

Antonio D. Sirianni, Ph.D.

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ACADEMIC APPOINTMENTS

Georgetown University, Washington, DC
Adjunct Professor of Data Science (Part-time), McCourt School of Public Policy, January 2023-Present

Dartmouth College, Hanover, NH
Visiting Scholar, Department of Sociology, August 2022-August 2023
Postdoctoral Fellow and Lecturer, Program in Quantitative Social Science & Department of Sociology, August 2019-July 2022

PROFESSIONAL EXPERIENCE

Financial Industry Regulatory Authority, Rockville, MD
Senior Data Scientist, Market Regulation Technology, August 2022-Present

Wayfair.com, Boston, MA
Data Scientist and Business Analyst, Business Intelligence, Sep 2010-Aug 2013

EDUCATION

Cornell University, Ithaca, NY
Doctor of Philosophy, Sociology, August 2019
Master of Arts, Sociology, January 2017

Qualifying Exams: Social Networks, Quantitative Methods
Committee: Michael Macy (Chair), Benjamin Cornwell, Douglas Heckathorn
Dissertation: *The Social Structure of Stigmatized Occupations*

Yale University, New Haven, CT
Bachelor of Science, Psychology (with Distinction), May 2010

RESEARCH INTERESTS

Social Networks, Computational Social Science, Organizational Behavior, Status, Polarization, Social Simulation & Agent-Based Models

PEER- REVIEWED ARTICLES

Sirianni, Antonio, Jonathan H. Morgan, Nikolas Zoller, Kimberly B. Rogers, and Tobias Schroeder. Complements and Competitors: The Co-diffusion of Languages on a Collaborative Coding Platform' (Conditionally Accepted at *PNAS Nexus*.)

Gomez, Charles, **Antonio Sirianni**, & Launy Schweiger "Attachment Preferences in Diverse Collective Problem-Solving Ventures and Systemic Performance." Available Online at *The Journal of Mathematical Sociology*.

Sirianni, Antonio. "A Deviant Pathway to Respectability: The Enforcer Career Path in Professional Ice Hockey from 1997-2012." Available Online at *Deviant Behavior*.

- Winner of 2016 Robert B. McGinnis Best Methodological Paper Award, Cornell University Department of Sociology

Sirianni, Antonio. "The Specialization of Informal Social Control: Fighting in the National Hockey League from 1947-2019." *Rationality and Society*, Vol. 35. 2023.

- Winner of 2019 Best Graduate Student Paper Award, Rationality and Society Section of the American Sociological Association

Jones, Matthew, **Antonio Sirianni** & Feng Fu. "Polarization, Abstention, and the Median Voter Theorem." *Humanities and Social Sciences Communications*, Vol. 9. 2022.

Berry, George, **Antonio Sirianni**, Ingmar Weber, Jinsun An & Michael Macy. "Going Beyond Accuracy: Estimating Homophily in Social Networks Using Predictions" *Sociological Science*, Vol. 8. 2021.

Sirianni, Antonio, Chris Cameron, Yongren Shi & Douglas Heckathorn. “Bias-decomposition and Estimator Selection in Respondent-Driven Sampling.” *Social Networks*, Vol. 64. 2021.

Wang, Xin, **Antonio Sirianni**, Shaoting Tang, Zhiming Zheng & Feng Fu. “Public Discourse and Social Network Echo-chambers Driven by Socio-cognitive Biases.” *Physical Review X*, Vol. 10. 2020.

Sirianni, Antonio. “Expectation and Coordination in Small Groups: A Simulation-Based Approach.” *Advances in Group Processes*, Vol. 35. 2018.

**PUBLISHED
CONFERENCE
PROCEEDINGS**

Sirianni, Antonio. “The Effect of Service Cost on the Valence and Length of Online Reviews.” *International Conference on Social Informatics*, 2018.

Berry, George, **Antonio Sirianni**, Nathan High, Agrippa Kellum, Ingmar Weber and Michael Macy. “Estimating Group Properties with a Classifier in Online Social Networks.” *International Conference on Social Informatics*, 2018.

**MANUSCRIPTS
UNDER
PREPARATION**

Sirianni, Antonio & Thomas Davidson. “Novelty, Overexposure, and Cumulative Advantage: Survival and Success in the Adult Film Industry.”

Accominotti, Fabien & **Antonio Sirianni**. “Collaborations and Careers: Disentangling Quality Signaling and Collective Skill Formation in the French Film Industry.”

Sirianni, Antonio. “The Deckhand’s Dilemma: A Game-Theoretic Study of Inequality and Over-Incentivization.”

**OTHER
ARTICLES**

Sirianni, Antonio and Feng Fu. “Understanding Social Network Echo-Chambers and Polarization”. *Society for Industrial and Applied Mathematics News*. August 21st, 2021.

PRESENTATIONS

Complements and Competitors: The Co-diffusion of Languages on a Collaborative Coding Platform (with Jonathan H. Morgan, Nikolas Zoller, Jesse Hoey, Kimberly B. Rogers, and Tobias Schrodien.)

- Meeting of the American Sociological Association. Los Angeles, CA. August 2022.

