

Education

PES University

B.Tech in Computer Science and Engineering

CGPA : 9.5 / 10.0, Graduated First class with Honors

Bengaluru, India

2017 – 2021

Research Experience

University College London (UCL)

Research Collaborator | Advisors: [Dr. Ilija Bogunovic](#), [Dr. Sayak Ray Chowdhury](#)

London, UK (Remote)

Sep 2024 – Present

- Working on distributionally robust preference optimization for pluralistic AI alignment

Microsoft Research

Research Fellow | Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Amit Sharma](#)

Bengaluru, India

July 2022 – July 2024

- Worked on multiple research projects in machine learning, focusing on optimization algorithms, information retrieval, and AI alignment, resulting in publications at top-tier conferences [ICML, NSDI]
- Collaborated with product teams to integrate research findings into practical applications, resulting in a patent filing and the release of an open-source Python library for configuration parameter tuning

Indian Institute of Science

Research Intern | Advisors: [Dr. Uma Ranjan](#), [Dr. Monica Anand](#)

Bengaluru, India

May 2020 – Dec 2020

- Analyzed mortality trends of COVID-19 in India across multiple cohorts [OPH Journal]

Publications

* indicates equal contribution

“[Provably Robust DPO: Aligning Language Models with Noisy Feedback](#)” ICML 2024.

Sayak Ray Chowdhury*, [Anush Kini](#)*, Nagarajan Natarajan.

“[OPPerTune: Post-Deployment Configuration Tuning of Services Made Easy](#)” NSDI 2024.

Gagan Somashekar*, Karan Tandon*, [Anush Kini](#), ..., Anshul Gandhi, Nagarajan Natarajan.

“[GAR-meets-RAG Paradigm for Zero-Shot Information Retrieval](#)” ArXiv 2023.

Daman Arora*, [Anush Kini](#)*, Sayak Ray Chowdhury, Nagarajan Natarajan, Gaurav Sinha, Amit Sharma.

“[Sex-disaggregated Analysis of Risk Factors of COVID-19 Mortality Rates in India](#)” OPH Journal 2023.

[Anush Kini](#), Harish PB, Monica Anand, Uma Ranjan.

Selected Research Projects

Provably Robust DPO | [Paper](#)

Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Sayak Ray Chowdhury](#)

- Developed theoretically-grounded algorithms to optimize language model policies under noisy preference feedback
- Established first statistical guarantees for Direct Preference Optimization (DPO), proving performance bounds and empirically validating on large-scale preference datasets

GAR-meets-RAG Paradigm for Zero-Shot Information Retrieval | [Paper](#)

Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Amit Sharma](#)

- Proposed a retrieval framework combining Generation Augmented Retrieval (GAR) and Retrieval Augmented Generation (RAG) for zero-shot information retrieval
- We use a LLM as a meta-controller that progressively improves weak retrievers through query rewriting and psuedo-relevance feedback

UniPrompt

Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Amit Sharma](#)

- Designed a production-ready prompt optimization system using facet decomposition and textual gradients

OPPerTune | [Code](#) , [Paper](#)

Advisors: [Dr. Nagarajan Natarajan](#)

- Developed a production-ready framework for automatic configuration tuning of deployed services using multi-armed bandits and approximate gradient descent methods
- Achieved 50% reduction in workload times with 67% fewer samples using tree-based exploration strategies

Sex-disaggregated Analysis of Risk Factors of COVID-19 Mortality Rates in India | [Paper](#)

Advisors: [Dr. Uma Ranjan](#), [Dr. Monica Anand](#)

- Analyzed demographic and clinical data to characterize sex-specific patterns in COVID-19 mortality risk across Indian populations

Industry Experience

Google

Bengaluru, India

Data Commons Associate

Aug 2021 – June 2022

- Made public datasets accessible through the [Data Commons](#) project
- Built data ingestion pipelines to structure and integrate public datasets into a knowledge graph [Merged PRs](#)

Intel Corporation

Bengaluru, India

Machine Learning Software Intern

Jan 2021 – May 2021

- Designed end-to-end pipeline for tracking ML workload performance across hardware configurations
- Built an interactive visualization dashboard using Flask and D3.js for real-time performance analytics

Service & Teaching

Parallel Systems Research Lab, PES University | Mentor

- Guided a team of junior undergraduate students in developing a plagiarism detector, focusing on identifying sophisticated code obfuscation techniques [Project Poster](#)
- Conducted workshops on advanced programming tools and techniques

Topics In Deep Learning | Teaching Assistant

- Developed teaching materials and assignments for an undergraduate course on advanced Deep Learning concepts

Centre for Data Science and Machine Learning, PES University | Research Assistant

- Created an underwater image dataset and trained Generative Adversarial Networks (GANs) to generate underwater images [Report](#)

Mlpack | Open Source Contributor

- Contributed to Mlpack, a C++ machine learning library, by implementing new algorithms and optimizing existing ones [Merged PRs](#)

Awards

Microsoft Global Hackathon 2022: Won third place in two categories - Hack 2 enable and Hack for Society

Google AI Summer School 2020: Among the 150 students selected throughout India for a summer school on AI organized by Google. Participated in lectures and discussions with eminent AI researchers [Website Link](#)

Intel Student Project: Secured 1st place in a project by Intel on image segmentation [Certification](#) | [Blog Link](#)

Prof. CNR Rao Merit Scholarship: Awarded annual merit scholarships for outstanding academic performance throughout undergraduate studies [Certification](#)

Skills

Languages – *Advanced:* Python, C++ ; *Intermediate:* Bash, SQL, Javascript, HTML; *Familiar:* R

ML Frameworks – Pytorch, Tensorflow

Development – MongoDB, Flask, D3.js