

Education

PES University

B.Tech in Computer Science and Engineering

CGPA : 9.5 / 10.0, Graduated First class with Honors

Bengaluru

2017 – 2021

Papers

* 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.

Research Experience

Microsoft Research

July 2022 - July 2024

Research Fellow | Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Gaurav Sinha](#)

Bengaluru, India

- Developed Black box optimization algorithms to fine-tune configuration parameters [NSDI 2024]
- Came up with an pseudo-relevance feedback pipeline using LLMs to achieve state-of-the-art performance in zero-shot IR
- Proposed LLM alignment methods that are robust to noisy preferences in data [ICML 2024]

Indian Institute of Science

May 2020 – Dec 2020

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

Bengaluru, India

- Analyzed incidence and mortality trends of COVID-19 in India [OPH Journal 2023]

Selected Research Projects

Provably Robust DPO | [Paper](#)

Advisors: [Dr. Nagarajan Natarajan](#)

- Proposed unbiased variants of preference-based alignment algorithms that are robust to noise
- Provide theoretical guarantees and empirical results which show that our algorithms mitigate the effect of noise in preference labels

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

Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Ranjita Bhagwan](#)

- Developed an optimization framework, using reinforcement learning algorithms to fine-tune configuration parameters of applications in deployment
- These methods improved mean workload times by more than 50%, utilizing only 33% of the number of samples compared to existing methods

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

Advisors: [Dr. Nagarajan Natarajan](#), [Dr. Gaurav Sinha](#)

- Developed a feedback pipeline leveraging LLMs and Lexical Retrievers to improve zero-shot Information Retrieval
- Proposed using Pseudo-Relevance feedback to improve the quality of query rewrites in LLMs while a Relevance LLM filters out non-relevant retrievals

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

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

- Aggregated and examined incidence and mortality data on COVID-19 in India
- Ran statistical tests and analyzed lasso regression curves to study the gender differentials across various demographic parameters

Dead-Code Elimination

- Developed an algorithm to identify and remove dead code in IR code using the [LANCE](#) C compiler

Deep Autoencoders for Compression | [Code](#)

- Applied autoencoders to compress four momentum features of jet particles

Software Development Experience

Google (through Optimum InfoSystems)

Aug 2021 - June 2022

Data Commons Associate

Bengaluru, India

- Made public datasets accessible through the [Data Commons](#) project
- Developed pipelines and tools in Python to ingest public data into a knowledge graph [Merged PRs](#) 

Intel Corporation

Jan 2021 – May 2021

Machine Learning Software Intern

Bengaluru, India

- Designed a pipeline to track the performance of workloads on different hardware configurations
- Modeled a MongoDB database to store performance metrics and scores
- Developed a web application using Flask and D3.js that displays relevant visualizations and processed data

The Hi-Tech Robotic Systemz Ltd

June 2019 – August 2019

Machine Learning Intern

Gurugram, India



- Developed and benchmarked classifiers to identify day and night images from the live feed of a self-driving vehicle
- Ported the Aggregate Channel Features algorithm([Piotr Dollar et al.](#)) in Python and deployed it as a real-time pedestrian detector

Other Experiences and Roles

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](#) 


Parallel Systems Research Lab, PES University | Mentor

- Mentored junior undergraduate students to develop a plagiarism detector with a focus on detecting code obfuscation. [Poster](#) 
- Delivered a talk on Vim and Shell Scripting [Slides](#) 

Topics In Deep Learning | Teaching Assistant


- Contributed to the development of teaching materials and assignments for an undergraduate course on subjects in Deep Learning



Mlpack | Open Source Contributor


- Mlpack is a C++ machine learning library [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 merit scholarships for my academic performance during my undergraduate studies [Certification](#) 

Skills

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

ML Frameworks – Pytorch, Tensorflow

Development – *Advanced:* MongoDB, Flask, D3.js; *Familiar:* AngularJS