

Akshat Shah

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(341) 231-8298 | Software Engineer | Open to Relocation

Education

University of Southern California

Aug. 2024 – May 2026

Master of Science in Computer Science (GPA: 3.66/4.00)

- *Relevant Coursework:* Analysis of Algorithms, Database Management Systems, Applied NLP, Web Development

Indus University

Sep. 2020 – May 2024

Bachelor of Technology in Computer Science (GPA: 3.86/4.00)

- *Relevant Coursework:* Machine Learning, Operating Systems, Computer Networks, Object-Oriented Programming

Experience

Software Engineer, Integrated Media Systems Center (USC)

Mar. 2025 – Present

- Design and deploy async Python FastAPI microservices powering a scalable real-time geospatial platform for 500+ daily active users, reducing average endpoint response latency by 35% through async programming over a synchronous baseline
- Integrate Google OAuth 2.0 and JWT authentication into a distributed microservices architecture with structured error handling, securing all RESTful service endpoints with high availability and zero reported authentication failures
- Optimize PostgreSQL 16 PostGIS spatial indexes and H3 geospatial indexing to reduce query latency by 40%, supporting reliable ingestion of 10k+ daily user submissions into partitioned PostgreSQL tables without dropped writes

Software Engineer Intern, Microsoft

Jun. 2023 – Jul. 2023

- Built KQL and Azure Data Explorer dashboards tracking end-to-end latency for Word, Excel, and PowerPoint across browser and Teams surfaces, enabling production observability and system design insights for a platform serving 85M+ MAU
- Reduced manual performance monitoring overhead by 60% by building automated monitoring pipelines integrated into CI/CD workflows that evaluated latency thresholds and flagged regressions across production environments daily
- Delivered 8 dashboards with P50/P75/P95 percentile views, component-level latency breakdowns, and farm comparisons, enabling engineers to identify concurrency bottlenecks and scalability regressions toward a sub-5-second document load target

Projects

SmartInventory: AI-Based Demand Forecasting Platform | Python, AWS SageMaker, Node.js, React.js, PostgreSQL, Docker

- Created a functional demand forecasting prototype with AWS SageMaker models and a Node.js REST API, delivering dynamic inventory predictions for 5k+ products across categories
- Devised React-based admin dashboards and PostgreSQL-backed data pipelines for monitoring forecast accuracy and sales trends, achieving a 28% improvement in restocking efficiency through automated alerts and demand insights

Brief Bytes: AI News Summary | Node.js, TensorFlow, Svelte, REST APIs, Vercel

- Built a functional AI news prototype using TensorFlow summarization, a Node.js REST API and Svelte, serving real-time articles across 5 categories with summary and full-read modes on Vercel
- Integrated a TensorFlow NLP summarization pipeline with the Node.js backend and Svelte frontend on Vercel, surfacing key article takeaways in seconds across feeds and reducing reader time-to-insight through an AI workflow

VisionVault: Intelligent Document Parser | PyTorch, OCR, OpenCV, Flask, Docker, MongoDB

- Built a scalable document-understanding platform combining OCR and a fine-tuned LayoutLM transformer model to extract structured fields from unformatted PDFs and images with 94% accuracy, validated through unit testing across 10k+ samples
- Developed REST APIs and containerized deployment using Flask and Docker for enterprise integration, enabling parallel batch processing of 10k+ files and reducing manual data-entry time by 70%

Personalized Video Recommendation Platform | React Native, Node.js, TensorFlow, AWS S3, CloudFront, PostgreSQL

- Engineered a personalized video recommendation workflow integrating a TensorFlow collaborative filtering model with a Node.js backend and PostgreSQL, delivering real-time suggestions that improved simulated watch-time by 35%
- Developed a cross-platform React Native interface and integrated AWS S3 and CloudFront for secure, low-latency video streaming, packaging the prototype as an end-to-end application and optimizing content delivery performance.

Leadership

Lead Teaching Assistant, USC Viterbi K-12 STEM Center

Apr. 2025 – Jul. 2025

- Directed a team of 8 teaching assistants to deliver a month-long 3-unit engineering course covering algorithms, data structures, and software engineering principles for 60+ students, resulting in a 95% positive feedback rating

Technical Skills

AI/ML & Data Systems: PyTorch, TensorFlow, AWS SageMaker, CUDA

Languages: Python, Java, TypeScript, JavaScript, C++ , SQL

Backend & APIs: Spring Boot, Node.js, Express, FastAPI, Flask, REST APIs, GraphQL

Cloud, DevOps & Databases: AWS (EC2, S3, Lambda), Docker, Kubernetes, GitHub Actions, PostgreSQL, MongoDB, Redis

Frontend: React.js, React Native, Next.js, Redux, Tailwind CSS, HTML, CSS