Matheus Venturyne Xavier Ferreira

PERSONAL DATA   SEPTEMBER 21, 2021

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RESEARCH INTERESTS

Algorithms, Game Theory, Cryptography, 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

University of California, San Diego, CA, USA
Vising 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

SELECT HONORS AND AWARDS

- SEAS Award for Excellence, Princeton University   Dec 2020
- LATinE Fellow, Purdue University   July 2020
- Dean's Grant, Princeton University   2016 - 2021
- First Year Fellowship in Engineering, Princeton University   Sept. 2016 - June 2017
- Congratulations from Higher Counsel, Unifei Higher Counsel   June 2016
- Motion of Applause, Municipal Chamber of Itabira   2016
- CNS Espresso Prize for Excellence in Networking, UC San Diego   2014
- 1st place in 2nd Line Follower Robot Competition, Unifei [Video] 2013

PUBLICATIONS

1. 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

2. 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

3. 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

4. Matheus V. X. Ferreira, S. Matthew Weinberg, Danny Yuxing Huang, Nick Feamster, and Tithi Chattopadhyay. 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

1. Meryem Essaidi, Matheus V.X. Ferreira, and S. Matthew Weinberg. Credible, strategyproof, optimal, and bounded expected-round single-item auctions for all distributions

Service

Program Committee

- Cryptoeconomic Systems, 2020, 2021.
- Global Challenges in Economics and Computation, 2020.

Reviewing

- SODA, 2022.
- 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

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

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*, now 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

- 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

RESEARCH EXPERIENCE

- Research Assistant, Harvard University, MA, USA   June - Sept 2020
  Supervisor: Professor David C. Parkes

- Research Assistant, Princeton University, NJ, USA   June 2017 - Present
  Supervisor: Professor S. Matthew Weinberg

- Research Assistant, Universidade Federal de Minas Gerais, MG, Brazil   Sept 2013 - Feb 2014
  Supervisor: Professor Fernando Afonso Santos

- Research Assistant, Universidade Federal de Itajuba, MG, Brazil   July 2011 - Feb 2013
  Supervisor: Professor Carlos Henrique da Silveira

INDUSTRY EXPERIENCE

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

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.

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