Calvin Roth

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CalvinRoth.tech

EDUCATION

University of Minnesota, Twin Cites **Fall 2022 - Current**

PhD in Industrial Engineering

University of Minnesota, Twin Cities **Fall 2020-Spring 2022**

Master of Computer Science

University of Minnesota, Twin Cities **Spring 2020**

Bachelor of Science,Math(Cum Laude)

Thesis Title: An Overview of Factoring Algorithms Advisor: Daniel Johnstone

Bachelor of Science,Computer Science

RESEARCH INTERESTS

1st year industrial and Systems engineer PhD Student at University of Minnesota. Interested in network economics, graph theory, social networks, stochastic processes, and computational tools.

PAPERS

•"Calvin Roth, Jiala Huang, Ankur Mani" (Working Paper) Network Information and Pricing

COURSEWORK & SKILLS

Coursework

• Network Theory • Games and Mechanisms: Engineering Applications in Markets and Service Systems • Engineering the allocation of Public Resources Advanced Algorithms and Data structures • Machine Learning • Sparse Linear

Algebra • Stochastic Processes • Optimization • Advanced Production and Inventory Planning • Modeling & Analysis of Queueing Systems • Causal Learning & Discovery

Programming Languages

Fluent: C/C++ •Python •Julia *Familiar:* Ocaml •Prolog •Agda •Html/Css/Javascript

PROFESSIONAL EXPERIENCE

Simons Laufer Mathematical Sciences Institute **June 20-June 30 2023**

Graduate Summer School Participant

- Studied algorithmic market design and presented on a Refugee allocation algorithm.

Los Alamos National Laboratory **June-August 2022**

Parallel Computing Summer Research Internship

- Created code to auto-generate a documentation website using Doxygen and Sphinx.
- Implemented sparse datatypes for the parallel computing library MATAR.
- Completed parallel coding projects working across GPUs and CPUs.
- Co-author on expected paper on the MATAR in the Spring.

University of Connecticut **June-August 2019**

Semi Quantum Key Distribution

- Learned in a research environment the basics of Quantum Computing
- Derived equations to model the state of various Quantum Communication Protocols.
- Applied statistics and numerical methods to calculate better bounds on the allowed noise rate in the channel that the protocol can allow.

Activated Research Company **June-August 2018**

Software Engineer Intern

- Website development using HTML, my SQL, and JavaScript.

- Created interactive data visuals using JavaScript and plotly.
- Low level Arduino programming to control mechanical systems.

PRESENTATIONS

"Nathaniel Morgan, Erin Heilman, Calvin Roth, Caleb Yenusah" General Purpose GPU programming made easy

- Los Alamos National Lab 2022

"Calvin Roth, Ankur Mani, Jiali Huang" The Value of Community Information for Pricing Under Network Externalities

- 2023 Midwest Workshop on Control and Game Theory
- 2023 Revenue Management Conference
- 2023 INFORMS Conference
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TEACHING EXPERIENCE

University of Minnesota

•Discrete Structures of Mathematics	**Fall 2018**
•Linear algebra and Differential Equations	**Fall 2020**
•Formal Languages and Automata Theory	**Spring, Fall 2021, Spring 2022**
•Matrix Theory	**Fall 2021**
•Optimization for Machine Learning	**Fall 2022**
•Quality Engineering and Six Sigma	**Spring 2023**

REFERENCES

•Ankur Mani, Assistant Professor, Department of Industrial and Systems Engineering University of Minnesota, amani@umn.edu

•Krishnamurthy Iyer , Associate Professor, Associate Professor, Department of Industrial and Systems Engineering University of Minnesota, kriyer@umn.edu