



Education

B.T-M.T Dual Degree Computer Science

IIT Kanpur
2017-2022

- Final year undergraduate
- CGPA: 8.7/10.0

Skills

Languages

C C++ Python
Bash PHP Java
Javascript x86/MIPS

Tools and Frameworks

ChampSim gem5 VANS
RoadRunner Jupyter Notebook
Django LAMP Stack

Coursework

Computer Science

Computer Organization (CS220)
Computer Architecture (CS420)
Advanced Computer Architecture (CS622)
Operating Systems (CS330)
Topics in Operating Systems (CS730)
Compiler Design (CS335)
Analysis of Concurrent Programs (CS636)
Computer Systems Security (CS628)
Parallel Computing (CS633)
Computer Networks (CS425)
Introduction to Machine Learning (CS771)

Mathematics

Data Structures and Algorithms (ESO207)
Algorithms-II (CS345)
Theory of Computation (CS340)
Computational Complexity (CS640)
Probability Theory (CS203)
Linear Algebra & Differential Equations (MTH102)
Real & Complex Analysis (MTH101)
Discrete Math & Abstract Algebra (CS201)

Achievements

- AIR 189 in JEE (Advanced) 2017
- AIR 1065 in JEE (Main) 2017

Experience in Academic and Industrial Projects

University of Edinburgh || Ph.D, ICOSA (upcoming)

Edinburgh, UK | Jan 2023 - Jun 2026

- (tentative) Conducting research on serverless infrastructures for FAAS environments

Intel Labs || Research Intern

Remote | June 2021 - Jan 2022

- Researching the possibility of enabling far memory support for serverless / FAAS environments.
- Implementing support for the same in the Linux kernel and evaluating the performance benefits.

Speeding Up Inference on CNNs for CPUs || BT-MT Thesis Work

April 2021 - August 2022 | Supervised by Dr. Swarnendu Biswas, IIT-Kanpur

- Designing and building a code generator that selects the optimal channel blocking factor for any convolution shape, and generates MLIR code for the same. This work was done in collaboration with **Dr. Sasikanth Avancha** and **Dr. Kavitha Madhu** of *Intel Labs, Bengaluru*
- Incorporating support for Intel's Advanced Matrix Extensions (AMX) in the code generator to make full use of the reuse opportunities offered by the hardware intrinsics. This work was done in collaboration with **Dr. Sanket Tavarageri** of *Intel Labs, Bengaluru (now at Microsoft Research)*.

QuadEye Securities LLC || Quantitative Strategist Intern

Remote (due to COVID-19) | May 2020

- Analysed real stock data and coded up trading strategies with the aim of maximizing profit, which were subsequently tested on Quadeye's simulation environment.

Monet Networks || Data Science / Software Development Intern

Gurgaon | May - July 2019

- **Eye Tracking:** Used OpenCV and Django to implement eye-tracking and detection over a web interface via random forests.
- **Sentiment Analysis (NLP):** Used Stanford's CoreNLP and Django to create web app that analyzes sentiment in user comments.
- **Data Visualization in 3D Space:** Reduced multiple metrics to three independent metrics to be visualized along three spatial axes

Coursework-based and Other Projects

IIT Kanpur

- **Design-Space Exploration for On-the-Fly Detection of False Sharing (CS636):** Explored ideas with the aim of reducing the space overheads incurred by the False Sharing Detection mechanisms proposed in the DeFT paper on a gem5 implementation.
- **ChampSim-VANS (Winter Project):** Integrated the processor and cache hierarchy from ChampSim with VANS (an architectural simulator for Non-Volatile RAM)
- **RDIP++ (CS422 Course Project):** Developed an implementation of RDIP (Return-Address-Stack Directed Instruction Prefetching) on ChampSim, and added modifications with the intent of maximizing performance on the IPC-1 traces.
- **CHiRP (UGP):** Developed an implementation of CHiRP (Control Flow History Re-use Prediction) on ChampSim and tested the performance on IPC-1 traces.

Extra-Curriculars and Other Experiences

Tutor || ESC101 IITK

Nov 2020 - Mar 2021 and Apr 2021 - Jul 2021

- Taught the course contents of the ESC101 (Fundamentals of Computing) course to a batch of 36 (and 33) first year students of IIT Kanpur via tutorials.
- Set questions for exams, designed problems for weekly labs and conducted oral vivas.

TA || CS330 IITK

Aug 2021 - Nov 2021 (expected)

- Assisting the instructor in conducting the course CS330 (Operating Systems) for 100+ students in third-year CSE department.
- Designed assignment problems, and testing infrastructure for the same.

Coordinator || Students' Films Society

Apr 2019 - Jun 2020

- Managing funds, conducting screenings of films and events, organizing activities and maintained campus' screening equipments in good condition.
- Conducted and managed events in Galaxy 2020 and Montage 2020.

Secretary || Dramatics Club

May 2018 - Apr 2019

- Managed and organized club events and performances.
- Represented IIT-Kanpur at Rendezvous 2018 (IIT Delhi), Antaragni 2018 (IIT Kanpur) and the Inter IIT Cultural Meet 2018 (IIT Roorkee) in the events Stage Play and Street Play.
- Participated in writing and performing various performances in campus.