Abhay Singh

education Cornell University, Ithaca, NY

M.S. in Computer Science, Minor in Applied Mathematics

Aug 2021 - May 2023

Advisor: Anil Damle GPA: 4.04/4.30

B.S. in Computer Science (Honors), Summa Cum Laude

Aug 2018 - May 2021

Advisor: Austin Benson

GPA: 4.14/4.30

Matrix Computations, Convex Analysis, Numerical Methods, Probability, Algorithms, Network Theory, coursework

Computer Vision, Statistical Distances, Machine Learning, Real Analysis, Linear Algebra, Compilers

preprints & publications Edge Proposal Sets for Link Prediction 🖟 🗘

(preprint)

Abhay Singh, Qian Huang, Sijia Linda Huang, Omkar Bhalerao, Horace He, Ser-Nam Lim, Austin Benson

Combining Label Propagation and Simple Models Out-performs GNNs 🖹 🔾 (ICLR 2021)

Qian Huang, Horace He, Abhay Singh, Ser-Nam Lim, Austin Benson

Better Set Representations For Relational Reasoning A 🗘

(NeurIPS 2020)

Qian Huang, Horace He, Abhay Singh, Yan Zhang, Ser-Nam Lim, Austin Benson

professional experience

Citadel, Global Quantitative Strategies, Chicago, IL

Quantitative Research Intern June 2022 – Aug 2022

• Portfolio Optimization Team

Software Engineering Intern

June 2021 – Aug 2021

• Portfolio Optimization Robustness and Latency

Yext, New York, NY

Software Engineering Intern

June 2020 - Aug 2020

• Application Security & Code Vulnerability

Morgan Stanley, New York, NY

Technology Summer Analyst

June 2019 – Aug 2019

• Efficient Data Pipelines

teaching experience Guest Lecturer

CS 4850: Mathematical Foundations of Data Science

March 2022

Head Teaching Assistant

CS 4850: Mathematical Foundations of Data Science Jan 2022 – May 2022 CS 4820: Introduction to Analysis of Algorithms Aug 2021 – Dec 2021 CS 4780: Introduction to Machine Learning Aug 2020 - May 2021

service & leadership Cornell University Artificial Intelligence

Co-President Aug 2021 – May 2022

Reviewer:

ICML 2022, ICLR 2022, NeurIPS 2021

projects

Prediction Correlation via Graph Inference

• Improved predictive performance by learning a graph topology underlying a set of data points

1-Lipschitz Deep Equilibrium Models 🗷

• Enforced uniqueness and existence of fixed-point solution from root-finding neural network

Few-Shot Instance Segmentation

• Designed architecture to perform proposal-free few-shot instance segmentation

Continual Learning with Lottery Tickets

• Demonstrated effectiveness of novel training scheme to resist catastrophic forgetting

Xi Compiler

• Wrote optimized compiler to emit x86 assembly instructions, includes dataflow analysis and nontrivial register allocation; $\sim 10,000$ lines of code