

KRISHNA NARASIMHAN AGARAM

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EDUCATION

University of Illinois at Urbana-Champaign, MS (thesis), CS

Advisor: Prof. Saurabh Gupta; work on *sim-to-real* robotic manipulation

Urbana, IL

Aug. 2025 – May. 2027

Indian Institute of Technology Bombay, B.Tech (honors), CS

GPA: 9.86/10, ranked 3/194; minors in *machine intelligence* and *mathematics*

Mumbai, India

Nov. 2021 – May. 2025

- Selected coursework: Robotics, RL, Stat learning, Kernel methods, Formal methods for ML, Crypto, Adv. compilers, Discrete Math/Algo/Automata, Arch/Net/OS/DB/Compilers, Real/Complex/Fourier analysis, Linear/Abstract algebra

RESEARCH EXPERIENCE

Sim-to-real Robotic Manipulation

Guide: Prof. Saurabh Gupta

University of Illinois at Urbana-Champaign

Aug. 2025 – present

Sycophancy evaluation in LLMs

Guide: Prof. Dilek Hakkani-Tür

University of Illinois at Urbana-Champaign

Aug. 2025 – present

Towards proving the Neural Feature Ansatz

Guide: Prof. Parthe Pandit

Indian Institute of Technology Bombay

May. 2025 – Jul. 2025

Quantum Positional Proof Systems †

Guide: Prof. Nick Spooner

EPFL, Switzerland

Jun. 2024 – Sep. 2025

RL for efficient Stabilizer state Preparation †

Guide: Prof. Vikas Garg

Aalto University, Finland

Jun. 2023 – Sep. 2024

Lower bounds on testing 3-colorability

Guide: Prof. Akash Kumar, IIT Bombay

Indian Institute of Technology Bombay

Jan. 2024 – Apr. 2024

- Improved the quantum stabilizer preparation pipeline with an RL agent capable of constructing arbitrary stabilizer states zero-shot on up to 9 qubits with 30% fewer gates than prior methods
- Trained agents are guaranteed superior efficiency on at least 95% of stabilizers despite training on only 10^{-8} % of states

Optimizing compiler for (a subset of) Java

Guide: Prof. Manas Thakur

Course Project: Advanced Compilers

Jan. 2025 – Apr. 2025

- Wrote a javacc-based compiler for a Java-like language with **liveness analysis**, class-hierarchy analysis, variable renaming and **alias analysis** supported over an **control-flow graph** over a TAC intermediate representation
- Performed optimizations such as constant folding, linear-scan register allocation and compile-time de-virtualization

Video Style Transfer

Guide: Prof. Preethi Jyothi

Course Project: Machine Learning

Aug. 2023 – Nov. 2023

- Implemented convolution-based **style transfer** for images and **videos**, following **Gatys et al** and **Ruder et al**
- Enforced temporal coherence of output videos using **optical flow**, preserving style of moving objects across frames

FastChat: mini WhatsApp

Guide: Prof. Kavi Arya

Course Project: Software Systems Lab

Oct. 2022 – Dec. 2022

- Built **chat service** with a distributed server architecture, **end-to-end** encryption and a dedicated **load-balancer**; users can choose to chat privately or in an admin-moderated **group** and can also send **arbitrarily large** files reliably
- Used a standard **message protocol** packet around messages; a message buffer ensures messages are **not lost**

SCHOLASTIC ACHIEVEMENTS

- Received the **Institute Academic Prize** given to the **top 1%** of students for stellar academic record 2022, 2024
- Placed **1st, 2nd, 2nd** in India and **8th** ($\times 3$) overall at the **Simon Marais Mathematics Competition** 2022–2024
- Among the **top 35** students ($\times 2$) invited to the **International Mathematics Olympiad Training Camp** 2020, 2021
- Secured All India Rank **40** in **JEE Advanced** and 122 in JEE Main among 140K+ and 1M+ aspirants respectively 2021
- Qualified for the **International Olympiad on Astronomy and Astrophysics** Team Selection Camp (IOAA OCSC) 2020
- Conferred with the **AP** (top 2%) grade ($\times 7$) for exceptional performance in Compilers Lab, Logic in CS, Discrete Structures, Data Analysis, Quantum Physics, Physical Chemistry and Differential Equations 2021–2024

TECHNICAL SKILLS

Languages Python, C/C++, bash/zsh, Java, x86 assembly, MATLAB, \LaTeX

Libraries PyTorch, TensorFlow, NumPy, Pandas *et al.*, IsaacGym, OpenAI Gym, Sympy, IBM Qiskit, Manim

† Preprints available upon request.