino PE (2013, July) *The cultural evolution of emergent group-level traits*. Human Behavior and Evolution Society Conference. Miami Beach, FL.

Smaldino PE (2012, July) *Simple heuristics for models of complex social behavior*. Summer Institute on Bounded Rationality, Max Planck Institute for Human Development. Berlin, Germany.

Smaldino PE, Schank JC, McElreath R (2012, April) *Increased costs of cooperation help cooperators in the long run*. Consilience Conference. St. Louis, MO.

Smaldino PE, Lubell MN (2011, April) *An institutional mechanism for assortment in an ecology of games*. UC Davis Psychology Department Annual Conference. \*\*\*Winner, Best Student Poster\*\*\*

Smaldino PE, Lubell MN (2010, December) *Gatekeeping promotes cooperation in an ecology of games*. Workshop on Computational Social Science and the Wisdom of Crowds, Neural Information Processing Systems Conference. Whistler, Canada.

## TEACHING AND MENTORING

### **Postdoctoral Supervision**

|  |           |
|--|-----------|
| Matthew Turner (co-supervisor at Stanford) | 2021–2022 |
| Thomas Flamson (UC Merced)                 | 2016–2017 |

### **Graduate Student Advising (chair)**

|   |           |
|---|-----------|
| Chanuwas Aswamenakul (co-chair), Cognitive and Information Sciences                             | current   |
| Alejandro Pérez Velilla, Cognitive and Information Sciences                                     | current   |
| Cody Moser, Cognitive and Information Sciences  | current   |
| Amin Boroomand, Quantitative and Systems Biology  | 2018–2022 |
| Matthew Turner, Cognitive and Information Sciences  | 2017–2021 |
| Pablo Contreras Kallens (transferred to Cornell University), Cognitive and Information Sciences | 2017–2018 |

### **Graduate Student Advising (other)**

|   |           |
|---|-----------|
| Bianca Salazar (committee member), Quantitative and Systems Biology, UC Merced                | current   |
| Peter Steiglechner (external committee member), Physics and Earth Sciences, Jacobs University | current   |
| Qiankun Zhong (external committee member), Communication, UC Davis                            | current   |
| Sydney Wood (external committee member), Psychology, UC Davis                                 | current   |
| Tyrome Sweet (committee member), Quantitative and Systems Biology, UC Merced                  | 2018–2022 |
| Taran Rallings (committee member), Quantitative and Systems Biology, UC Merced                | 2018–2022 |
| Mikkel Werling (external committee member, M.S.), Cognitive Science, Aarhus University        | 2022      |
| Jordan Ackerman (committee member), Cognitive and Information Sciences, UC Merced             | 2016–2022 |
| Ketika Garg (committee member), Cognitive and Information Sciences, UC Merced                 | 2017–2022 |
| Ben Falandays (committee member), Cognitive and Information Sciences, UC Merced               | 2017–2022 |
| Daniel Schloesser (committee member), Cognitive and Information Sciences, UC Merced           | 2017–2021 |
| Brandon Batzloff (committee member), Cognitive and Information Sciences, UC Merced            | 2018–2019 |
| Matt Miller (external committee member), Psychology, UC Davis                                 | 2017–2019 |
| Giulio Galdi, Visiting PhD Student in Development Economics, University of Florence           | Fall 2017 |

### **Instructor**

|   |                         |
|---|-------------------------|
| Modeling Social Behavior (graduate level), UC Merced                        | Spring 2017, 2019, 2021 |
| Modeling Social Behavior (undergraduate level), UC Merced                   | Spring 2017, 2019, 2022 |
| Introduction to Cognitive Science, UC Merced                                | Spring 2018, 2020       |
| Minds, Technology, & Society (graduate level), UC Merced                    | Spring 2018             |
| Cultural Evolution and Human Behavioral Ecology (graduate level), UC Merced | Fall 2017               |
| Introduction to Biological Psychology, UC Davis                             | Summer 2015             |
| Agent-Based Modeling, UC Davis  | Fall 2010               |

### **Extra-mural Instructor**

|   |                         |
|---|-------------------------|
| Lecturer, Complex Systems Summer School, Santa Fe Institute   | Summer 2022             |
| Introduction to Agent-Based Modeling, CodeHorizons  | December 2021, May 2022 |
| Models of Social Dynamics ( <a href="http://www.dysoc.org/cesmodules/social_dynamics_module/">http://www.dysoc.org/cesmodules/social_dynamics_module/</a> ) | 2020                    |
| Workshop on Agent-Based Modeling, SIPS Conference, Grand Rapids, MI   | June 2018               |

Workshop on Agent-Based Modeling, Eindhoven University of Technology, Netherlands September 2017  
 Computational Modeling of Social Behavior (graduate level), Aarhus University, Denmark August 2017

**Guest Lecturer**

‘Some models of science.’ History, Philosophy, and Practice of Science, UC Merced Fall 2019, 2022  
 ‘Agent-based modeling.’ Intelligent Adaptive Systems, UC Merced Spring 2018, 2019  
 ‘Cumulative cultural evolution.’ Intelligent Adaptive Systems, UC Merced Fall 2018  
 ‘Reciprocity’ & ‘Multilevel selection.’ Fundamentals of Animal Behavior, UC Davis Winter 2016  
 ‘False positives, replication, and bias.’ Industrial Organization and Energy, UC Davis Spring 2015  
 ‘Game theory.’ Graduate Seminar on Evolutionary Genomics, NIH Fall 2012  
 ‘Design of agent-based models.’ Modeling Sustainability, University of Maine, Orono Fall 2011, Fall 2013

