Francisco J. Marmolejo-Cossío

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RESEARCH DISCIPLINES	**Applied Modeling, Algorithmic Design, Optimization, Game Theory, AI**

EDUCATION

University of Oxford, Oxford, UK

- D.Phil. in Computer Science — 2015 – 2020
  - Title: "Equilibrium Computation in Games and Strategic Aspects of Bitcoin Mining"
- M.Sc. in Mathematics and the Foundations of Computer Science — 2014 – 2015

Harvard University, Cambridge, Massachusetts, USA

- A.B. in Mathematics with a Secondary in Neurobiology — 2008 – 2012
  - Language Citation in Urdu/Hindi

EMPLOYMENT

Boston College

- Assistant Professor of Computer Science — Jan 2025 – Present

Harvard University

- Faculty Affiliate, Berkman Klein Center for Internet & Society — Sep 2025 – Present
- Associate, School of Engineering and Applied Science — Jan 2025 – Present
- Fellow, Berkman Klein Center for Internet & Society — Sep 2024 – Sep 2025
- Postdoctoral Fellow, School of Engineering and Applied Science — Jul 2021 – Dec 2024

Input Output Global (IOG)

- Research Fellow at a leading blockchain infrastructure research and engineering company — Apr 2020 – Present

University of Oxford

- Career Development Fellow and Senior Tutor in Computer Science (Balliol College) — Sep 2019 – Jul 2021

Mahindra & Mahindra, Mumbai, India

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

JOURNAL PUBLICATIONS

"Uniendo la investigación con la práctica para la equidad: una descripción de la Iniciativa EAAMO"
F. Marmolejo-Cossío
In *Revista de Salud Ambiental.* Dec 2024

"Welfare-maximizing Pooled Testing"
S. Finster, M. González-Amador, E. Lock, **F. Marmolejo-Cossío**, E. Micha, A.D. Procaccia.
In *ACM SIGecom Exchanges.* Oct 2024

"Learning Strong Substitutes Demand via Queries"
P. Goldberg, E. Lock, **F. Marmolejo-Cossío**
In *ACM Transactions on Economics and Computation (TEAC).* Supersedes WINE version below. Jun 2022

"Optimally Deceiving a Learning Leader in Stackelberg Games"
G. Birmpas, J. Gan, A. Hollender, **F. Marmolejo-Cossío**, N. Rajgopal, A. Voudouris
In *Journal of Artificial Intelligence Research (JAIR).* Supersedes NeurIPS version below. Oct 2021.

"Health Sentinel: A mobile crowdsourcing platform for self-reported surveys provides early detection of COVID-19 clusters in San Luis Potosí, Mexico"
S. Ruiz-Correa, R. López-Revilla, F. Díaz-Barriga, **F. Marmolejo-Cossío**, V. Robledo-Valero, E. Hernández-Huérfano, L. Álvarez-Rivera, M. Rangel-Martínez, M. Lutzow-Steiner, L. Ortiz-Vázquez, A. Mendoza-Lara M. Olivo-Rodríguez, M. Galván-Ramírez, A. Morales-Neria, V. Martínez-Donjuan, M. Cervantes-Irurzo, A. Comas-García, F. Maldonado, C. Aguilar-Acosta.
In *International Journal of Medical Informatics.* Sep 2021.

"Concentrating Pooled COVID-19 Patient Lysates to Improve Reverse Transcription Quantitative PCR Sensitivity and Efficiency"
H. Sanghani, D. Nawrot, **F. Marmolejo-Cossío**, J. Taylor, J. Craft, E. Kalimeris, M. Andersson, S. Vasudevan,
In *Clinical Chemistry.* May 2021.

"Learning Convex Partitions and Computing Game-theoretic Equilibria from Best Response Queries"
P. Goldberg, **F. Marmolejo-Cossío**
In *ACM Transactions on Economics and Computation (TEAC)*. Supersedes WINE version below. Mar 2021.

"Logarithmic Query Complexity for Approximate Nash Computation in Large Games"
P. Goldberg, **F. Marmolejo-Cossío**, and Z. Steven Wu,
In *Theory of Computing Systems (TOCS)*. Supersedes SAGT version below. Jan 2019.

