Emily Diana

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Education

2018- PhD Student in Statistics - The Wharton School, University of Pennsylvania
Adviser: Michael Kearns

2017-2018 M.S. in Statistics - Stanford University

2011-2015 B.A. in Applied Mathematics, cum laude - Yale College
Thesis: *Maintaining Bipartite Structure with a Modified Louvain Algorithm*
Supervisor: Daniel Spielman

Publications

1. Emily Diana, Wesley Gill, Michael Kearns, Krishnaram Kenthapadi, Aaron Roth, and Saeed Sharifi-Malvajerdi. Multiaccurate proxies for downstream fairness. 2021. Under Review
2. Emily Diana, Wesley Gill, Ira Globus-Harris, Michael Kearns, Aaron Roth, and Saeed Sharifi-Malvajerdi. Lexicographically Fair Learning: Algorithms and Generalization. In *2nd Symposium on Foundations of Responsible Computing (FORC 2021)*, volume 192 of *Leibniz International Proceedings in Informatics (LIPIcs)*, pages 6:1–6:23, Dagstuhl, Germany, 2021. Schloss Dagstuhl – Leibniz-Zentrum für Informatik
3. Emily Diana, Wesley Gill, Michael Kearns, Krishnaram Kenthapadi, and Aaron Roth. Minimax group fairness: Algorithms and experiments. *In AAAI/ACM Conference on Artificial Intelligence, Ethics and Society*, 2021
4. Emily Diana, Travis Dick, Hadi Elzayn, Michael Kearns, Aaron Roth, Zachary Schutzman, Saeed Sharifi-Malvajerdi, and Juba Ziani. Algorithms and learning for fair portfolio design. *In the Twenty-Second ACM Conference on Economics and Computation*, 2021. To Appear
5. Emily Diana, Hadi Elzayn, Michael Kearns, Aaron Roth, Saeed Sharifi-Malvajerdi, and Juba Ziani. Differentially private call auctions and market impact. *In the Twenty-First ACM Conference on Economics and Computation*, February 2020
6. Emily Diana, Michael Kearns, Seth Neel, and Aaron Roth. Optimal, truthful, and private securities lending. *In 2020 ACM International Conference on AI in Finance*, October 2020
7. Charles R. Noble et al. Ale3d: An arbitrary lagrangian-eulerian multi-physics code. Technical Report LLNL-TR-732040, Lawrence Livermore National Lab. (LLNL), Livermore, CA (United States), May 2017

Conference Presentations

1. *2nd Symposium on Foundations of Responsible Computing (FORC 2021).* "Lexicographically Fair Learning: Algorithms and Generalization." 2021. (Long Talk)
2. *AAAI/ACM Conference on Artificial Intelligence, Ethics and Society.* "Minimax Group Fairness: Algorithms and Experiments." 2021. (Short Talk, Long Talk, Poster)
3. *ALT Mentorship Workshop.* "Minimax and Lexicographically Fair Learning: Algorithms, Experiments, and Generalization." 2021. (Talk Dissection)
4. *AMLC Workshop on Fairness and Bias in AI.* "Convergent Algorithms for (Relaxed) Minimax Fairness." 2020. (Talk)
5. *6th Annual Bloomberg-Columbia Machine Learning in Finance.* "Optimal, Truthful, and Private Securities Lending." 2020. (Talk)
6. *Joint Statistical Meetings, Philadelphia, PA.* "Is Anemia Prevalence a Good Proxy for Malaria Prevalence for Children? A Community-Level Perspective via Matched Logistic Regression." 2020. (Talk)
7. *NeuRIPS Workshop on Robust AI in Financial Services: Data, Fairness, Explainability, Trustworthiness, and Privacy, Vancouver, CA.* "Optimal, Truthful, and Private Securities Lending." 2019. (Spotlight Talk)
8. *Grace Hopper Celebration of Women in Computing, Houston, TX.* "Domain Decomposition with Recursive Inertial Bisection." 2016. (Poster)

Teaching Assistantships

The Wharton School, University of Pennsylvania

CIS 399: Science of Data Ethics (Spring 2020)

STAT 613: Regression Analysis for Business (Fall 2019)

STAT 102: Introduction to Business Statistics (Spring 2019)

Stanford University

CS 161: Design and Analysis of Algorithms (Winter 2018-2019)

CS 106A: Programming Methodologies (Fall 2018)

Professional Experience

Jun 2020 - Amazon Web Services (Remote)
Applied Scientist Intern
Supervisors: Michael Kearns, Krishnaram Kenthapadi, Aaron Roth
Research Topics: Minimax group fairness, multiaccurate proxies for downstream fairness.
Language: Python

Mar 2017 - Aug 2018 Center on Poverty and Inequality, Stanford University, Stanford, CA
Research Assistant
Supervisors: David Grusky and Adrian Raftery
Research Topic: Developing methodologies to analyze trends in contemporary social mobility based on contingency tables of longitudinally-linked Census data (ongoing project).
Language: R

Aug 2015-
Sep 2017

Lawrence Livermore National Laboratory, Livermore, CA
Scientific Software Developer

Parallelized and integrated a domain decomposer, Recursive Inertial Bisection, into the mesh generation step of ALE3D, a multi-physics "Arbitrary Lagrangian-Eulerian 3D" numerical simulation code. Primary developer for LLNL's ParticlePack code. Member of team integrating a GPU portability abstraction into ALE3D's advection package. Presented research internally on implications of strided memory access patterns on GPU-accelerated computing.

Languages: C++, Python

Packages: MPI, CUDA, TotalView, ViSit, GDB

Programming Skills

- **Proficient**
  - C/C++
  - Haskell
  - R
  - Python
  - MATLAB
- **Familiarity**
  - SQL
  - Java
  - Scheme
- **Everyday Workflow**
  - LaTeX
  - Git
  - Bash
- **Industry Experience**
  - MPI
  - TotalView
  - VisIt
  - GDB

Service

FORC External Reviewer (2021)

Wharton Doctoral Program Peer Mentor (2020)

Stanford Women in Mathematics Mentoring (2017)

LLNL Division Representative for Girls Who Code (2016-2017)

Awards

Wellcome Data Re-Use Prize: Malaria (£15000, 2019)

Weapons Simulation and Computing Code Development Silver Star Award (2017)

References

Available upon request