

# Matheus Venturyne Xavier Ferreira

## PERSONAL DATA

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## RESEARCH INTERESTS

Algorithm Design, Game Theory, Security

## APPOINTMENTS

**Harvard University**, MA, USA

POSTDOCTORAL FELLOW IN COMPUTER SCIENCE

Starting Sept 2021

## EDUCATION

**Princeton University**, NJ, USA

Ph.D in COMPUTER SCIENCE

Sept 2016 - Present

Committee: S. Matthew Weinberg (Chair), Arvind Narayanan, David Parkes, Mark Braverman, Ran Raz

*Honors & Awards:*

[School of Engineering and Applied Sciences Award for Excellence](#)

Dec 2020

Dean's Grant

Sept 2016 - June 2021

Fellowship in Engineering and Applied Sciences

Sept 2016 - June 2017

**University of California, San Diego**, CA, USA

Visiting student with a fully funded [BSMP Scholarship](#) (GPA: 3.92/4.00)

Jan 2014 - Dec 2014

**Universidade Federal de Itajuba**, Itabira, MG, Brazil

B.S. with Honors in COMPUTER ENGINEERING (GPA: 93.3/100)

Jan 2011 - July 2016

## HONORS AND AWARDS

- [Tapia Scholarship](#), Tapia Conference 2020
- [LATinE Fellow](#), Purdue University 2020
- [2020 CRA-WP Grad Cohort for URMD](#), CRA 2020
- [AGT Mentoring Workshop Grant](#), ACM 2019
- [Motion of Applause](#), Municipal Chamber of Itabira 2016
- [CNS Espresso Prize for Excellence in Networking](#), UC San Diego 2014
- 1<sup>st</sup> place in Line Follower Robot Competition, Unifei 2013

## PUBLICATIONS (AUTHORS ARE ORDERED ALPHABETICALLY)

1. Matheus V. X. Ferreira and S Matthew Weinberg. Proof-of-stake mining games with perfect randomness. In *Forthcoming in Proceedings of the 22nd ACM Conference on Economics and Computation*, EC '21, New York, NY, USA, 2021. Association for Computing Machinery
2. 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
3. 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

## WORKING PAPERS

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1. 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

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### Research Experience

- Research Assistant, Harvard University, MA, USA  
Supervisor: Professor [David C. Parkes](#) June - Sept 2020
- Research Assistant, Princeton University, NJ, USA  
Supervisor: Professor [S. Matthew Weinberg](#) June 2017 - Present
- Research Assistant, Universidade Federal de Minas Gerais, MG, Brazil  
Supervisor: Professor Fernando Afonso Santos Sept 2013 - Feb 2014
- Research Assistant, Universidade Federal de Itajuba, MG, Brazil  
Supervisor: Professor Carlos Henrique da Silveira July 2011 - Feb 2013

### Engineering Experience

- Broadcom Corporation at San Diego, CA, USA  
*Software Development Engineer Intern in Bluetooth/NFC*  
Supervisor: David Hughes June - Sept 2014

## SERVICE

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### Program Committee

- [Cryptoeconomic Systems](#), 2020, 2021.
- [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.

## TALKS

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### Economics and computation in decentralized systems

- Microsoft Research, Redmond, [Slides](#) Mar 2021

### Algorithms, game theory and blockchains

- Reading group at ORFE, Princeton University, [Slides](#) Mar 2021

### Dynamic Posted-Price Mechanisms for the Blockchain Transaction fee market

- 16th Workshop on the Economics of Networks, Systems and Computation July 2021

### Proof-of-Stake Mining Games with Perfect Randomness

#### Short Talk

- 22nd ACM Conference on Economics and Computation July 2021
- [Princeton Research Day](#), Princeton University May 2021

- Theory day, Princeton University April 2021
- Poster, [Tapia Conference](#) Sept 2020
- Poster, [CRA-WP](#), Austin, Texas Mar 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
- 21st ACM Conference on Economics and Computation July 2020
- [Princeton Research Day](#), Princeton University May 2020
- Lightning Talk and Poster, WINE 2019, Columbia University Dec 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

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### 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

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- Tinashe Handina. *Princeton University*, starting a CS Ph.D. at Caltech June 2020 – Present  
Combinatorial credible auctions.
- Catherine Yu. *Princeton University* June 2020 – Present  
Incentives in the Algorand blockchain.

## DIVERSITY, INCLUSION & OUTREACH

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- Mentor, Algorithmic Game Theory Mentoring Workshop (AMW), SIGECOM 2020
- 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

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### UNIVERSITY OF CALIFORNIA, SAN DIEGO

#### Vein – Rivers of Blood [[Video](#)] (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

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PORTUGUESE: Mothertongue  
ENGLISH: Fluent

## COMPUTER SKILLS

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Programming: Python, C/C++, Java, Matlab, OpenGL, SQL, JavaScript, OCaml, R, Perl  
Others: LINUX, Windows, Bash, GDB, Git, L<sup>A</sup>T<sub>E</sub>X