Divit Singhal

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Education

University of Alberta — Edmonton, AB
Bachelor of Science, Major in Computer Science – Artificial Intelligence — *Expected May 2027*

Experience

Incoming Software Development Engineer Intern (Return Offer) — Sep 2026 – Dec 2026
Amazon — *Vancouver, BC*

Software Development Engineer Intern — May 2025 – Aug 2025
Amazon — *Vancouver, BC*

- Authored the technical design specification for the diagnostics platform, establishing integration patterns for **9,000+ microservices** and securing consensus from senior engineers to accelerate project kickoff.
- Engineered an incident-diagnostics platform aggregating telemetry from 9,000+ services, reducing p95 triage time by **44%** (25 min to 14 min) and MTTR by 42%.
- Architected a pooled session manager to optimize API throughput, eliminating **30% of redundant calls** via connection reuse during high-scale investigations.
- Integrated 'known-issue' surfacing using generative AI (Amazon Q), reducing false starts in Root Cause Analysis (RCA) by **35%** through historical incident matching.
- Deployed pre-release rule-based validations (JDK/dependency checks) across the CI/CD pipeline, automating **200+ daily health checks** and cutting production incidents by ∼30%.

Research Assistant — Jan 2025 – Apr 2025
University of Alberta – Dept. of Computing Science — *Edmonton, AB*

- Developed a semi-supervised CNN pipeline to classify rodent vocalizations from a **47,000+ file dataset**, improving precision and recall from 22% to **77%** via active learning.
- Designed advanced audio preprocessing (17-40kHz ultrasonic filtering, LogMMSE denoising) to isolate bioacoustic signals and remove environmental noise.
- Implemented entropy-based uncertainty sampling and fuzzy clustering (LAMDA3) to optimize the labeling loop, significantly reducing manual annotation effort for domain experts.

Research & Analytics Intern — May 2024 – Aug 2024
Radical Technologies — *Pune, MH*

- Integrated OpenAI GPT-4 to generate personalized financial insights, engineering prompts to analyze spending patterns and provide real-time health scoring.

Projects

FlashBurst | *Ruby on Rails, Redis, Sidekiq, PostgreSQL* — Nov 2025

- Architected a high-concurrency flash-sale engine handling **5,000+ concurrent requests** with zero inventory drift, utilizing Redis Lua scripting to enforce atomic consistency.
- Reduced database load by **99%** and latency to <5ms by implementing an asynchronous write-behind pattern with Sidekiq, decoupling inventory reservation from disk persistence.

TitanOrchestrator | *.NET 8, gRPC, Docker, Redis, AWS CDK* — Dec 2025

- Architected a cloud-native distributed job scheduler on AWS Fargate, securing infrastructure via a custom VPC topology with public ALBs and private worker subnets isolated by NAT Gateways.
- Built a low-latency orchestration layer using .NET 8 and bi-directional gRPC streams, enabling real-time command-and-control between the Master node and auto-scaling Worker nodes.
- Implemented a resilient "Master-Worker" pattern with Redis for distributed state management, decoupling job submission from execution to handle high-throughput workloads.
- Containerized the microservices stack with Docker to ensure production parity, simulating the distributed environment locally via Docker Compose.

Technical Skills

Languages: Java, Python, C/C++, JavaScript, TypeScript, SQL, Ruby, C#
Cloud & DevOps: AWS (EC2, Lambda, S3), GCP, Azure, Docker, Kubernetes, Linux/Unix
Frameworks: React, Node.js, Next.js, Flask, Django, Rails, ASP.NET, Tailwind CSS, JUnit, pytest
Machine Learning: PyTorch, TensorFlow, scikit-learn, NumPy, pandas

Certifications

AWS Certified Solutions Architect – Associate (SAA-C03) — *Exp. Dec 2028*
AWS Certified Cloud Practitioner (CLF-C02) — *Exp. Nov 2028*