BHAVYA AGRAWALLA

Address ⋄ Cambridge, Massachusetts, United States

Google Scholar Link ⋄ **Email:** bhavya@mit.edu, bhavyaagrawalla@gmail.com

EDUCATION

Carnegie Mellon University, School of Computer Science *Starting Fall 2024*
Incoming PhD Student in the Computer Science Department (CSD)
Research Areas: Artificial Intelligence, Machine Learning

Massachusetts Institute of Technology *September 2021 - May 2024*
Candidate for Bachelors of Science in Mathematics (Course 18)
Candidate for Bachelors of Science in AI and Decision Making (Course 6-4) GPA: 4.9/5.0

Indian Institute of Science, Bangalore *September 2020 - July 2021*
Transferred to MIT after first year CGPA: 9.1/10.0

AWARDS AND RECOGNITION

Silver Medal at the International Mathematical Olympiad (IMO) 2019 *2019*
60th IMO 2019 held at Bath, UK, https://www.imo-official.org/participant_r.aspx?id=29103

MIT Outstanding Undergraduate Researcher Award 2023, Nominee *2023*
For contributions to Designing Imaging Systems using Reinforcement Learning (DISeR)

RESEARCH EXPERIENCE (PI = PRINCIPAL INVESTIGATOR)

Adaptive Generalised Advantage Estimation *04/23 - Present*
Bhavya Agrawalla, Idan Shenfeld, Prof. Pulkit Agrawal (**PI**)
In progress paper

Designing Imaging Systems using Reinforcement Learning (DISeR) *09/22 - 06/23*
Tzofi Klinghoffer, Kushagra Tiwary, Nikhil Behari, **Bhavya Agrawalla**, Prof. Ramesh Raskar (**PI**)
Paper published at *International Conference on Computer Vision (ICCV) 2023*, https://arxiv.org/abs/2309.13851

High Dimensional Central Limit Theorem for Linear Functionals of Online Least-Squares SGD *02/22 - 02/23*
Bhavya Agrawalla, Prof. Krishnakumar Balasubramaniam (**PI**), Prof. Promit Ghosal (**PI**)
Paper under review at *IEEE Transactions on Information Theory* journal, https://arxiv.org/abs/2302.09727

Harrison Homology and Quillen Cohomology of Commutative Monoids *09/21 - 06/22*
Bhavya Agrawalla, Nasief Khlaif, Prof. Haynes Miller (**PI**)
Paper accepted at *Semigroup Forum* journal, https://arxiv.org/abs/2211.01536

INVITED RESEARCH TALKS

Vector Institute for Artificial Intelligence, Ontario, Canada *01/24*
Talk on High Dimensional CLTs for Online Least-Squares SGD, hosted by Prof. Murat Erdogdu
Slides - https://drive.google.com/file/d/1eiR1tiaNxjzz_u3eaTvyE4Vg8fClQPlj/view?usp=sharing

TEACHING EXPERIENCE AND SERVICE

Instructor at The Sophie Fellowship and Online Math Club *01/22 - 12/23*
Taught topics in game theory, linear algebra and probabilistic combinatorics to high-school students preparing for the IMO.
Recorded game theory lecture - https://youtu.be/0NiYBIaHBdY?si=hbIRN_yn2QUf_wOF

Teaching Assistant for Mathematical Methods For Multidimensional Statistics *01/22*
Developed problem sets and lecture notes for the MIT IAP course.

Grader for the Indian National Mathematical Olympiad (INMO) 2021,2022 *01/21, 01/22*
Graded approximately 300 math olympiad papers each year, under a strict time limit of 1-2 weeks.

CLASS PROJECTS

Fourier Bi-linear Value Networks
Computational Sensorimotor Learning Final Project
Report - https://drive.google.com/file/d/1ou5W3pdAhLPuBb1MMY_UNUv7dxE7JN9O/view?usp=sharing

Controlling Stable Diffusion with Binary Segmentation Maps
Advances in Computer Vision Final Project
Report - https://drive.google.com/file/d/1HCBhhALOeX5z4viavTIshg7hWqepjniH/view?usp=sharing

PERSONAL WEBSITE

Personal Website Link - https://agrawallabhavya.github.io/

REFERENCES

Prof. Krishnakumar Balasubramaniam (kbala@ucdavis.edu)
Prof. Pulkit Agrawal (pulkitag@mit.edu)
Prof. Ramesh Raskar (a2ramesh@media.mit.edu), Kushagra Tiwary (ktiwary@media.mit.edu)
Prof. Haynes Miller (hrm@math.mit.edu)
Prof. Promit Ghosal (promit@brandeis.edu)
Prof. Murat Erdogdu (erdogdu@cs.toronto.edu)