Rishika Varma Kalidindi

University of Michigan, Ann Arbor
Ex-Research Engineer at NUS
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Indian Institute of Technology Madras
Ex-Software Engineer at Google

Education

University of Michigan, Ann Arbor — *Aug '24 - May '26*
MS Computer Science & Engineering
CGPA: 4.0/4.0

Indian Institute of Technology-Madras — *Aug '18 - May '22*
BTech in Computer Science & Engineering
CGPA: 8.73/10

Research Experience

Testing x86 hardware model of the MMU — *May '25 - present*
Guide: Prof Reto Achermann, Prof Andrea Lattuada(prev) — *University of Michigan, Ann Arbor*

- Working on proposing a formally tested model of the Memory Management Unit for the x86 hardware.

AI Manager — *Jan '25 - present*
Guide: Prof Ryan Huang, Prof Mosharaf Chowdhury — *University of Michigan, Ann Arbor*

- Contributing towards enabling OS management of multiple AI runtimes simultaneously to support concurrent applications with embedded AI features.

Cascading Failure Mitigation — *Oct '24 - April '25*
Guide: Prof Ryan Huang — *University of Michigan, Ann Arbor*

- Worked on analyzing and reducing overhead for a software fault tolerance system being developed using eBPF.
- This led to a co-authored submission at NSDI 2026.

Anomaly detection in Software Defined Networking — *Nov '23 - July '24*
Guide: Prof Mohan Guruswamy — *National University of Singapore, Singapore*

- Worked as a Research Engineer at the ECE department in the NUS-Cisco corporate lab.
- Developed a simulated extensible 5G testbed generating realistic diverse regular and anomalous network traffic adhering to expected traffic patterns of 5G slice types for testing various protocols and algorithms for traffic classification and Anomaly Detection in 5G.
- Developed a network monitor that captures Slice level KPIs as a time series using the SDN controller.
- Resulted in a co-authored publication at the IEEE CNS 2025 conference.

StarPlat: A Versatile DSL for Graph Analytics — *Feb '23 - present*
Guide: Prof Rupesh Nasre — *IIT Madras, India*

- Worked on bench-marking parallel graph algorithms in OpenMP.
- Worked on the parallel implementations and bench-marking for SSSP, K-Cores, and MaxFlow algorithms. Project files on GitHub.

Path detection to Acoustic Source in Dynamic Environment — *June '21 - June '22*
UGRC (Undergraduate Research in CS) + B.Tech Project, Guide: Prof Ayon Chakraborty — *IIT Madras, India*

- Worked on localizing an object through the sound signals emitted by a source.
- Worked on using Angle of Arrival (AoA) and intensity data from a sound source and the room contour to find a path toward the sound source, which may not be in the line of sight. Project files on GitHub.

Work Experience

Software Engineer at Google — *July '22 - Oct '23*
Customer Onboarding team, Google Cloud — *Bangalore, India*

- Contributed to the UI development and backend integration for the Data Migration products, which enables workspace and chat migrations.

Quantitative Research Intern at JP Morgan Chase & Co — *May '21 - July '21*
QR Credit Derivatives team — *Mumbai, India*

- Worked on improving the implementations for Credit Investable Indices and migrating them to a common framework for Investable Indices called Inscript.

Projects

eBPF applications for CXL Memory management and observability *Sep - Dec '24*
Course project for the CSE582: Adv Operating Systems course

- Worked on leveraging eBPF support for dynamic tiered memory management policies especially under memory pressure.

Batching and Request Aggregation for LLM Inference in CPUs *Sep - Dec '24*
Course project for the CSE585: Adv Scalable Systems course

- Implemented request aggregation and batching in Llama.cpp to explore the effectiveness of batching strategies in CPU leading to upto 20% speedup.

ASLR for the xv6 OS *July - Dec '20*
Assignments and course project the CS3500: Operating Systems course

- Through the course of 7 assignments (based on the MIT Course), explored the xv6 kernel in detail and added implemented additional system calls, a tracing and alert mechanism, and optimizations such as lazy page allocation and copy-on-write. Also implemented a basic user thread library.
- For the course project, added support for Address Space Layout Randomization (ASLR) and randomized the position of the stack and executable sections to prevent buffer overflow attacks. Project Files on GitHub.

Compiler for C *July - Dec '20*
Course Project for CS3300: Compiler Design

- Developed a compiler for a subset of the C language for the x86 instruction set, written in *Lex* and *Yacc*.
- Performed optimizations such as common sub-expression elimination, unused variable elimination, etc.

nand2tetris *July - Nov '19*
Course Project for the CS2300: Foundations of Computer Systems Design course

- Constructed a computer system starting with logic gates, ALU and memory elements, and a CPU.
- Built an assembler, stack-based virtual machine, and compiler for conversion from a language called *Jack* (an abridged version of Java) to machine instructions of the CPU.

AI-powered Tic-Tac-Toe game *Jun - July '20*
Microsoft Engage 2020

- Was selected for the Microsoft Engage 2020 mentorship program.
- Created a web application in which the user could play the tic-tac-toe game against the computer or another player.
- The application also gave helpful hints to the player for suggested moves.
- Got an offer to return as a software engineering intern based on performance. Files on GitHub.

Course Work

- **Systems**: Adv Operating Sysytems, Adv Scalable Systems, Adv Compilers, Operating Systems, Introduction to Computer Networks, Introduction to Database Systems, Computer Organization and Architecture, Foundations of Computer Systems Design, Smart Sensing for IoT, Secure Systems Engineering
- **Programming Languages & Formal Methods**: Compiler Design, Paradigms of Programming, Object Oriented Algorithms: Implementation and Analysis
- **Data Structures & Algorithms**: Design and Analysis of Algorithms, Programming and Data Structures
- **Artificial Intelligence & Machine Learning**: AI Foundations, AI, Pattern Recognition and Machine Learning

Technical skills

Programming Languages	C, C++, HTML, CSS, Javascript, Typescript, Python, Prolog, OCaml, RISCV and x86 ISAs, Rust
Tools	GDB, Wireshark, Mininet, Ryu Controller, Git, LaTeX, AutoCAD, WordPress, Canva, Google Internal Tools: Cider, Critic, Piper, Fig, Boq, MS office

Achievements

- Was awarded the Moeller Award for outstanding academic achievements, a commitment to social responsibility, and mentorship or leadership in the academic community.
- Was among the top 100 girls selected globally to participate in the Micron Global Women Mentorship Program in 2021.
- Secured All India Rank of 231 among 0.15 million students who qualified for JEE Advanced in 2018.
- Secured KVPY Fellowship in SA exam with an All India Rank of 618 in 2016.
- Qualified and Placed in National top 1% in National Standard Examination in Chemistry (NSEC) and National Standard Examination in Junior Science (NSEJS) in 2017 and 2015.