JACOB IMOLA

Curriculum Vitae

Copenhagen, Denmark — jaim@di.ku.dk — jimola.github.io — U.S. Citizen

EDUCATION

Doctor of Philosophy 2018-2023
UC San Diego, Jacobs School of Engineering
Dissertation: Practical Algorithms for Private Graph Statistics
Advisor: Kamalika Chaudhuri

Master's Degree in Computer Science 2018-2021
UC San Diego Jacobs School of Engineering
GPA: 3.7/4.0

B.S. in Computer Science 2014-2018
Carnegie Mellon University School of Computer Science
GPA: 3.85/4.0
Thesis: Fine-Grained, Automatic Choice for Differential Privacy
Advisor: Jean Yang

EMPLOYMENT

Postdoctoral Researcher 2024-Now
University of Copenhagen
Copenhagen, Denmark
Host: Rasmus Pagh

Research Intern Summer 2022
Google
New York City
Host: Alessandro Epasto

Research Intern Summer 2021
Amazon, Inc.
Arlington, VA
Host: Abhinav Aggarwal

PUBLICATIONS

Conference Proceedings

C1. Jacob Imola, Amrita Roy Chowdhury, and Kamalika Chaudhuri. *Robustness of Locally Differentially Private Graph Analysis Against Poisoning.* In **AsiaCCS 2025**. (Link)

C2. Anders Aamand, Fabrizio Boninsegna, Abigail Gentle, Jacob Imola, and Rasmus Pagh. *Lightweight Protocols for Distributed Private Quantile Estimation.* In **ICML 2025**. (Link)

C3. Jacob Imola, Amrita Roy Chowdhury, and Kamalika Chaudhuri. *Metric Differential Privacy at the User Level via Earth-Movers' Distance.* In **CCS 2024**. (Link)

C4. Jacob Imola, Alessandro Epasto, Mohammad Mahdian, Vincent Cohen-Addad, and Vahab Mirrokni. *Differentially-Private Hierarchical Clustering with Provable Approximation Guarantees.* In **ICML 2023**. (Link).

C5. Robi Bhattacharjee, Jacob Imola, Michal Moshkovitz, and Sanjoy Dasgupta. *Online k-means Clustering on Arbitrary Data Streams.* In **ALT 2023**. (Link)

C6. Jacob Imola, Takao Murakami, and Kamalika Chaudhuri. *Differentially Private Triangle and 4-Cycle Counting in the Shuffle Model.* In **CCS 2022**. (Link)

C7. Jacob Imola, Shiva Kasiviswanathan, Stephen White, Abhinav Aggarwal, Nathanael Teissier. *Balancing Utility and Scalability in Metric Differential Privacy.* In **UAI 2022**. (Link)

C8. Jacob Imola, Takao Murakami, and Kamalika Chaudhuri. *Communication-Efficient Triangle Counting under Local Differential Privacy.* In **USENIX Security 2022**. (Link)

C9. Jacob Imola, Takao Murakami, and Kamalika Chaudhuri. *Locally Differentially Private Analysis of Graph Statistics.* In **USENIX Security 2021**. (Link)

C10. Kamalika Chaudhuri, Jacob Imola, and Ashwin Machanavajjhala. *Capacity Bounded Differential Privacy.* In **NeurIPS 2019**. (Link)

Preprints

P1. Jacob Imola, Fabrizio Boninsegna, Hannah Keller, Anders Aamand, Amrita Roy Chowdhury, and Rasmus Pagh. *Differentially Private Quantiles with Smaller Error.* (Link)

Workshop Publications

W1. Amrita Roy Chowdhury, Jacob Imola, and Aashish Kolluri. *Per-User Histograms in the Shuffle Model.* In **TPDP Workshop 2023**. (Link)

W2. Jacob Imola and Kamalika Chaudhuri. *Privacy Amplification Via Bernoulli Sampling.* In **TPDP Workshop 2021**. (Link)

RESEARCH INTERESTS

Broadly, I am interested in designing practical algorithms that are pertinent to modern society.
Differential Privacy: I enjoy solving algorithmic challenges introduced by differential privacy, such as how to optimize utility and minimize computational overhead under DP constraints. I also enjoy applying differential privacy in distributed learning settings, where it is necessary to tweak existing DP techniques and design novel trust assumptions.
Secure Multiparty Computation: I'm currently learning about neat techniques in MPC and how they add security guarantees to data. I enjoy using clever algorithmic design to make MPC protocols more efficient, as well as exploring synergies between MPC and DP.
Other Interests: I have broad interests in information theory, analysis of randomized algorithms, and formal methods. I am curious about how to combine my background with less related fields, including Human Computer Interaction and social sciences, to design interdisciplinary solutions.

INVITED TALKS

- June 2025. *Private Quantile Estimation in the Two-Server Model.* Presented at Stanford Security Lunch.
- January 2025. *Metric Differential Privacy at the User-Level Via teh Earth-Mover's Distance.* Presented at INSAIh, Bulgaria
- November 2023. *Triangle Counting under Local Differential Privacy: Algorithms and Techniques.* Presented at Northeastern University.
- April 2023. *Counting Triangles in a Graph Under Local Differential Privacy.* Presented at University of Copenhagen.

TEACHING EXPERIENCE

CSE 151A: Intro to Machine Learning Summer 2023
Institution: UC San Diego
This course is an introduction to machine learning for second-to-fourth year undergraduate students, and is normally a 10 week course. I taught the course over 5 weeks in the summer (meeting twice as often). I was the head instructor, and I instructed 40 students with help from one TA and three readers.

AWARDS AND HONORS

William Lowell Putnam Mathematics Competition
Honorable Mention (Scored in ranks 35-65 of competitors)
Year: 2016

SERVICE

Program Committee
UAI 2024, SatML 2025, ACML 2025

Reviewing
Conference Reviewer for ICML 2021-25, NeurIPS 2021-24, UAI 2023-24

UCSD Graduate Women in Computer Science
Mentor in 2021 & 2022.