CONFERENCE PUBLICATIONS

"'I Wonder if These Warnings Are Accurate': An Exploration of Security and Privacy Advice in Nine Majority World Countries"
C.W. Munyendo, V.A. Rivera, J. Hu, E. Tweneboah, A. Shahnawaz, K. Sowon, D. Keküllüoğlu, M. Silva, Y. Deng, M. Omeiza, G.P. Kancherla, M.R. Niniz Silva, A. Bichhawat, M. Mustafa, **F. Marmolejo-Cossío**, E. M. Redmiles, Y. Zou.
In *Proceedings of 47th IEEE Symposium on Security and Privacy (S&P)*. May 2026.

"Accelerated Preference Elicitation with LLM-Based Proxies "
D. Huang, E. Lock, **F. Marmolejo-Cossío**, D. C. Parkes
In *Proceedings of The 21st Conference on Web and Internet Economics (WINE)*. Dec 2025.
Preliminary version appeared in *Tenth Marketplace Innovation Workshop*. May 2025

"Balancing Participation and Decentralization in Proof-of-Stake Cryptocurrencies"
A. Kiayias, E. Koutsoupias, **F. Marmolejo-Cossío**, A. Stouka.
In *Proceedings of The 17th International Symposium on Algorithmic Game Theory (SAGT)*. Sep 2024.

"Strategic Liquidity Provision in Uniswap v3"
Z. Fan, **F. Marmolejo-Cossío**, D. J. Moroz, M. Neuder, R. Rao, D. C. Parkes.
To appear in *Proceedings of The Fifth International Conference on Advances in Financial Technologies (AFT)*. Oct 2023.

"Welfare-Maximizing Pooled Testing"
S. Finster, M. González-Amador, E. Lock, **F. Marmolejo-Cossío**, E. Micha, A.D. Procaccia.
In *Proceedings of Twenty-Fourth ACM Conference on Economics and Computation (EC)*. Jul 2023.
Exemplary Applied Modeling Track Paper Award.

"Differential Liquidity Provision in Uniswap v3 and Implications for Contract Design"
B. Altschuler, Z. Fan, **F. Marmolejo-Cossío**, D. C. Parkes, H. Sun, X. Wang.
In *Proceedings of 3rd ACM International Conference on AI in Finanice (ICAIF)*. Nov 2022.

"Decentralised Update Selection with Semi-Strategic Experts"
G. Amanatidis, G. Birmpas, P. Lazos, **F. Marmolejo-Cossío**
In *Proceedings of 15th International Symposium on Algorithmic Game Theory (SAGT)*. Oct 2022.

"Optimal Testing and Containment Strategies for Universities in Mexico amid COVID-19"
E. Lock, **F. Marmolejo-Cossío**, J. Jonnerby, N. Rajgopal, H. Guzmán-Gutiérrez, L. Benavides, R. Tello-Ayala, P. Lazos
In *Proceedings of 1st ACM Conference on Equity and Access in Algorithms, Mechanisms and Optimization (EAAMO)*. Oct 2021.

"RPPLNS: Pay-per-last-N-shares with a Randomised Twist"
P. Lazos, **F. Marmolejo-Cossío**, X. Zhou, J. Katz
In *Proceedings of 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*. May 2021.

"Optimally Deceiving a Learning Leader in Stackelberg Games"
G. Birmpas, J. Gan, A. Hollender, **F. Marmolejo-Cossío**, N. Rajgopal, A. Voudouris
In *Proceedings of Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS)*. Dec 2020.

"Learning Strong Substitutes Demand via Queries"
P. Goldberg, E. Lock, **F. Marmolejo-Cossío**
In *Proceedings of The 16th Conference on Web and Internet Economics (WINE)*. Dec 2020.
Nominated for Best Paper.

"Fairness and Efficiency in DAG-based Cryptocurrencies"
G. Birmpas, E. Koutsoupias, P. Lazos, **F. Marmolejo-Cossío**
In *Proceedings of 24th International Conference on Financial Cryptography and Data Security (FC)*. Feb 2020.

