Matheus Venturyne Xavier Ferreira

Personal Data

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Research Interests

Security, Applied Cryptography, Algorithmic Game Theory

Education

Princeton University, NJ, USA
Ph.D in Computer Science — 2021
Thesis: *Economics and Computation in Decentralized Systems*; advised by S. Matthew Weinberg

University of California, San Diego, CA, USA
Exchange student fully funded by a BSMP Fellowship — 2014

Universidade Federal de Itajubá, Itabira, MG, Brazil
B.S. with Honors in Computer Engineering — 2016

Appointments

Harvard University, Boston, MA, USA
Postdoctoral Fellow in Computer Science — 2021 - Present
Research Assistant — Summer 2020

Broadcom Corporation, San Diego, CA, USA
Software Development Engineer Intern in Bluetooth/NFC — Summer 2014

Selected Honors and Awards

- RIT's Future Faculty Career Exploration Program — 2022
- Spotlights Beyond WINE, The 17th Conference on Web and Internet Economics — 2021
- SEAS Award for Excellence, Princeton School of Engineering and Applied Sciences — 2020
- LATinE Fellow, Purdue University College of Engineering — 2020
- 2020 CRA-WP Grad Cohort for URMD, CRA — 2020
- Dean's Grant, Princeton University Graduate School — 2016 - 2021
- First Year Fellowship in Engineering, Princeton University — 2016
- Congratulations from Higher Counsel, Universidade Federal de Itajubá — 2016
- Motion of Applause, Municipal Chamber of Itabira — 2016
- CNS Espresso Prize for Excellence in Networking, University of California, San Diego — 2014
- 1^{st} place in 2nd Line Follower Robot Competition, Universidade Federal de Itajubá [Video] — 2013

Research Papers

1. Meryem Essaidi, Matheus V. X. Ferreira, and S. Matthew Weinberg. Credible, Strategyproof, Optimal, and Bounded Expected-Round Single-Item Auctions for All Distributions. In *13th Innovations in Theoretical Computer Science Conference (ITCS 2022)*, pages 66:1–66:19, Dagstuhl, Germany, 2022. Schloss Dagstuhl – Leibniz-Zentrum für Informatik

2. Matheus V. X. Ferreira, Daniel J. Moroz, David C. Parkes, and Mitchell Stern. Dynamic posted-price mechanisms for the blockchain transaction-fee market. In *Proceedings of the 3rd ACM conference on Advances in Financial Technologies*, AFT '21, New York, NY, USA, 2021. Association for Computing Machinery

3. Matheus V. X. Ferreira and S. Matthew Weinberg. Proof-of-stake mining games with perfect randomness. In *Proceedings of the 22nd ACM Conference on Economics and Computation*, EC '21, page 433–453, New York, NY, USA, 2021. Association for Computing Machinery

4. Matheus V. X. Ferreira and S. Matthew Weinberg. Credible, truthful, and two-round (optimal) auctions via cryptographic commitments. In *Proceedings of the 21st ACM Conference on Economics and Computation*, EC '20, pages 683—-712, New York, NY, USA, 2020. Association for Computing Machinery

5. Tithi Chattopadhyay, Nick Feamster, Matheus V. X. Ferreira, Danny Yuxing Huang, and S. Matthew Weinberg. Selling a single item with negative externalities. In *The World Wide Web Conference*, WWW '19, pages 196—206, New York, NY, USA, 2019. Association for Computing Machinery

Undergraduate Students Mentoring

- Tinashe Handina. *Princeton University*, now Ph.D. student at Caltech — June 2020 – May 2021
  A Random walk in Extensive Form Games: An Investigation into information, strategy-proofness and Credibility.
- Catherine Yu. *Princeton University* — June 2020 – Present
  Incentives in cryptographic self-selection.
- Michelle Woo. *Princeton University* — Fall 2020 – May 2021
- Anthony Hein. *Princeton University* — Sept 2021 – May 2022

Teaching Experience

Princeton University - Teaching Assistant

Spring 2020	Junior Independent Work (COS 398)
Spring 2018	Economics and Computation (COS 445)
Fall 2017	Computation Geometry (COS 451)

Universidade Federal de Itajuba - Teaching Assistant

2015	Computer Security
2013	Objected-Oriented Programming (ECO 30)

Service

Program Committee.

ACM Advances in Financial Technologies (AFT)	2022
International Conference on Mathematical Research for Blockchain Economy (MARBLE)	2022
Global Challenges in Economics and Computation	2020

Journal Reviewer.

Journal of Cryptoeconomic Systems	2020, 2021
Games and Economic Behavior	2020

Conference Reviewer.

Symposium on Theory of Computing (STOC)	2022
ACM-SIAM Symposium on Discrete Algorithms (SODA)	2022
ACM Economics and Computation (EC)	2021
USENIX Security	2021
ACM Advances in Financial Technologies (AFT)	2020

Innovations in Theoretical Computer Science (ITCS) 2019, 2020
Web and Internet Economics (WINE) 2018, 2019, 2020

Diversity, Inclusion & Outreach

- Mentor, Algorithmic Game Theory Mentoring Workshop (AMW), SIGECOM 2020 - 2021
- Peer Mentor, Graduate Scholars Program, Princeton University 2019 - 2021
- Peer Educator, LGBTQIA Peer Ed Program, Princeton University 2019 - 2020
- Mentor, Princeton Summer Programming Experience, Princeton University 2017
- Mentor, Princeton Women in Computer Science, Princeton University 2016 - 2017

Software

Vein: Rivers of Blood [Video]: A distributed, real-time, 3D, multiplayer survival race game of microorganisms in the human body using C++ and DirectX11. My contributions focused on physics simulation, artificial intelligence and developing the game engine.

Caminhos Drummondianos [Google Play]: Android app for a tour in the Drummond's Path in the city of Itabira, the only literary path in South America. Drummond is considered one of the greatest Brazilian poet of all times.

Computer Skills

Programming: Python, C/C++, Java, Matlab, OpenGL, SQL, JavaScript, OCaml, R, Perl
Others: Linux, Windows, Bash, GDB, Git, LaTeX