OMEED TEHRANI

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EDUCATION

University of Texas at Austin — Austin, TX
M.S. in Computer Science (AI/ML Specialization) — *Aug. 2022 – May 2024*

University of Texas at Austin — Austin, TX
B.S. in Computer Science, Minor in Business — *Aug. 2019 – May 2023*

Extras:
Presidential Scholar, Teaching Assistant for 3 Semesters, CSSE Certified, AWS Solutions Architect Certified

EXPERIENCE

Software Engineer — Jul. 2025 – Present
Capital One — *Plano/Dallas, TX*
- Developing MCP (Model Context Protocol) infrastructure and AI agent capabilities for cloud metrics with FastAPI, Pydantic, and TypeScript, integrating A2A/MCP patterns into production workflows.

Software Engineer — Aug. 2024 – Jul. 2025
Capital One — *Plano/Dallas, TX*
- Designed and built a full-stack, event-driven vulnerability remediation platform processing 600+ monthly vulnerabilities from static and infrastructure scans, leveraging Python, EventBridge, PostgreSQL, Redis, and Delta Lake for real-time prioritization and automated workflows, with an interactive React (TypeScript) UI for visualization and categorization.

Founding Engineer — Oct. 2023 – Jun. 2024
Nera — *Austin, TX*
- Contributed to building a semantic search platform connecting city explorers with local businesses, leveraging embeddings, GPT-4 API and inverted indexing for fast, high-precision retrieval, with a Flask backend, TypeScript UI, and Figma-driven design.

Software Engineering Intern — May 2023 – Aug. 2023
Capital One — *Dallas, TX*
- Migrated a legacy Snowflake batch processing system to a real-time Apache Kafka streaming pipeline, programming a Java microservice to process events, slashing latency from 2 seconds to 200ms (90% improvement).

Graduate Research Assistant — Jan. 2023 – Aug. 2023
University of Texas at Austin — *Austin, TX*
- Researched and implemented novel similarity metrics and PPO policies in PyTorch to optimize transfer learning for robotic tasks (MetaWorld) using HPC resources (TACC).

Software Engineer Intern — Jun. 2022 – Aug. 2022
Capital One — *San Francisco, CA*
- Designed a Java-based AWS Lambda microservice with a RESTful API for real-time OTP generation, enabling secure transactions for small business banks. Used DynamoDB as a NoSQL data store and optimized concurrency with thread pools, improving API response times by 35% and reducing costs by $400K/year via serverless design.

Founding Engineer — Jun. 2020 – Aug. 2020
Dive Chat — *Los Angeles, CA*
- Developed baseline mobile group messaging and group creation functionality using Firebase and React Native.

PROJECTS

Virtual Mannequin — *WebGL, TypeScript, Python*
- Built a WebGL-based 3D mannequin control system using quaternions for smooth rotational movement and spatial positioning

From Scratch Podcast — *Podcast Production*
- Co-founded a podcast to spotlight innovators in engineering, research, and startups, inspiring future computer scientists.

Learning IKD for Autonomous Vehicles — *arXiv:2402.14928*
- Applied PyTorch to optimize vehicle control, reducing spin-outs by 40% in high-speed simulations.

Decision Transformers for Robotics — *CUDA, Python*
- Implemented a Decision Transformer in PyTorch, boosting robotic task success by 15% in robomimic RL framework.

GigaAPI for GPUs — *CUDA, Python*
- Created a C++/CUDA API for multi-GPU matrix operations, accelerating ML workloads by 2.5x.

Satellite Network Simulator — *TypeScript, Three.js*
- Developed a dynamic satellite network simulator with interactive 3D visualization, implementing pathfinding algorithms for optimal data routing between orbital satellites and ground stations.

SpaceX Starship Simulator — *Three.js, JavaScript, WebGL*
- Built an interactive 3D simulation of SpaceX's Starship with high-fidelity physics, realistic mission phases, dynamic camera controls, and real-time telemetry visualization

StrategoSpheres — *Python, NumPy*
- Developed a two-player strategic board game with chess- and soccer-like mechanics, an extensible AI framework (Random, Passive, A*, Minimax, Negamax, PVS), and an 8x8 board state simulator