

Chutong Yang

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EDUCATION

Stanford University

Sept. 2021 - Jun. 2023

M.S. in Computer Science GPA: **4.009/4.3**

- Selected Coursework: Machine Learning Theory, Optimization Algorithms

University of California, San Diego

Sept. 2016 - Jun. 2020

B.S. in Computer Science (honor with highest distinction) B.S. in Mathematics
Overall GPA **3.944/4.0** CSE Major GPA: **3.98/4.0** Math Major GPA: **4.0/4.0**

- Selected Coursework: Real Analysis series, Abstract Algebra series, Number Theory series, Stochastic Processes, Unsupervised Learning, Algorithms for Big Data, Expander Graphs and High-Dimensional Expanders

PUBLICATION

Omnipredictors for Constrained Optimization

Lunjia Hu, Inbal Livni-Navon, Omer Reingold, **Chutong Yang***

International Conference on Machine Learning (ICML), 2023.

Preprint: <https://arxiv.org/abs/2209.07463>

Active Learning Polynomial Threshold Functions

Omri Ben-Eliezer, Max Hopkins, **Chutong Yang***, Hantao Yu

Neural Information Processing Systems (NeurIPS), 2022.

Preprint: <https://arxiv.org/abs/2201.09433>

Average Review 7.25. Got proposed for award by Area Chair.

Detailed Placement for IR Drop Mitigation by Power Staple Insertion in Sub-10nm VLSI

Sun ik Heo, Andrew B. Kahng, Minsoo Kim, Lutong Wang, **Chutong Yang***

Design, Automation and Test in Europe (DATE), 2019.

Preprint: <https://ieeexplore.ieee.org/abstract/document/8715096>

A Fast Exact Algorithm for Deployment of Sensor Nodes for Internet of Things

Qinghua Zheng, **Chutong Yang**, Haijun Yang, Jianhe Zhou

Information System Frontiers 22(4): 829-842 (2020)

Preprint: <https://link.springer.com/article/10.1007/s10796-018-9890-3>

(* stands for alphabetical order.)

RESEARCH EXPERIENCE

Research with Prof. Omer Reingold

Sept. 2021 - Present

Algorithmic Fairness

- Study the sample complexity of a PAC learner that achieve both **differential private** and **multi-calibrated**.
- Prove that using a multi-calibrated predictor, we can post-process and build a predictor that fulfills required fairness constraints, including capacity constraint, statistical parity, and equal opportunity. This built predictor also minimize a convex and Lipschitz loss function comparing to a predictor class \mathcal{C} .
- Show that we can efficiently compute the post-process even when the subpopulations are not disjoint by solving the Lagrangian dual of the linear programs with exponential variables and polynomial constraints.

Research with Prof. Aaron Sidford

Jan. 2022 - Present

Continuous Optimization

- Formalize the profile maximum likelihood problem into an optimization problem similar to linear programming and show we can solve the optimization problem efficiently by adapting Interior Point Method and Lee-Sidford barrier.

Research with Prof. Shachar Lovett*Sept. 2020 - Sept. 2021***Differential Privacy and Learning theory**

- Study the sample complexity of private learning (differential privacy + PAC learning).
- Study the sample complexity of active learning for polynomial threshold functions.

Research with Prof. Hao Su*Dec. 2018 - Jun. 2020***Reinforcement Learning and 3D Vision**

- Use model-based planning to bridge the gap between simulation and real-world robot.
- Apply reinforcement learning algorithms and 3D vision models to robot arm collision detection.

Research with Prof. Andrew Kahng*Jan. 2018 - Sept. 2018***VLSI Design using Dynamic Programming**

- Design and implement the high dimensional dynamic programming algorithm for VLSI design using C.

Research with Prof. Qinghua Zhen*Jul. 2017 - Sep. 2017***Internet of Things using Graphic Algorithms**

- Participate in the implementation of several graph algorithms for experiments using Java.

WORK & TEACHING EXPERIENCE**Teaching Experience**

- CS 161 Design and Analysis of Algorithms at Stanford *Fall 2021*
- CSE 101 Design and Analysis of Algorithms at UCSD *Spring 2020, Winter 2021, Spring 2021*
- CSE 12 Basic Data Structure at UCSD *Fall 2017*

Research Experience

- Research Assistantship with funding from Prof. Omer Reingold *Winter 2022, Spring 2022, Summer 2022, Fall 2022*
- Research Assistantship with funding from Prof. Aaron Sidford *Summer 2022*

SKILLS**Programming Skills:** \LaTeX , Python, C, C++, Java, Assembly, Matlab, Pytorch, TensorFlow, Linux, Verilog**SCHOLARSHIP& HONORS****Stanford**

- Guaranteed Course Assistantship for two years.

UCSD

- Graduated from UCSD with Magna Cum Laude and as a Honor CS student.