Matheus Venturyne Xavier Ferreira

Personal Data — March 28, 2021

Address: 194 Nassau Street, Room 225, Princeton, NJ 08540
Phone: +1 (609) 933 5270
Email: mvxf@cs.princeton.edu
Webpage: www.cs.princeton.edu/~mvxf/

Research Interests

I'm broadly interested in Economics and Computation and the interplay of Algorithms, Game Theory, Information Security, Fairness and Policy.

Education

Princeton University, Princeton, NJ, USA.
2021 | Ph.D in Computer Science.
Advisor: S. Matthew Weinberg.
2018 | M.A. in Computer Science.
Committee: Mark Braverman, Ed. Felten, Ran Raz, Matt Weinberg.
2020 | School of Engineering and Applied Sciences Award for Excellence.
2016 | Dean's Grant (for 5 years).
Fellowship in Engineering and Applied Sciences.

Universidade Federal de Itajuba, Itabira, MG Brazil.
2016 | B.S. in Computer Engineering — GPA: 93.3/100
Academic Accolade for best student.
Congratulations from Higher Counsel.
2014 | Visiting student at **University of California, San Diego** — GPA: 3.92/4.00
BSMP Scholarship from Brazilian Federal Government.
CNS Espresso Prize for Excellence in Networking (2014).
2013 | 1^{st} place in Line Follower Robot Competition.

Honors and Awards

- Tapia Scholarship, Tapia Conference — Sept 2020
- LATinE Fellow, Purdue University — July 2020
- 2020 CRA-WP Grad Cohort for URMD, CRA — March 2020
- AGT Mentoring Workshop Grant, ACM — June 2019
- Motion of Applause, Municipal Chamber of Itabira — May 2016
- Undergraduate Research Fellowship at UFMG , Fapeming — Sept 2013
- Undergraduate Research Fellowship at Unifei, Fapeming — Feb 2012

Publications (Authors are Ordered Alphabetically)

1. 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, page 683712, New York, NY, USA, 2020. Association for Computing Machinery

2. 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, page 196206, New York, NY, USA, 2019. Association for Computing Machinery

Working Papers (Authors are Ordered Alphabetically)

1. Matheus V. X. Ferreira and S Matthew Weinberg. Proof-of-stake mining games with perfect randomness. *Submitted*, 2021

2. Matheus V. X. Ferreira, Daniel J. Moroz, David C. Parkes, and Mitchell Stern. Dynamic posted-price mechanisms for the blockchain transaction-fee market, 2021

Work Experience & Long Term Visits

- Research Assistant, Harvard University — June – Sept 2020
  Supervisor: Professor David C. Parkes
- Research Assistant, Princeton University — June 2017 – Present
  Supervisor: Professor S. Matthew Weinberg
- Research Assistant, Universidade Federal de Itajuba — Jul 2011 – Feb 2013
  Supervisor: Professor Carlos Henrique da Silveira
- Research Assistant, Universidade Federal de Minas Gerais — Sept 2013 – Feb 2014
  Supervisor: Professor Fernando Afonso Santos
- Broadcom Corporation at San Diego, California — Jun-Sept 2014
  Software Development Engineer Intern in Bluetooth/NFC Software Team
  Supervisor: David Hughes

Service

Program Committee

- Cryptoeconomic Systems, 2020.
- Global Challenges in Economics and Computation, 2020.

Reviewing

- ACM EC, 2021.
- USENIX Security Symposium, 2021.
- Games and Economic Behavior, 2020.
- ACM Advances in Financial Technologies (AFT), 2020.
- Innovations of Theoretical Computer Science (ITCS), 2019, 2020.
- Conference on Web and Internet Economics (WINE), 2018, 2019, 2020.

Invited Talks

Economics and computation in decentralized systems

- Microsoft Research, Redmond, Slides — March 2021.

Algorithms, game theory and blockchains

- Reading group at ORFE, Princeton University, Slides — March 2021.

Proof-of-Stake Mining Games with Perfect Randomness

- Theory day, Princeton University — April 2021
- Poster, Tapia Conference, Virtual Event — Sept 2020
- Poster, CRA-WP, Austin, Texas — March 2020

Credible, Truthful, and Two-Round (Optimal) Auctions via Cryptographic Commitments
Long talk, Short talk

- INFORMS Virtual 2020 Annual Meeting — Nov 2020

- Poster, LATinE, Purdue University — July 2020
- ACM Conference on Economics and Computation — July 2020
- Princeton University Research Day — May 2020
- Lightning Talk and Poster, WINE, Columbia University — December 2019
- Theory of Computer Science Group, Princeton University — June 2019

Selling a Single Item with Negative Externalities: To Regulate Production or Payments?

- The Web Conference, San Francisco — May 2019
- Poster, 19th ACM EC 2018, Cornell University — June 2018

Teaching

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)

Undergraduate Students Mentoring

- Tinashe Handina. *Princeton University* — Summer 2020 – Present
  Combinatorial credible auctions.
- Matteo Russo. *Princeton University* — Summer 2020
  Characterizing the design space of single-item cryptographic auctions.
- Catherine Yu. *Princeton University* — Summer 2020 – Present
  Incentives in the Algorand blockchain.
- Michelle Woo. *Princeton University* — Fall 2020 – Present
  Computing optimal selfish mining strategies for Proof-of-Stake blockchains via MDPs.
- Sang Truong. *DePauw University* — Fall 2020 – Present
  Automatic market makers.

Diversity, Inclusion & Outreach

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

Software

Jun 2014 — University of California, San Diego

Vein – Rivers of Blood

Class Project Supervised by Geoff Voelker

- Developed a distributed, real-time, 3D, multiplayer survival race game of microorganisms in the human body using C++ and DirectX11.

LANGUAGES

PORTUGUESE: Mothertongue
ENGLISH: Fluent

COMPUTER SKILLS

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