Ashray Kothari

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MS Computer Science | Software Engineer | Cloud Architect | Scalable/Distributed Systems | AI Enthusiast | Researcher

Education

Master of Science, Computer Science – Arizona State University May 2025
Bachelor of Technology (Honours), Information Technology – DAIICT May 2023

Skills

Programming Languages: Python, Java, JavaScript, C++, Go
Databases: MySQL, PostgreSQL, MongoDB, Redis, DynamoDB, Neptune, Redshift
Frameworks and Libraries: React, Next, Express, Flask, FastAPI, PyTorch, TensorFlow, OpenMP, JUnit, PyTest
DevOps and Cloud: AWS, GCP, Docker, Terraform, GitHub Actions, Jenkins, Firebase
Software Dev: REST, GraphQL, AJAX, Microservices, Multithreading, Git, Postman, Agile, Data Analysis (Numpy, Pandas, Scikit-learn), Visualization (Matplotlib, Seaborn)

Work Experience

System Development Engineer Intern, Amazon – Hyderabad, India Jan 2023 – June 2023

- Developed an automated end-to-end testing framework using **Java** and **Jenkins** within the CI/CD pipeline, reducing testing time by 80% and accelerating deployment cycles for large-scale microservices.
- Created real-time system monitoring and validation dashboards using Amazon **QuickSight** and **GraphQL**, enhancing the regression testing suite for **Neptune** by 25% and improving data visibility for key stakeholders.
- Optimized **SQL** queries and data pipelines, reducing execution time by 35% while maintaining 99.9% data accuracy.
- Led a collaborative effort among five interns, enhancing core frameworks and reducing production bug reports by 40%, fostering a culture of high code quality in an **Agile** environment.

Machine Learning Researcher, DAIICT – Gandhinagar, India May 2022–Dec 2022

- Formulated a deep learning model using **Python** and **PyTorch** for interferometry-based plasma diagnostics, enhancing prediction precision by 30% and reducing false positives across varied plasma conditions.
- Curated a training dataset of 5,000+ samples, achieving a near-perfect 0.99 **SSIM** in plasma density estimation, validating the model's effectiveness across diverse real-world setups.
- Validated model performance with low percentage errors (1%–10%), demonstrating robustness against noisy Erms data and effective estimation of asymmetric plasma profiles.
- Co-authored the **research paper** "Deep Learning for Microwave-Plasma Interactions" published in Journal of Physics D.

Projects

Cloud-based Image Classification System

- Built a scalable image classification system using **Python**, **FastAPI**, **AWS EC2** for compute, **S3** for secure storage, and **SQS** for asynchronous processing, achieving real-time inference with low latency under high traffic.
- Integrated a PyTorch-based deep learning model for high-precision face matching, implementing dynamic autoscaling and optimizing API response times, reducing cold start latency by over 40%.

Workflowly – Team Task Management Platform

- Built a full-stack task management platform using **Next**, **React**, **Node.js**, and **MongoDB**, supporting real-time collaboration, project tracking, and workflow automation with **JWT**-based authentication for secure multi-user access.
- Implemented **RESTful APIs** for task management, utilized Redis for caching and **WebSocket** for real-time updates, reducing response latency by 60% and improving task completion rates by 30%.

PageRank Parallelization

- Optimized PageRank computations in **C++** using **OpenMP**, achieving 43x throughput gain and 44x runtime reduction through parallelized matrix operations and efficient memory management for dense graph structures.
- Designed a **2D bitset** adjacency matrix, reducing memory overhead and improving data locality, resulting in faster convergence for PageRank calculations on networks with high node density.

AI-Enhanced Algorithmic Trading System

- Developed a trading strategy evaluation platform using Python, integrating LSTM, SVM, Random Forest, Prophet, and ARIMA for predictive analytics, achieving 23% RMSE reduction in stock price forecasting.
- Integrated generative pre-trained transformer (GPT) for real-time sentiment analysis, improving forecast accuracy by 18% and reducing response latency by 40%, enhancing risk-adjusted returns and trading strategy resilience.

Certifications

- AWS Solutions Architect Associate - C03 (2024), Coursera ML Specialization (2022), Udemy Web Dev Bootcamp (2020)