Alan Chung

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Education

Harvard University Sep 2022 - Present
PhD Candidate, Department of Statistics
Fields of Research: Probability Theory, Machine Learning Theory

Princeton University, BA Mathematics Sep 2018 - May 2022
Graduated with High Honors: Department of Mathematics. GPA: 3.96
Thesis: Weak Solutions of the Fokker-Planck Equation Through Particle Systems Interacting Through Their Ranks

Publications

Statistical Guarantees for Link Prediction using Graph Neural Networks 2024
***Alan Chung**, Amin Saberi, Morgane Austern.*
Submitted. arxiv.org/abs/2402.02692

When is Partially Observable Reinforcement Learning Not Scary? 2022
*Qinghua Liu, **Alan Chung**, Csaba Szepesvári, Chi Jin.*
Conference on Learning Theory (COLT). arxiv.org/abs/2204.08967

Experience

Academic Programs
Attended the Princeton Machine Learning Theory Summer School 2023

Citadel Securities, Quantitative Research Intern Jun 2021 - Aug 2021
Investigated the relationship between the liquid/illiquid hours in the futures market.

Teaching
Harvard STAT212 and STAT210 (Probability Theory I and II); Princeton COS324 (ML), COS302 (Math for ML)

Awards & Achievements

Recipient of the **National Science Foundation GRFP** Grant
US Mathematics Olympiad Qualifier; US Physics Olympiad Honorable Mention; US Computing Olympiad, Gold Division

Skills

Programming: Java, Python, C++
Languages: English (Native), Mandarin (Proficient), Spanish (Proficient)

Ongoing Projects

Large Deviation Principles for Eigenvalues of Random Matrices
with Professor Mark Sellke (Harvard) and Professor Ben McKenna (Georgia Tech)

- The spectrum of random matrix ensembles converge to deterministic limiting distributions as their size approaches infinity (e.g., the semicircle law). We compute the exponential rate at which the probability of an eigenvalue existing outside of this limiting distribution approaches 0. Our techniques are applicable to a more general range of settings and models than previous methods.

On High Dimensional Central Limit Theorems
with Professor Morgane Austern (Harvard)

- We study the high-dimensional central limit theorem. We work to improve upon previous bounds, relax conditions required by previous works, and extend these results to new distance metrics. High-dimensional data is increasingly relevant in modern datasets; for example, in genomics or financial data.