

VARUN SINGHAL

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EDUCATION

University of Southern California

Masters of Science in Computer Science: Artificial Intelligence

Concentration: Artificial Intelligence, Machine Learning, Quantum Computing + Cryptography

Los Angeles, CA

January 2025 – December 2026

University of California, San Diego

Bachelors of Science: Computer Science

GPA: 3.83/4.00, Provost Honors (2020 - 2024)

San Diego, CA

October 2020 - June 2024

PROFESSIONAL EXPERIENCE

GEICO

Machine Learning Engineer

San Francisco, CA

May 2024 - August 2025

- Designed and developed quote estimation service leveraging vehicle/driver features and historical premiums; **improved latency from ~30s to <13s, cut compute costs by 50+%, and met <15s Client SLA**
- Proactively initiated and guided** a cross-team effort to design and implement scoring models for the quoting service, enabling **precise premium estimates at scale and enhancing overall system performance**
- Built automated commission-calculation tool to parse spreadsheets, apply pricing algorithms, and generate cost/commission breakdowns with **0% error**; reduced manual turnaround from **~3-4 days to <1 hour**
- Productionized models and pipelines with AWS SageMaker, Lambda, DynamoDB, REST APIs, and CI/CD for versioned deployments; improved API throughput, reliability, and latency
- Authored API docs, internal wiki pages, video tutorials, and conducted trainings to onboard partner-team engineers and new hires; reduced questions, onboarding time, and **accelerated adoption across 5+ teams**
- Recognized by VP of Engineering** for leading quote-to-bind workflow initiatives and delivering measurable savings

Amazon: Amazon Web Services (AWS)

Software Engineering Intern

Seattle, WA

May 2023 - August 2023

- Provisioned production-grade databases and storage pipelines for enterprise clients (e.g., Fortune-500) using AWS services; ensured **seamless integration with clients' existing environments**
- Led end-to-end onboarding and trainings for 5 client workloads**: set up schema, access controls, data pipelines; ran integration tests to validate data flow and compliance before go-live
- Implemented automated health-checks and logging with CloudWatch and GuardDuty; **reduced failure detection time by ~40% and manual triage effort for support team**
- Earned AWS Certified Cloud Practitioner and AWS Certified Developer credentials** during internship

TECHNICAL PROJECTS

Project: Low Latency Arbitrage Bot [C++]

- Engineered an optimized graph-theory algorithm to detect profitable cryptocurrency arbitrage opportunities across major exchanges (Binance, Coinbase, Kraken) with **<10 ms detection latency**
- Built a **custom order-management system (OMS)** leveraging exchange APIs to deliver real-time market-data retrieval and **<300 ms order-execution latency**, maximizing trade value across exchanges

RELEVANT SKILLS

- Machine Learning/AI**: Python (NumPy, Pandas), PyTorch, TensorFlow, Keras, scikit-learn, XGBoost, LightGBM, Hugging Face Transformers (BERT, RoBERTa), spaCy, NLTK, MLflow, LangChain, FAISS/vector databases, LLM fine-tuning, Prompt Engineering
- Computer Vision**: OpenCV, CNNs, Faster R-CNN, U-Net / Mask R-CNN, object detection & segmentation, Albumentations
- Data Science/Statistics**: Feature Engineering, EDA, A/B Testing, Bayesian Estimation, Regression & Classification, Gradient Boosting, Clustering (K-Means, GMM), Dimensionality Reduction (PCA, t-SNE, UMAP), Recommendation Systems
- Cloud/MLOps**: AWS, Docker, Kubernetes, Terraform, Git Action, CI/CD, Agile/Scrum
- Programming Languages**: Python, C++, Java, SQL, R, Go, JavaScript, Solidity, Rust
- Data Engineering/Backend**: REST APIs, GraphQL, Kafka, Redis, ETL Pipelines, Spark/Hadoop
- Algorithms/CS Fundamentals**: Graph, Tree, Hash Table, Priority Queue, Dynamic Programming, A*, Monte Carlo Tree Search
- Tools/Visualization**: Jupyter Notebooks, VS Code, Git/GitHub, Matplotlib, Seaborn, Plotly