

# JACOB IMOLA

## Curriculum Vitae

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

## EDUCATION

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- 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

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- 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

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### 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

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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 other fields including Human Computer Interaction and social sciences to design interdisciplinary solutions.

## INVITED TALKS

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- 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 the Earth-Mover's Distance*. Presented at INSAIT, 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

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### 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

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### William Lowell Putnam Mathematics Competition

Honorable Mention (Scored in ranks 35-65 of competitors)

Year: 2016

## SERVICE

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### 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.