

# Thomas R. Cook

## Curriculum Vitae

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## Education

- 2016 **PhD Political Science**, *University of Colorado*, Boulder, Colorado.  
Fields: International Relations, Formal Methods and Empirical Methodology  
Dissertation: *Untested Membership: Reputation, Ambiguity and International Relations*  
Committee: David H. Bearce (Chair/Advisor), Moonhawk Kim, Amy Liu, Joshua Strayhorn, Jaroslav Tir
- 2012 **MA Political Science**, *University of Colorado*, Boulder, Colorado.  
Qualifying Paper: *Dynamics of IPR: Mobility and Democracy in Property Rights Extension*  
Committee: David Brown (Chair), Amy Liu, Sarah Sohkey
- 2010 **MPA International Administration**, *DePaul University*, Chicago, Illinois.
- 2006 **BA Philosophy, Political Science**, *University of Iowa*, Iowa City, Iowa.

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## Professional Experience

- 2016-present **Data Scientist**, *Federal Reserve Bank of Kansas City*, Kansas City, Missouri.  
Conducted research relating to novel methods in economics and social sciences. Developed deep learning and other machine learning models for use in forecasting and other applied settings. Supervised development of novel datasets consisting of structured and unstructured data. Taught internal training courses in research design, statistics and machine learning.
- 2015-2016 **ABD Fellow**, *One Earth Future*, Broomfield, Colorado.  
Conducted research on topics relating to violent conflict and economic cooperation. Designed processes and web-applications to facilitate use of cloud-based infrastructure for high-performance computing.

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## Research

### Publications

- 2018 *Local Competition Amplifies the Corrosive Effects of Inequality*. (With Danny Krupp). *Psychological Science*. Forthcoming. DOI: 10.1177/0956797617748419.

2017 *The First Image Reversed: Can IGO Signals Influence Mass Political Attitudes?* (With David Bearce). Review of International Organizations. DOI: 10.1007/s11558-017-9293-0.

2016 *Democracy, Linguistic Networks and Intellectual Property Rights*. (With Amy Liu). World Development, 87, issue C, p. 128-138. DOI: 10.1016/j.worlddev.2016.06.008.

### **Preprints**

2017 *Macroeconomic Indicator Forecasting with Deep Neural Networks*. (With Aaron Smalter Hall). Federal Reserve Bank of Kansas City Working Paper No. 17-11. DOI: 10.2139/ssrn.3046657.

### **Additional Working Projects**

*Reinforcement learning approaches to dynamic political-economy models.*

*Events as graphs: representations of political and economic events in structured hierarchies and corresponding implications for analysis.*

*Holdout States and Pressure Release Valves: networks and the timing of IO membership.*

*Outcome Unclear: The Effects of Untested Alliances on State Reputations.*

### **Presentations**

2017 *Building Neural Networks*. Presented at the Big Data Summit, Kansas City.

2016 *Pilars of Cooperation: an Agent Based Model of Piracy in the Indian Ocean*. (With Conor Seyle, David Poplack and Matthew Walje). Presented to Faculty at the Sié Center, Denver University. Denver.

2015 *Reputation and Investment under Ambiguity*. Presented at the Annual Meeting of the International Political Economy Society (IPES '15). Stanford University, Palo Alto.

2015 *Outcome Unclear: The effects of untested alliances on state reputations*. Paper Presented at the 111<sup>th</sup> Annual meeting of the American Political Science Association (APSA '15). San Francisco.

2015 *The First Image Reversed: Can IGO Signals Influence Mass Political Attitudes?* (With David Bearce). Paper Presented at the 111<sup>th</sup> Annual meeting of the American Political Science Association (APSA '15). San Francisco.

2015 *Do IGOs really provide information to the mass public? experimental evidence on the united nations and free trade agreements*. (With David Bearce). Paper Presented at the 73<sup>rd</sup> Annual Meeting of the Midwest Political Science Association (MPSA '15). Chicago.

2015 *Reputation in the Eye of the Beholder: the Effects of Ambiguous Alliance Outcomes on Reputation*. Paper Presented at the 73<sup>rd</sup> Annual meeting of the Midwest Political Science Association (MPSA '15). Chicago.