Going Beyond Accuracy: Estimating Homophily in Social Networks Using Predictions (with George Berry, Jinsun An, Michael Macy, & Ingmar Weber)

- International Conference on Computational Social Science. Virtual. July 2021.
- Meeting of the American Sociological Association. Virtual. August 2020.

Dominance Hierarchies in the Network of Hockey Fighters (with Randall Harp, Laurent Hebert-Dufresne, Daniel Larremore)

- Conference of the Network Science Society. Virtual. September 2020.

Collaborative Preferences and Collective Problem-Solving Outcomes: Comparing Diversity, Meritocracy, and Homophily (with Charles Gomez & Launy Schweiger)

- International Conference on Computational Social Science. Virtual. July 2020.

The Specialization of Informal Social Control: Fighting in Professional Ice Hockey from 1960-2012

- Meeting of the American Sociological Association. New York, NY. August, 2019.
- 8th Conference for the International Network of Analytical Sociologists. Harvard University, Cambridge, MA. June, 2015.

- Cornell Sociology Graduate Student Association Presentation Series. Ithaca, NY. March, 2015.

Expectation and Coordination in Small Groups: A Simulation-Based Approach

- Dartmouth College Department of Psychological Brain Sciences ‘Social Brain Brown Bag’. Hanover, NH. November 2019.
- Group Processes Conference. Montreal, QC. August, 2017.
- Interdisciplinary Network for Group Research Conference. St. Louis, MO. July, 2017.
- Cornell Sociology Research Symposium. Ithaca, NY. March, 2017.

A Study of the Career Trajectories of Adult Film Performers (with Thomas Davidson)

- Meeting of the American Sociological Association. New York, NY. August, 2019.
- Meeting of the Eastern Sociological Society. Baltimore, MD. February, 2018.

The Deckhand’s Dilemma: A Game-Theoretic Study of Inequality and Over-Incentivization

- Meeting of the American Sociological Association. Philadelphia, PA. August, 2018.

Taking One for the Team: Violent Roles in Professional Ice Hockey

- Meeting of the American Sociological Association. Seattle, WA. August, 2016.

Differentiating Structural and Preferential Homophily (with Matthew Brashers)

- Sunbelt Conference for the International Network for Social Network Analysis. Brighton, United Kingdom. June, 2015.

COURSES TAUGHT

Spring 2023
Social Network Analysis, McCourt School of Public Policy, Georgetown University

Fall 2021, Spring 2021, Spring 2020
Social Network Analysis, Dartmouth College

Summer 2019, Summer 2018
Introduction to Sociology, School of Continuing Education, Cornell University

TEACHING ASSISTANTSHIPS

Winter 2020
Introduction to Game Theory, Dartmouth College

Spring 2019, Spring 2018
Data Science for All, College of Engineering, Cornell University

Spring 2017
Introduction to Sociology, College of Arts and Sciences, Cornell University

Fall 2016, Fall 2015
Evaluating Statistical Evidence, College of Arts and Sciences, Cornell University

Spring 2016
Linear Models, College of Arts and Sciences, Cornell University

Spring 2016, Fall 2015
Negotiation Essentials, Johnson School of Business, Cornell University

DETAILS OF PROFESSIONAL EXPERIENCE

August 2022-Present
Senior Data Scientist, Financial Industry Regulatory Authority (FINRA)

- Implement large scale graph-analysis methods for assessing over 600 Million connections between customers and accounts and incorporate them into market monitoring visualizations, analyses, and models

- Leverage detailed records of financial exchanges to develop deep-learning models that detect fraudulent or illegal trading behavior
- Design and present data visualizations that summarize and illustrate suspicious market activity for enforcement teams

September 2010-August 2013

Senior Data Scientist/Data Scientist/Business Analyst, Wayfair.com

- First analyst dedicated to examining *Wayfair.com*'s on-site traffic data
- Led analysis for A/B tests of customer purchasing funnel
- Transformed data on over 2 billion individual customer clicks into customized reports, analyses, and business recommendations
- Managed and optimized roughly \$3.5 million of annual spending on Google "Ad-words" advertising and other customer acquisition channels for lighting, plumbing, and home improvement product categories

SOFTWARE AND PROGRAMMING SKILLS

Python, R, Structured Query Language (SQL), STATA, PySpark, SPSS, Microsoft Office (Including Excel and Access), Mathematica, NetLogo, QGIS

SERVICE & OTHER EXPERIENCE

American Sociological Association

- Rationality and Society Section: Secretary/Treasurer (2020-2022)
- Rationality and Society Section: Graduate Student Paper Award Committee (2020)

Cornell Sociology Graduate Student Association

- Co-President (2015-16)

Dartmouth College Program in Quantitative Social Science

- Postdoctoral Fellow Search Committee (2019-20)

Santa Fe Institute

- Online Complexity Challenge Course Mentor (2017)

Thesis Students Advised

- Cameron Wright (2021), Mathematical Data Science Undergraduate Thesis, Dartmouth College
- Thomas Brown (2022), Mathematical Data Science Undergraduate Thesis, Dartmouth College

Reviewer at:

- Applied Network Science
- Deviant Behavior
- European Sociological Review
- Journal of Computational Social Science
- Journal of Physics: Complexity
- Rationality and Society
- Scientific Reports
- Social Forces
- Social Network Analysis and Mining
- Sociological Methodology