"Competing (Semi)-Selfish Miners in Bitcoin"
F. Marmolejo-Cossío, E. Brigham, B. Sela, J. 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"
P. Goldberg, **F. Marmolejo-Cossío**
In *Proceedings of 14th Conference on Web and Internet Economics (WINE)*. Dec 2018.
Selected for special edition of *ACM Transactions on Economics and Computation (TEAC)*.

"**Logarithmic Query Complexity for Approximate Nash Computation in Large Games**"
P. Goldberg, **F. Marmolejo-Cossío**, and Z. Steven Wu
In *Proceedings of 9th International Symposium on Algorithmic Game Theory (SAGT)*. Sep 2016.
Selected for special edition of *Theory of Computing Systems (TOCS)***.**

REPORTS & **INFORMAL** **PUBLICATIONS**	"**Propuesta de Estrategia Estatal para el Fortalecimiento de la Inteligencia Artificial y la Robótica en el Estado de San Luis Potosí**" R. Medina Rivera, S. Ruiz Correa, J.L. Morán López, R. López Revilla, G.E. Palacios Almón, **F. Marmolejo-Cossío**, M. González Amador, I. Bonilla Gutiérrez. SLP State Policy Brief. Jun 2024.

"**Summer of Science: STEM for Mexican Indigenous Women**"
F. Marmolejo-Cossío
In *Harvard Review for Latin America*. Feb 2024.

"**Novel Practices and Highlights from the Fourth Workshop on Mechanism Design for Social Good**"
F. Marmolejo-Cossío, F. Monachou
In *ACM SIGAI AI Matters*. Mar 2021.

"**Diagnosticar para controlar: cómo maximizar el impacto en el uso de pruebas COVID-19 escasas**"
F. Marmolejo-Cossío
In *Consejo Potosino de Ciencia y Tecnología (COPOCYT) TecnoDisruptiva*. Jan 2021.

"**Maximising the Benefits of an Acutely Limited Number of COVID-19 Tests**"
J. Jonnerby, P. Lazos, E. Lock, **F. Marmolejo-Cossío**, C. Ramsay, D. Sridhar
In *Harvard AI for Social Good Workshop*. Jul 2020.

ONGOING **PROJECTS**	**"Audited Auctions: Addressing Externalities in One-sided Mechanisms"** T. Parker, G. M. Maayan, **F. Marmolejo-Cossío**, M. V. Allstyne Preliminary version to be presented at the *5th ACM EAAMO Doctoral Consortium*. Nov 2025.

"Dynamic Welfare-Maximizing Pooled Testing"
N. Lopez, **F. Marmolejo-Cossío**, R. T. Ayala, D. C. Parkes
Banga Social Innovation Award 2025.

TEACHING	**Boston College**

- Instructor
  - CSCI336901: Economics and Computation — Spring 2025 – Present

University of Oxford

- Lectures
  - "Cryptocurrencies and Property Law", *Law and Computer Science* — 2020 – Present
  - "Online Learning, Mistake Bounds, and the Perceptron Algorithm", *Computational Learning Theory* — Fall 2016
- College Tutorials — 2016 – 2021
  - Linear Algebra, Discrete Mathematics, Computational Learning Theory, Models of Computation, Design and Analysis of Algorithms, Algorithms and Data Structures, Imperative Programming, Functional Programming, Continuous Mathematics, Machine Learning, Introduction to Formal Proof, and Computational Game Theory.

Harvard University

- Co-Instructor
  - CS 136: Economics and Computation — Fall 2023

- Teaching Fellow
  - Business in Analytics Program: Data-Driven Marketing — Fall 2023

- Course Assistant
  - CS 220: Cryptography — Fall 2011
  - Math 112: Real Analysis — Spring 2010

SUPERVISION	**Postdoctoral Supervision**

- Maneesha Papireddygari, Boston College — Sep 2024 – Present
- Héctor Alonso Guzmán Gutiérrez, IPICyT — Jan 2021 – May 2022

Ph.D. Committee Membership
- Tejovan Parker, Boston University — Sep 2024 – Present

Ph.D. Informal Mentorship

▪ José Roberto Tello Ayala, Harvard University	Jan 2024 – Present
▪ Eric Mibuari, Harvard University	Sep 2023 – May 2024
▪ Zhou Fan, Harvard University	Oct 2021 – Oct 2023