**Teaching Assistant (\*indicates TA-taught lab component)**

Statistical Rethinking (graduate-level Bayesian stats with R), UC Davis Winter 2015  
 Agent-Based Modeling, UC Davis Winter 2008, Winter 2009, Spring 2010  
 Developmental Psychobiology\*, UC Davis Fall 2008, Fall 2009, Winter 2010  
 Physiological Psychology\*, UC Davis Summer 2009  
 Human Learning and Memory\*, UC Davis Spring 2009  
 Research Methods in Psychology, UC Davis Fall 2007, Summer 2008  
 Special Relativity and Chaos Theory, Wesleyan University Fall 2000

**PROFESSIONAL ACTIVITY**

REVIEWER:

Journals: *Adaptive Behavior* • *American Naturalist* • *Artificial Life* • *Behavioral and Brain Sciences* • *Behavioural Processes* • *BMC Evolutionary Biology* • *Cliodynamics* • *Cognition* • *Cognitive Science* • *Cognitive Systems Research* • *Current Anthropology* • *Ecological Psychology* • *Ecology and Society* • *eLife* • *Europhysics Letters* • *Evolution* • *Evolution: Education and Outreach* • *Evolution and Human Behavior* • *Evolutionary Anthropology* • *Evolutionary Behavioral Sciences* • *Evolutionary Human Sciences* • *Frontiers in Human Neuroscience* • *Games* • *Human Nature* • *Journal of Artificial Societies and Social Simulation* • *Journal of Economic Behavior and Organization* • *Journal of Mathematical Sociology* • *Journal of Politics* • *Journal of the Royal Society Interface* • *Journal of Theoretical Biology* • *Nature* • *Nature Communications* • *Nature Human Behaviour* • *Perspectives on Psychological Science* • *Philosophical Transactions of the Royal Society B* • *Philosophy of Science* • *PLOS Computational Biology* • *PLOS ONE* • *PNAS* • *Proceedings of the Royal Society B* • *Psychological Review* • *Royal Society Open Science* • *Science Advances* • *Scientific Reports* • *Social Cognition* • *Society & Natural Resources* • *Studies in History and Philosophy of Science* • *Theoretical Population Biology* • *Trends in Cognitive Sciences*

Book Publishers: *Oxford University Press*, *Princeton University Press*, *SAGE Books*

Conferences: *ALife 2016* • *CogSci 2017, 2019* • *Cultural Evolution Society 2018*

Funders: *National Science Foundation* {*Cultural Anthropology*, *SciSIP*, *Human Networks and Data Science*} • *Swiss National Science Foundation* • *Army Research Office* • *Cultural Evolution Society* • *John Templeton Foundation* • *Leakey Foundation*

OTHER PROFESSIONAL SERVICE:

Program Committee. Social Learning and Cultural Evolution Workshop, ALIFE '16, Cancun, Mexico (July 2016)  
 Program Committee. Graduate Workshop on Multiplex Social Networks, UC Davis (April 2016)  
 Program Committee. Graduate Workshop on Agent-Based Modeling, Johns Hopkins University (July 2014)  
 Organizing Committee. 2<sup>nd</sup> annual Cultural Evolution Society Meeting, Tempe, AZ (Fall 2018)  
 Publication Committee. Cultural Evolution Society (Fall 2017–2019)  
 External Reviewer. Organized Research Unit at UC Irvine (Spring 2021)

## UNIVERSITY SERVICE:

Faculty Search Committee. Center for Advanced Modeling, Johns Hopkins University (2012, 2013)  
Course Development: Agent-Based Modeling (undergraduate), UC Merced (Spring 2017)  
Course Development: Modeling Social Behavior (graduate), UC Merced (Spring 2017)  
Ad hoc Faculty Appointment Committee, UC Merced (Spring 2017)  
Committee on Research Computing, UC Merced (2017–2020)  
Faculty Advisor. Data and Analytical Science User Group, UC Merced (Summer 2017–present)  
Faculty Search Committee. Cognitive & Information Sciences, UC Merced (2017–2018)  
UC Merced campus rep. California Workshop on Evolutionary Social Science (2018–2021)  
Faculty Search Committee. Cognitive & Information Sciences, UC Merced (2018–2019)  
Faculty Merit Review Committee. Cognitive & Information Sciences, UC Merced (2018–2019)  
Communications Committee. Cognitive & Information Sciences, UC Merced (2017–2020)  
Distinguished Cognitive Scientist Award Committee. CIS, UC Merced (2018–2020)  
Committee to create a Master’s Degree in Cognitive & Information Science. UC Merced (2018–2020)  
Gallo School Planning Committee, UC Merced (2020–2021)  
Graduate Group Chair. Cognitive & Information Sciences, UC Merced (2020–present)

## **LANGUAGES**

Natural: English (native), Italian (decent)

Computer: *Expert:* Java, R, NetLogo, MATLAB, Mathematica, LaTeX;  
*Intermediate:* Python, Julia