

Himadri Mandal

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in quirtt

*"If I have seen further it is by standing on the shoulders of
Giants" — Isaac A. Newton*

Current Interests

Machine Learning, AI Safety, Statistics, Mathematics, Programming, Entrepreneurship, Philosophy

Education

Indian Statistical Institute, Kolkata

August 2023 — present

Statistics Undergraduate, Semester 1 — 94.4%

Programming experience.....

Python, Bash, R, Next.js + TailwindCSS, \LaTeX , Linux (Arch Linux on i3)

Skills.....

Leadership, Abstract Thinking, Logical Reasoning, Debate, Communication, Typing (100+ wpm)

Selected fellowships and awards

ISI K. Semester 1 Outstanding Performance: awarded January 2024, received ₹1500

ISI Kolkata B.Stat. Entrance: awarded August 2023, ranked 11th

JEE Mains: awarded March 2023, top 1%ile

IISc Enumeration Finalist: awarded October 2022, ranked top 10

Atlas Fellowship Finalist: awarded September 2022, received 1000\$, top 200 in a rationality fellowship

CMI Tessellate Finalist: awarded October 2021

Indian Olympiad Qualifier for Mathematics, KV: awarded February 2021, ranked top 10

Selected Courses

CaMLAB: Cambridge AI Safety Hub

(prospective) April 8 — April 21

A course to build the ML engineering fundamentals needed for AI Safety Research including basics of PyTorch, building, training and tuning GPTs and ResNets and interpreting models with TransformerLens.

Deep Learning: ISI Kolkata

January 2024 — present

A winter course on deep learning covering Autoencoders, CNNs, GANs, GNNs, Diffusion models, RNNs, Attention mechanics, Transformers, etc.

Measure Theory: Maths Club, ISI Kolkata

December 2023 — present

Took an introductory course on Measure Theory which helped me understand more of the underpinnings of probability in Statistics.

Model Theory: ISI Kolkata

September 2023 — December 2023

Organized a course on First Order Logic and Model Theory taken by Dr. S.M. Srivastava.

Topped the class with a 99/100. It covered Linear Operators, Matrices, Dual Spaces, Tensor Products, Alternating multilinear maps, Inner Products etc. An extension of it also covered Eigenvalues, Nilpotent Operators, Jordan Canonical Form, Spectral Theorem, Basic Group Representations, etc.

Projects

ORIGAMI: <https://github.com/quirtt/ORIGAMI/>

Implements arXiv:2303.17062, AISTATS 2023. A paper on dimensionality reduction of the support to improve computational efficiency in downstream decision making.

Cold Reflections: <https://quirtt.github.io/>

My blog on Mathematics, Statistics, Philosophy and everything else that interests me. See <https://quirtt.github.io/posts/nelson/nelson.html> for some original work.

probmgr: <https://github.com/quirtt/probmgr>

Bash script. Creates a virtual environment to manage texfiles and implement search (with tags), and grouping into handouts using problemcodes. Originally created to help olympiad math problem solving.

Shannon's Mind Reading Game: https://github.com/quirtt/proj_sm1_shannon

Coursework. Models the situation and implements an algorithm to count the success of the algorithm. See <https://quirtt.github.io/posts/shannon-cardmagic-trick/shannon-cardmagic-trick.html> the blog post on it. And https://github.com/quirtt/proj_sm1_shannon/blob/main/Presentation.pdf the presentation on it.

ProbSolved: <https://github.com/quirtt/prob-solved>

Solutions to a buncha hard olympiad problems I once did in OTIS. Most super instructive. Most with pdfs. Most with indicative problem codes.

Selected work experience

Software.....

Website Lead: MTRP, Integration

November 2023 — January 2024

Deployed a website for the university's fest's annual mathematics competition after learning NextJS and TailwindCSS, all of it took a week. Maintained it for efficiency and bugfixes. See <https://mtrp.integrationfest.in>.

Volunteer and outreach.....

Owner: awas

October 2020 — October 2022

Served as the **organizer and mentor** for daily math problem solving sessions, philosophical debates, and programming discussions for over two years on **Discord**. Mentored smart math enthusiasts, from all over India, learn hard math, and guided a few of them to get into the Indian training camp of IMO.