Research Supervision

▪ Xiaoyin Liu, Boston College	Jun 2025 – Present
▪ Lynda Vasquez, Boston College	Jun 2025 – Present
▪ Mireya Garcia Serrano, Boston College	Jun 2025 – Present
▪ José Roberto Tello Ayala, ITAM	May 2021 – May 2022

M.Sc. Thesis Supervision

▪ Amrita Khandpur, University of Edinburgh	Summer 2020
▪ Elizabeth Smith, University of Oxford	Summer 2019
▪ Leo Falcomer-Dawson, University of Oxford	Summer 2017

Undergraduate Thesis Supervision

▪ Nicholas Lopez, Harvard University	Spring 2024 – Fall 2025
▪ David Huang, Harvard University	Spring 2024 – Spring 2025
▪ Sarthak Jain, University of Oxford	Fall 2020 – Spring 2021

Research Supervision Under EAAMO Summer of Science

▪ Landy Asaeli Chulin Najera, CRENJRG	Summer 2025
▪ Marilú López Nava, UIEP	Summer 2024
▪ Viridiana Camacho Pánfilo, CENESPO	Summer 2023
▪ Edna Marlene Martínez Hernández, UANL	Summer 2022
▪ Eira Krystel González Pérez, UISLP	Summer 2022

AWARDS & SCHOLARSHIPS

▪ Berkman Klein Fellowship	2024
▪ Rising Star in MS&E, Stanford University	2024
▪ ISyE Junior Researcher, Georgia Tech	2024
▪ Exemplary Applied Modeling Track Paper, EC	2023
▪ Nominated for Excellence in Academic Advising Award, Harvard University	2023
▪ Finalist for Junior Fellowship, Harvard Society of Fellows	2022
▪ Best Paper Nomination, WINE	2020
▪ Career Development Fellowship, Balliol College, University of Oxford	2019 – 2021
▪ Computer Science Departmental Teaching Award, University of Oxford	2019
▪ Outstanding Tutor Nomination, University of Oxford	2019
▪ Special Issue of ACM Transactions on Economics and Computation for WINE	2018
▪ Special Issue of ACM Transactions on Economics and Computation for SAGT	2016

GRANTS

Schiller Institute, Grant for Research in Targeted and Emerging Areas   2025
Awarded $ 15,400 $ as co-PI alongside Prof. Jessica Finocchiaro for project titled "Aggregating Environmental Data for Preventative Healthcare to Combat Breast Cancer".

IOG Research Grant   2024
Awarded $ 36,400 $ as co-PI from IOG for research into on-chain implementations of auctions (total grant amount $ 63,700 $).

DRCLAS Activities Grant   2024
Awarded $ 5,000 $ as co-PI from the David Rockefeller Center for Latin American Studies (DRCLAS) in support of work as general chair for ACM EAAMO'24.

U.S. Embassy (CDMX) Activities Grant   2023
Awarded $ 8,800 $ as PI from the the US Embassy in CDMX in support of the REDNACECYT-MD4SG Summer of Science.

Sloan Foundation Activities Grant   2022
Awarded $ 36,000 $ as co-PI from the Sloan Foundation for work as general chair for ACM EAAMO'22.

Global Challenges in Economics and Computation   2020 – 2022
Awarded $ 25,000 $ as PI from the ACM Special Interest Group on Economics and Computation (SIGecom) for project titled: "Maximising the Benefits of an Acutely Limited Number of COVID-19 Tests in San Luis Potosí, Mexico".

SIGAI Activities Grant   2020
Awarded $1,200 from the ACM Special Interest Group on Artificial Intelligence (SIGAI) in support of work as Program Chair for the 4th Workshop on Mechanism Design for Social Good (MD4SG'20) which took place virtually due to the COVID-19 pandemic.

INVITED TALKS AND PANELS (SELECTED)	"**Conectando la Investigación y la Práctica: El Pasado, Presente y Futuro Prometedor de la IA para el Bien Social en San Luis Potosí**", keynote for *SLP Forum Launching the Integral Ecosystem for AI, Robotics and Mechanism Design* Jun 2025.

