Ashish Kulkarni

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Education

University of California, Riverside — *Riverside, CA*
Master of Science in Computer Science and Engineering — Sep 2025 – Dec 2026

PES University — *Bengaluru, KA, India*
Bachelor of Technology in Computer Science and Engineering (CGPA: 8.03 / 10) — Dec 2020 – May 2024

- 3x **Distinction Award** recipient
- Specialization in **Machine Intelligence and Data Science**

Experience

Nasdaq — *Bengaluru, KA, India*
Software Engineer — Jul 2024 – Sep 2025
Software Development Intern — Jun 2023 – Jun 2024

- Jump-started a new ML-based Advisory Technology product as the primary **Python** developer: built a minimum viable product, presented it to product leadership, and took the project to prototype phase.
- Designed, developed, and maintained **microservices** for backend processes, and led the end-to-end **Python** process development–from prototype to production–implementing custom **named entity recognition**, **LLM** integration, fuzzy string-matching, and writing Terraform for **AWS**-powered infrastructure.
- Architected and developed a new web-crawling pipeline using **Selenium WebDriver** and a custom **BFS**-based algorithm, improving mining speed by approximately **5x**.
- **Regional winner** and **global finalist** of the 2023 intra-company hackathon by leveraging **LLMs** for custom **Terraform** script generation.
- **Mentored** at a 6-month **ML bootcamp** for 30+ employees at Nasdaq Bengaluru.

StanceBeam — *Bengaluru, KA, India*
Computer Vision Intern — Jun 2022 – Aug 2022

- Implemented the usage of **stereo vision** and **epipolar geometry** to compute the 3D coordinates of a subject, to be used in a future decision review system for cricket.
- **Technologies**: OpenCV, NumPy, Python3

Projects

OpenGL Projects | *C++, GLUT*
This repository contains projects I built while studying the Fundamentals of Augmented and Virtual Reality at PESU, under Dr. Adithya Balasubramanyam. My work ranges from basic 2-d projects, such as generating the **Sierpinski triangle fractal** using the chaos method, visualizing **Graham's scan algorithm**, all the way up to implementing elastic **sphere collisions** in 3-d space.

Glaucoma Diagnosis from Retinal Fundus Images | *Python, TensorFlow, scikit-learn*
Evaluating popular **CNN** architectures and **histogram equalization**-based preprocessing techniques on classifying a retinal fundus image into normal or glaucomatous. Find our results and preprint on my website or GitHub repo.

covibot | *Python, PRAW*
A Reddit bot (Top 5 at a hackathon) which gives COVID-19 stats of a specific region without an explicit call, using low-level NLP, and accessing government datasets. I turned my learnings into a 3-part guide on Analytics Vidhya, which you can generally find ranked on the first page of Google search results for *how to make a Reddit bot*.

Graph-based Recommender | *Python, NetworkX, DGL (Deep Graph Library), PyTorch*
A recommender system using link prediction algorithms and GCN (graph convolutional networks).

Blender Models | *Blender*
This repository contains Blender models I built while studying the Fundamentals of Augmented and Virtual Reality at PESU, under Dr. Adithya Balasubramanyam.

Image Editor | *Python, NumPy, OpenCV, Pillow Image Library*
This project contains a command-line interface and a UI-based image manipulation application, including features like **Gaussian blur**, **gamma correction**, etc. I developed this as a deliverable for my Linear Algebra course taught by Dr. Jyothi R.

Skills

Languages: Python, C++, Java, C, SQL
Concepts: Operating System, Artificial Intelligence, Machine Learning, Neural Networks, Database, Agile Methodology, Cloud Computing, Generative AI, Large Language Models, Computer Vision, Data Science, Computer Networks, Graphs
Certifications: Principles of Secure Coding, *Udemy*; AWS Educate Introduction to Cloud 101, *Amazon Web Services*; Quantum Computing Using Qiskit, *PESU I/O*; LFD103, *The Linux Foundation*
Personal: I love playing and listening to music, anything outdoors from hiking to biking, and traveling.

Teaching

PES University *Bengaluru, Karnataka, India*
Teaching Assistant Jan 2024 – Apr 2024

Teaching assistant for the 6th-semester course *Object-Oriented Analysis and Design with Java (UE21CS352B)*, under Prof. Priya Badrinath, for 180+ students. Find the lab assignments I created on my GitHub repository.

Research Papers

Diffusion Inference with Dynamic Classifier-free Guidance | *IEEE*

At the time, most diffusion-based text-to-image generation techniques involved multiple steps of inference, and made use of a constant factor known as classifier-free guidance (CFG) scale throughout the inference process to tune how closely the generation followed the prompt. In this research, my co-authors and I, under the guidance of Dr. Jayashree Rangareddy, created and experimented with dynamic CFG: scheduling the CFG scale over inference steps. We documented our findings in a conference paper.

A Comparative Study on Deep Convolutional Neural Networks and Histogram Equalization Techniques for Glaucoma Detection From Fundus Images | *medRxiv (preprint)*

This research aims to evaluate the enployment of various convolutional neural network (CNN) architectures and histogram equalization techniques for glaucoma detection in fundus images. The study utilized the publicly available ACRIMA database, comprised of 705 fundus images (396 glaucomatous and 309 normal).

Awards

DAQ: Act as an Owner | *Nasdaq*

For contributions to the Trading Updates beta release, namely AWS architecture design and provisioning using Terraform, Python process development, and integrating with an internal email API.

DAQ: Expand Your Expertise | *Nasdaq*

For significant contributions to the InDi project, expertise in AI/ML, and investing time in learning Terraform.

DAQ: Play as a Team | *Nasdaq*

For mentoring in the 7-month AI/ML Cohort Batch 1 Bootcamp at Nasdaq Bangalore.

DAQ: Play as a Team | *Nasdaq*

Part of the self-managed Advisory ML team handling a new data collection project.

DAQ: Drive Innovation | *Nasdaq*

Regional winner and global finalist of the SEEN global intra-company hackathon, 2023.

Test Scores

GRE General Test | ***328/340*** | *Sep 2024*

- Quantitative Reasoning: **170/170**
- Verbal Reasoning: **158/170**
- Analytical Writing: **4.5/6**

TOEFL iBT | ***118/120*** | *Oct 2024*

- Reading: **29/30**
- Listening: **30/30**
- Speaking: **29/30**
- Writing: **30/30**