

Ayush Goel

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EDUCATION

University of Pennsylvania

Master of Science in Artificial Intelligence | GPA: 3.8

Coursework: Internet & Web Systems, Software Systems, Operating Systems, Full Stack Deep Learning, Machine Learning

Position: Graduate Teaching Assistant for Courses - Data Structures, Algorithms and Software Design; and Operating Systems

Philadelphia, PA

May 2024

Thapar Institute of Engineering and Technology

Bachelor of Engineering - Mechatronics Engineering | GPA: 3.89

Punjab, India

June 2018

WORK EXPERIENCE

TDK InvenSense

Engineering Intern

San Jose, California

May 2023 - Dec 2023

- Designed an efficient AWS pipeline combining AWS IoT, ECS, Greengrass, S3, Lambda, CloudFormation, and Elastic Search; coupled with C++ drivers, resulting in a 50% surge in data processing speed, and 30% cost savings.
- Formulated a robust object detection pipeline, attaining a 60% precision while minimizing false positives, and ensured seamless deployments through CI/CD pipelines, in compliance with robust system architecture principles.

Unicommerce eSolutions Pvt. Ltd. 🌐

Senior Software Engineer

Gurugram, India

Aug 2019 - July 2022

- Supervised and mentored team of Software Engineers as Team Lead, actively engaging in code reviews to ensure high-quality software development and adherence to best practices.
- Pioneered infrastructure redesign, leveraging residential and datacenter proxies with load distribution and IP-rotation, achieving 25% cost reduction. Introduced self-service optimization tools, notably reducing in support tickets.
- Directed design of a robust large-scale eCommerce platform, overseeing high & low-level changes, spearheading integration with major international marketplaces like Lazada & Shopee; expanding company's footprint to 7 international regions.

Capgemini India Pvt. Ltd.

Senior Software Engineer

Pune, India

Sep 2018 - June 2019

- Spearheaded migration of Malaysia's CIMB Bank's financial web app from SOAP to RESTful APIs and pioneered development of 'Capbook', enterprise social media platform using React and Spring, serving 500+ employees.

SOFTWARE PROJECTS

End-to-End Microservice Architecture: Scalable Integrations and Performance Optimizations 🌐

- Architected & deployed end-to-end multithreaded highly-scalable SaaS backend services and systems, facilitating synchronous and asynchronous integrations with diverse logistic, omni-channel & partner systems; boosting system efficiency by 50%.
- Optimized system scalability by integrating a Load Balancer with Round Robin logic, boosting availability, amplifying throughput, reducing downtime, and bolstered system reliability using primary-replica SQL and NoSQL databases.
- Seamlessly integrated CI/CD pipelines for automated microservice deployment across multiple server environments.
- Augmented system performance using distributed cache & employing aspect, event and annotation-driven design patterns.
- Onboarded major marketplaces & logistic partners, including Amazon Marketplace & Shipping Provider, Shopify.

MedLlama-QA: Advanced Medical Question-Answering with Llama-2-7b and RAG 🌐

- Engineered a medical QA system using Llama-2-7b with Retrieval Augmented Generation framework, merging a 'pubmed' database for contextually accurate responses, reducing language model hallucinations through dense & sparse embeddings.
- Applied chunking to vast medical texts for efficient Llama-2-7b processing; established a Pinecone vector store for rapid retrieval, ensuring quick, precise medical information delivery.

ML Ops-Driven System Design: E-commerce Revenue Forecasting & Continuous Deployment 🌐

- Operationalized an MLOps pipeline with Apache Airflow for workflow management, integrating ensemble model (XGBoost and LSTM) on historical e-commerce data, achieving a 30% increase in client's revenue forecasting.
- Ensured sustained model precision with a Jenkins-driven CI/CD pipeline, MLflow for experiment tracking and model versioning, and Grafana for real-time monitoring and proactive issue resolution.

Event-Driven Microservice Design: Optimizing Event Routing with AWS EventBridge and SQS 🌐

- Implemented an event-driven microservice architecture using AWS EventBridge, intercepting and routing events seamlessly from downstream systems to target SQS queues, resulting in 25% drop in API calls and 30% increase in system efficiency.
- Incorporated CloudWatch metrics for real-time monitoring of the health and rapid responses to critical system events.

Scalable Log Monitoring System: Enhanced Insights with Elasticsearch and Kibana Integration 🌐

- Constructed a scalable Elasticsearch logging solution, merging Filebeat at proxy layer, centralizing logs at Logstash, streamlining data processing across multiple clusters, efficiently feeding them to Elasticsearch instances.
- Devised comprehensive Kibana dashboards for enhanced metric visualization, achieving a 15% drop in on-call incidents.

SKILLS SUMMARY

Programming: C++, Python, JAVA, Bash/Shell Scripting, AWS, React, Spring, Elasticsearch, JavaScript, Linux, Android, CUDA

Tools: Git/GitHub, Docker, Jenkins, Kubernetes, CMake, SQL, Maven, MongoDB, Microservices, Valgrind, Kafka, CI/CD, Agile

AI/ML: PyTorch, scikit-learn, pandas, TensorFlow, Tensor-RT, ONNX, MLOps, ROS(1&2), OpenCV