

# MARCOS FERNANDES

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## STONY BROOK UNIVERSITY

### Office Contact Information

Economics Department

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**Personal Information:** Brazilian. Languages: English (fluent) and Portuguese (native).

### Education

Ph.D. in Economics, Stony Brook University, USA, 2013-2019 (expected).

M.Sc. in Economics, FGV, São Paulo School of Economics, Brazil, 2011.

B.Sc. in Economics, Universidade de São Paulo, Brazil, 2008.

### Research Fields

Social and Economic Networks, Political Economy and Industrial Organization.

### Working Papers

- Confirmation bias in social networks and the folly of crowds. (**Job Market Paper**)
- Social media networks, fake news and polarization (with M. Azzimonti) - *NBER WP 24462, Submitted.*

### Work In Progress

- Polarization cycles in social networks
- Media competition under bounded rationality
- The politics of favor exchange: an analysis of Senate co-sponsorship dynamics (with L. Karpuska)
- Lobbying activities and sectoral linkage
- Sudan conflict: a network approach (with A. Melo Ponce and C. Rubbini)

### Teaching Experience

- **Instructor at Stony Brook University** (2013 - 2019)
  - Industrial Organization (undergraduate: Su'16, Su'17, Su'18, F'17),
  - Public Finance (undergraduate: F'16, S'15, W'15, Sp'19)
- **Teaching Assistant at Stony Brook University** (2013 - 2018)
  - Econometrics I (graduate: Sp'16),
  - Mathematical Statistics (graduate: F'15),
  - Microeconomic Theory (undergraduate: Sp'17, Sp'15, F'14),
  - Macroeconomic Theory (undergraduate: Sp'18, F'18)
  - Introduction to Economics (undergraduate: Sp'14, F'13)

- **Teaching Assistant at FGV, São Paulo School of Economics** (2010)
  - Calculus I (undergraduate)
  - Advanced Statistics (undergraduate)

### **Conferences and Activities**

- **Invited Talks**
  - **2018:** Fordham University (New York, scheduled), UPenn - The Warren Center for Network & Data Sciences (Philadelphia, scheduled)
- **Regular Conferences**
  - **2018:** Southern Economic Association (Washington, scheduled), 29th International Conference on Game Theory (Stony Brook), 6th Econometric Society Summer School (Singapore), 4th Conference on Network Science and Economics (Nashville), 23rd Coalition Theory Network Workshop (Maastricht), 44th Eastern Economic Association Meeting (Boston).
  - **2017:** NBER Political Economy workshop (Boston), 22nd Coalition Theory Network Workshop (Glasgow), 43rd Eastern Economic Association Meeting (New York).
  - **2016:** 27th International Conference on Game Theory (Stony Brook).

### **Fellowships, Scholarships, and Awards**

- **Econometric Society Summer School:** Travel grant (Jul 2018)
- **Vanderbilt University:** Research support (Networks Science in Economics Conference, Apr 2018)
- **Stony Brook University, Department of Economics:** Research Grant (Aug 2018), William S. Dawes Outstanding Teaching Award in Economics (Jun 2017), Graduate Teaching Assistantship (2013–2019)
- **FGV - São Paulo School of Economics:** CAPES Graduate Scholarship (2009–2010), Teaching Assistantship (2010)

### **Review and Editorial Work**

- Referee: Computational Economics

### **Others**

- Computer Skills: R, Python, Matlab, Stata, Eviews, Mathematica, Pajek,  $\LaTeX$ .

### **Professional Experience**

- **Economist:** LCA Consultants (May 2012 – Feb 2013),
- **Economist:** HSBC Bank Brazil (Sep 2010 – Apr 2012)
- **Intern:** MCM Consultants (Jun 2007 – Dec 2008),
- **Intern:** Comgás (Feb 2007 – May 2007)
- **Other:** Caixa Econômica Federal (Dec 2003 – Dec 2006)

## **References**

### **Yair Tauman** (Main Advisor)

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### **Marina Azzimonti**

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**Confirmation Bias in Social Networks and the Folly of Crowds***Job Market Paper*

I investigate how the tendency to interpret ambiguous evidence as confirming current belief (confirmation bias) affects public opinion when agents exchange opinions over a social network. I develop a social learning model where individuals observe a public sequence of potentially ambiguous signals and I allow them to interpret them according to a rule that accounts for the intensity of confirmatory bias. My first analytical result is that, regardless of the level of ambiguity, only two types of opinions may form, and both are biased. This holds for a single individual as well as for a networked society. One opinion type, however, is necessarily less biased (or more efficient) than the other depending on the true state. In this context, long-run learning is not attained even when individuals interpret ambiguous information impartially. Moreover, simulations based on the model demonstrate, in expected terms, that (i) some network structures are more conducive to reaching efficient consensus, (ii) some degree of partisanship enhances consensus efficiency, even when agents suffer from confirmatory bias and (iii) open-mindedness, in which ideologically opposed partisans agree to exchange opinions, can harm efficiency in some cases. These results suggest that policies designed to mitigate partisanship in social networks, and associated confirmatory bias effects, must grapple with certain positive network externalities generated by partisanship.

**Social Media Networks, Fake News and Polarization** (with M. Azzimonti)*NBER working paper 24462, Submitted.*

We study how the structure of social media networks, and the dissemination of fake news, may affect the degree of misinformation and polarization in a society. For that, we develop a dynamic model of opinion exchange in which agents that spread fake news, labeled Internet Bots, are present in a network. We characterize the evolution of opinions over time, and we evaluate the determinants of long-run misinformation and polarization in the network. Having constructed a set of heterogeneous random graphs, we simulate the information exchange process over a long horizon. This allows us to quantify the magnitude of the effect of the bots' circulation of fake news across the network on the extent of polarization and misinformation. A key insight from these simulations is that significant misinformation and polarization arise in networks in which only 10 percent of agents believe the fake news to be true. These and other findings substantiate the quantitative importance of network externalities.