"**Equity in Action: Empowering Indigenous Women Scholars in Mexico Through STEM to Revitalize the Commons**", at the *20th Biennial Conference of the International Association for the Study of the Commons* Jun 2025.

"**AI and Children's Rights**", panelist at the *UN AI for Good Summit* Dec 2024.

"**Culturally Grounded Research: Indigenous Students' Perspectives on Engineering Solutions for Their Communities**", moderator in panel for *Beyond Western Approaches: Recognizing Indigenous Traditions in Engineering*, Harvard University Oct 2024.

"**Uniendo la Investigación con la Práctica para la Equidad: una Descripción de la Iniciativa EAAMO**", at the *Semana del Posgrado*, UASLP Oct 2024.

"**Balancing Participation and Decentralization in Proof-of-Stake Cryptocurrencies**", at the *17th International Symposium on Algorithmic Game Theory (SAGT),* CWI Sep 2024.

"**Welfare-Maximizing Pooled Testing**", at the *Economics and Computation Session*, INFORMS, Oct 2023.

"**Strategic Liquidity Provision in Uniswap v3**", at the *Topics in Finance Session*, INFORMS, Oct 2023.

"**Differential Liquidity Provision in Uniswap v3 and Implications for Contract Design**", at the *UCSB-ECON DeFi Seminar*, Mar 2023.

"**Differential Liquidity Provision in Uniswap v3 and Implications for Contract Design**", at the *Digital Finance and Technology Session*, INFORMS, Oct 2022.

"**Data Science and Impacted Communities**", at the *Academic Data Science Alliance Spring Meeting*, May 2022.

"**Fostering Geographical Diversity in Academic Conferences**", at the *Diversity/PSOR/MIF: Diversity, Equity and Inclusion in OR/MS/Analytics: Innovations in Research and Practice Cluster*, INFORMS, Oct 2021.

"**Maximizing the Utility of a Limited Number of COVID Tests**", at the *Harvard EconCS Seminar*, Sep 2021.

"**ICWSM and the Global Research Community**", at the *15th International Conference on Web and Social Media*, Invited Panelist, Jun 2021.

"**Mechanism Design for Social Good: Maximising the Utility of a Limited Number of COVID Tests**", at the *ELLIS Human-Centric Machine Learning Workshop*, May 2021.

"**Los desafíos de la investigación en tiempos de pandemia: perspectivas desde ángulos diferentes (y complementarios)**", at the *COPOCyT Interdisciplinary Seminar*, Mar 2020.

"**Optimally Deceiving a Learning Leader in Stackelberg Games**", at the *UC Boulder Theory Seminar*, Feb 2021.

"**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.

"**Logarithmic Query Complexity for Approximate Nash Computation in Large Games**," at the *The 9th International Symposium on Algorithmic Game Theory (SAGT)*, Sep 2016.

ACADEMIC SERVICE	**EAAMO (Previously known as MD4SG)**

■ Director of Partnerships	Jan 2022 – Present
■ Initiative-wide Organizer	Jan 2020 – Present
■ Latin America and Carribean Working Group Organizer	Jan 2021 – Jan 2022
■ Director and Founder of EAAMO Female Indigenous Summer of Science	Jan 2022 – Present
■ Development Working Group Organizer	Jan 2019 – Jan 2020

Conference Organization

- EAAMO 2021, 2024: General Chair
- EAAMO 2022, 2023: Funding Chair
- WINE 2021: Global Diversity Chair
- MD4SG 2020: Program Chair

Program Committee Membership

- EC 2021, 2023, 2024, 2025; SAGT 2025; MARBLE 2023; Tokenomics 2022, 2023; MD4SG 2019; WWW 2021, 2025

Journal Revision

- Harvard Data Science Review

Conference Revision

- ICDSST 2025, SODA 2021, 2022, 2023; WINE 2018, 2019, 2022; WWW 2022; SAGT 2016, 2018, 2022; NeurIPS 2020, 2022, 2025; ICLR 2021, 2022; EC 2018; COMSOC 2018

LANGUAGES

- **Native Proficiency:** English, Spanish; **Fluent:** French; **Advanced Proficiency:** Urdu/Hindi, Italian