MERYEM ESSAIDI

messaidi.github.io · essaidi.meryem@gmail.com

Researcher in algorithms, game theory, and stochastic optimization with experience in market design, strategic behavior, and quantitative modeling. Builds provably efficient and incentive-aware algorithms for allocation and optimization problems.

EDUCATION

Princeton University | Princeton, NJ 2017 – 2023
Ph.D. in Theoretical Computer Science | M.A. in Computer Science (2019) | GPA: 3.7/4.0
Advisor: S. Matthew Weinberg
Focus: Mechanism Design, Auction Theory, Algorithmic Game Theory

University of Pennsylvania | Philadelphia, PA 2012 – 2017
M.S.E. and B.S.E. in Computer Science | Minors: Mathematics, Economics | GPA: 3.7/4.0
Advisor: Max Mintz
Select coursework: Mathematics of Finance, Probability, Statistical Inference, Game Theory, Randomized Algorithms

EXPERIENCE

UC Berkeley Postdoctoral Researcher | Berkeley Institute of Data Science 2023 – 2026
Advisors: Jennifer Chayes & Christian Borgs

- Designed optimal allocation algorithms for redistribution networks with provable efficiency and equity guarantees
- Derived theoretical guarantees for allocation and optimization in decentralized markets under strategic agents
  Invited talks at Rutgers University and Google Research; manuscript under submission

UPenn Research Assistant 2016 – 2017
Advisor: Boon Thau Loo

- Built predictive models for startup crowdfunding success using social engagement signals and temporal features
- Applied ML and network analysis to large-scale social and financial datasets for prediction, published at CIKM 2017

Google | Software Engineer Intern | New York May – Aug 2015

- Built testing infrastructure for query-serving systems by integrating standalone diffing into Google's Superroot

Google | Engineering Practicum Intern | Mountain View May – Aug 2014

- Built visual regression tooling for Local Search frontend testing across platforms, automating screendiff-based validation

TECHNICAL PROJECTS

Nonstandard Random Walks for Matching | Senior Design Project, UPenn 2015 – 2016

- Investigated nonstandard random walks to find rapid mixing properties for resident-to-hospital matching on graphs
- Achieved up to 3× faster convergence than standard random walks under max-deviation criteria on input graphs

SELECTED PUBLICATIONS

Optimal Resource Allocation in Redistribution Networks with C. Borgs, J. Chayes, C. Ikeokwu — Under revision, 2025
Algorithmic Ecosystems: Optimizing in Decentralized Markets with S. Taggart — Under revision, 2024
Credible, Strategyproof, Optimal, and Bounded Expected-Round Auctions for All Dist. with M. Ferreira, S. M. Weinberg — ITCS 2022
To Regulate or Not to Regulate: Revenue Maximization for Consumer Utility with K. Goldner, S. M. Weinberg — SAGT 2024
On Symmetries in Multi-Dimensional Mechanism Design with S. M. Weinberg — WINE 2021
When to Limit Market Entry under Mandatory Purchase with K. Goldner, S. M. Weinberg — ACM EAAMO 2021, MD4SG 2019

TECHNICAL SKILLS

Programming: Python (NumPy, SciPy, Pandas), R, Java, C, OCaml, SQL, Unix/Linux, Git, LaTeX, Mathematica
Areas: Mechanism Design, Algorithmic Game Theory, Stochastic Optimization, Market Design, Convex Optimization, Approximation Algorithms, Probability Theory, Combinatorial Optimization
Languages: English, French, Arabic, Spanish

TEACHING *(for more detail, see page 2)*

Princeton: Advanced Algorithm Design, Economics and Computation 2018 – 2021
UPenn: Math Foundations of CS, Automata Complexity & Computability, Software Eng., Computer Systems 2013 – 2016

SERVICE

Program committee and reviewer for EC, EAAMO, MD4SG, WINE, ITCS, and ESA.
Invited talks at ITCS 2022, Berkeley EAAMO 2022, ACM EAAMO 2021, MD4SG 2019/2018.

MERYEM ESSAIDI

Selected Coursework

PRINCETON — COMPUTER SCIENCE (GPA: 3.72)

COS 521** — Advanced Algorithm Design
COS 511 — Theoretical Machine Learning
COS 598B — Algorithmic Mechanism Design
COS 597F — Open Problems in Algorithmic Game Theory
COS 561 — Advanced Computer Networks
COS 510 — Programming Languages
COS 445** — Economics and Computation
COS 433 — Cryptography
COS 424 — Fundamentals of Machine Learning

UPENN — BUSINESS & QUANTITATIVE (GPA: 3.92)

ECON 703 — Microeconomics II: Theory of Strategic Behavior
ECON 682 — Game Theory and Applications
ECON 681 — Advanced Microeconomic Theory
MATH 530 — Mathematics of Finance
ENM 503 — Graduate Probability & Statistics
STAT 430 — Probability
STAT 431 — Statistical Inference
ECON 234 — Law and Economics
ECON 101 — Microeconomic Theory
FNCE 100 — Corporate Finance
ACCT 101 & 102 — Financial Accounting & Managerial Accounting (respectively)
ECON 001 & 002 — Microeconomic Principles & Macroeconomics (respectively)

UPENN — COMPUTER SCIENCE (GPA: 3.75)

CIS 677 — Advanced Topics in Algorithms and Complexity
CIS 502 — Analysis of Algorithms
CIS 511 — Theory of Computation
CIS 515 — Fundamentals of Linear Algebra and Optimization
CIS 521 — Artificial Intelligence
CIS 519 — Machine Learning
CIS 400 & 401 — Senior Design Project I & II (respectively)
CIS 398 — Quantum Computer Science
CIS 391 — Introduction to Artificial Intelligence
CIS 380 — Computer Operating Systems
CIS 371 — Computer Organization and Design
CIS 350** — Software Design/Engineering
CIS 334 — Advanced Topics in Algorithms (Randomized Algorithms)
CIS 320 — Algorithms
CIS 262** — Automata, Computability and Complexity
CIS 240** — Introduction to Computer Systems
CIS 160** — Math Foundations of CS
CIS 120 & 121** — Programming Languages and Techniques I & II (respectively)

UPENN — ENGINEERING (GPA: 4.0)

PHYS 151 — Principles II: Electromagnetism and Radiation
PHYS 150 — Principles I: Mechanics and Wave Motion
MATH 114 & 240 — Calculus II and III (respectively)
CHEM 101 — General Chemistry

** *Courses where I also served as Teaching Assistant*