

Francisco J. Marmolejo-Cossío

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Citizenship: U.S.A., Mexico

EDUCATION

University of Oxford, Oxford, UK

- D.Phil. in Computer Science Oct 2015 – Oct 2019
 - Dissertation Title: “Equilibrium Computation in Games and Strategic Aspects of Bitcoin Mining”
 - Supervisor: Prof. Paul W. Goldberg
- M.Sc. in Mathematics and the Foundations of Computer Science Oct 2014 – Oct 2015
 - Dissertation Title: “Optimal Commitments in Leadership Games: A Query Complexity Analysis”

Harvard University, Cambridge, Massachusetts, USA

- A.B. in Mathematics and Minor in Neurobiology Sep 2008 – May 2012
 - Language Citation in Urdu/Hindi

EMPLOYMENT

IOHK

- Research Fellow Apr 2020 – Present

Balliol College, University of Oxford

- Career Development Fellow in Computer Science Sep 2019 – Present

Mahindra & Mahindra, Mumbai, India

- Deputy Manager (Ivy League Global Recruitment Program) Sep 2012 – Jun 2014

PUBLICATIONS

“Fairness and Efficiency in DAG-based Cryptocurrencies”,

Georgios Birmpas, Elias Koutsoupias, Philip Lazos, Francisco J. Marmolejo-Cossío,
in *Proceedings of 24th International Conference on Financial Cryptography and Data Security (FC)*,
Feb 2020.

“Competing (Semi)-Selfish Miners in Bitcoin”,

Francisco J. Marmolejo-Cossío, Eric Brigham, Benjamin Sela, Jonathan Katz,
in *Proceedings of 1st ACM conference on Advances in Financial Technologies (AFT)*,
Oct 2019.

“Learning Convex Partitions and Computing Game-theoretic Equilibria from Best Response Queries”,

Paul W. Goldberg, Francisco J. Marmolejo-Cossío,
in *Proceedings of 14th Conference on Web and Internet Economics (WINE)*.
Selected for forthcoming special edition of *ACM Transactions on Economics and Computation (TEAC)*,
Dec 2018.

“Logarithmic Query Complexity for Approximate Nash Computation in Large Games”,

Paul W. Goldberg, Francisco J. Marmolejo-Cossío, and Zhiwei Steven Wu,
in *Proceedings of 9th International Symposium on Algorithmic Game Theory (SAGT)*,
Selected for special edition of *Theory of Computing Systems (TOCS)*,
Sep 2016

ONGOING WORK

“Optimally Deceiving a Learning Leader in Stackelberg Games”,

G. Birmpas, J. Gan, A. Hollender, F. Marmolejo-Cossío, N. Rajgopal, A. Voudouris

“Maximising the Benefits of an Acutely Limited Number of COVID-19 Tests”,

J. Jonnerby, P. Lazos, E. Lock, F. Marmolejo-Cossío, C. Ramsay, M. Shukla, D. Sridhar

“Learning Strong Substitutes Demand via Queries”,

Paul Goldberg, Edwin Lock, Francisco Marmolejo-Cossío

“RPPLNS: Pay-per-last-N-shares with a Randomised Twist”,

Philip Lazos, Francisco J. Marmolejo-Cossío, Xinyu Zhou, Jonathan Katz,

TEACHING & SUPERVISION**University of Oxford**

- Co-supervisor of M.Sc. Thesis for Leo Falcomer-Dawson
- College tutor for Functional Programming, Design and Analysis of Algorithms, Imperative Programming, Continuous Mathematics, Algorithms and Data Structures, Models of Computation, Linear Algebra, Machine Learning and Computational Learning Theory
- Departmental class tutor for Machine Learning and Computational Learning Theory
- Departmental practical demonstrator for Functional Programming, Machine Learning, Imperative Programming, and Design and Analysis of Algorithms

Harvard University

- Teaching assistant for CS 220: Cryptography and Math 112: Real Analysis

AWARDS & SCHOLARSHIPS

- Computer Science Departmental Teaching Award 2019
- Outstanding Tutor Nomination (university-wide) 2019
- Oxford Department of Computer Science TA Studentship 2016 – 2019
- Mexican National Council of Science and Technology (CONACyT) Scholarship 2014 – 2019
- Harvard Faculty Scholarship 2008 – 2012
- Harvard South Asia Initiative Grant 2010
- Harvard David Rockefeller International Experience Grant 2010

LECTURES & TALKS**CONFERENCE AND WORKSHOP TALKS**

- “Optimally Deceiving a Learning Leader in Stackelberg Games,” at the *Algorithms Seminar*, University of Liverpool Jun 2020.
- “Maximising the Benefits of an Acutely Limited Number of COVID-19 Tests,” at the *METECH Seminar*, Maastricht University, Jun 2020.
- “Resource-optimal Testing Mechanisms for COVID-19,” at the *Data Science Africa (DSA) COVID-19 Webinar*, Apr 2020.
- “Fairness and Efficiency in DAG-based Cryptocurrencies,” at the *24th Conference on Financial Cryptography and Data Security*, Sep 2016.
- “Competing (Semi-)Selfish Miners in Bitcoin” at the *The 1st ACM Conference on Advances in Financial Technology*, Oct 2018.
- “Learning Convex Partitions and Computing Game-theoretic Equilibria from Best Response Queries,” at the *The 14th Conference on Web and Internet Economics (WINE)*, Dec 2018.
- “Computing Approximate Equilibria via Best Response Queries,” at the *The 1st UK Workshop on Algorithmic Game Theory and Mechanism Design*, Oxford, UK Mar 2018.
- “Logarithmic Query Complexity for Approximate Nash Computation in Large Games,” at the *The 9th International Symposium on Algorithmic Game Theory (SAGT)*, Oxford, UK Sep 2016.

GUEST LECTURES

- “Online Learning, Mistake Bounds, and the Perceptron Algorithm”, guest lecture for *Advanced Machine Learning* course at the University of Oxford’s Department of Computer Science Mar 2017.

ACADEMIC SERVICE**Mechanism Design for Social Good (MD4SG)**

- Organizer Jan 2020 – Present
- Development Working Group Coordinator Jan 2019 – Present

Program Chair

- MD4SG 2020

Program Committee

- NeurIPS 2020, MD4SG 2019

Reviewer

- ICML, NeurIPS, EC, WINE, SAGT, COLT

LANGUAGES

- Native Proficiency: English and Spanish
- Fluent: French

- Advanced Proficiency: Urdu/Hindi and Italian
- Basic Proficiency: Turkish and Portuguese

**TECHNICAL
SKILLS**

Python, C \LaTeX