2014 *Holdout States and Pressure Release Valves: an examination of the timing of IO membership*. Paper Presented at the 72<sup>nd</sup> Annual meeting of the Midwest Political Science Association (MPSA '14). Chicago.

- 2013 *Democracy, Linguistic Networks, and Intellectual Property Rights*. (With Amy Liu). Paper Presented at the 71<sup>st</sup> Annual meeting of the Midwest Political Science Association (MPSA '13). Chicago.
- 2012 *Intellectual Property Rights and Technology Transfer: estimating the effect of enforcement on IPR regime quality*. Paper Presented at the 70<sup>th</sup> Annual meeting of the Midwest Political Science Association (MPSA '12). Chicago.
- 2012 *Intellectual Property in Authoritarian Regimes: Examining the Effect of Institutional Constraint on Intellectual Property Rights Extension*. (With Amy Liu). Paper Presented at the 70<sup>th</sup> Annual meeting of the Midwest Political Science Association (MPSA '12). Chicago.

## Teaching Experience

### Courses Independently Designed and Taught

- Fall 2017 Introduction to Data Science  
Advanced empirical methods and machine learning course taught as part of an internal training and development program for analysts at Federal Reserve Bank of Kansas City.
- Spring 2017 Introduction to Statistics  
Research design and empirical methodology course taught as part of an internal training and development program for analysts at Federal Reserve Bank of Kansas City.
- Spring 2015 Designing Social Inquiry (PSCI 3105)  
Undergraduate course in research design and empirical methodology (second of a 2 course sequence) focusing on research design and quantitative analysis
- Spring & Summer 2014 War Peace and Strategic Defense (PSCI 3124)  
Undergraduate course in international relations focusing on rationalist theories of conflict and security

### Teaching Assistant

- 2014 Global Political Economy (PSCI 4193)  
Undergraduate course in International Political Economy. TA to professor Moonhawk Kim
- 2013 Rationality Democracy and Public Policy (PSCI 3225)  
Undergraduate Game Theory Course. TA to professor Josh Strayhorn
- 2012–2013 Designing Social Inquiry (PSCI 2075)  
Undergraduate introductory course to research methods and basic quantitative study. TA to professor Vanessa Baird.
- 2010–2012 Introduction to Comparative Politics (PSCI 2012)  
Undergraduate survey course in comparative politics. TA for Professors Andy Baker, Joe Jupille, and David Brown (as head TA).

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## Professional Service

- 2015 Computing workshops for Political Science Department members and invited attendees:
  - o Data Management for Reproducible Results: an Introduction to Git
  - o High Performance Computing for Social Science Data Analysis: an Introduction to Docker and Cloud Computing
- 2015 Discussant: Midwest Political Science Association Annual Meeting. Section 69: Undergraduate Posters
- 2011-2012 Representative: Mentors of Political Science (MOPS)  
Reviewer: Conflict Management and Peace Science, International Interactions

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## Fellowships and Grants

- 2015-2016 ABD Fellowship, One Earth Future Foundation (OEF)
- 2015 Graduate Dissertation Research Grant \$7500
- 2014 Graduate Research Grant \$1500
- 2011-2015 Travel grant MPSA \$300

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## Additional Proficiencies

### Methods Training

*Introductory graduate methods coursework:* 3 course sequence covering research design and linear models

*Additional Coursework:* GLM, Bayesian Analysis (1-week intensive), Survey Design and Scale Development, Social Network Analysis, Qualitative Research Design, Formal/Game Theory (2 course sequence)

### Computer Programming

Working projects and project portfolio available at [www.github.com/trcook](http://www.github.com/trcook). The list below provides a sense of frequently used languages, packages and operating environments. It is not exhaustive.

*Computer Languages/APIs:* Python, R, L<sup>A</sup>T<sub>E</sub>X, Mathematica, SQL, AQL (Arango) STATA

*Machine Learning Toolkits:* Tensorflow, Keras, gym, scikit-learn, caret, scrapy, H2O.ai

*Other Database/Computing Frameworks:* Amazon AWS S3/EC2, Google Big-Query/Compute Engine/App Engine, Docker, Singularity, Arango

*OS:* OS X, Linux/Unix (Primarily Debian), Windows