

ARYAN MOUSAVI

Generalist Software Engineer, AI/ML Engineer

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Tehran, Iran

EXPERIENCE

AI/Software Engineer

Pasargad Flight Pioneers @ Sharif University of Technology

2018 - 2025, Tehran, Iran

- **Custom AI:** Designed, trained, and evaluated custom object detection models and custom **U-Net** architectures for **panoptic segmentation**.
- **Simulation Engineering:** Engineered physics-based 3D simulation environments in both **Unreal Engine (C++)** and **Unity Engine** to generate highly accurate synthetic data for **Computer Vision Training**.
- **Data Management:** Managed data cleaning (**ETL**) and maintained a deep mathematical approach to gradient optimization and **model architecture**.
- **Cross-Platform App Development:** Spearheaded the year-long architecture and development of a native robotics remote-control application for Windows and Android utilizing **Flutter & Dart**.
- **Commercial & Internal Tooling:** Developed a comprehensive suite of commercial and internal applications using **C#** and **Python** for hardware networking, remote control, and custom data processing/parsing pipelines.
- **AI/ML Edge Deployment:** Designed, trained, and evaluated custom **U-Net** architectures for **panoptic segmentation**, deploying optimized object detection models directly onto edge devices including **Nvidia Jetson Nano** and **Raspberry Pi**.

Tech Lead

Rahpoo @ Iran University of Science and Technology

09/2025 - 11/2025, Tehran, Iran

- **Full Stack Lead:** Led full-stack backend and frontend development leveraging **JavaScript**, **TypeScript** on **Next.JS** and **Python** for other micro services, using tools like **MinIO** for cloud-readiness.
- **Real-Time Voice AI:** Architected an **Asterisk VoIP** backend integrating **ASR**, **TTS**, and **VAD** to manage low-latency streaming and speech interruption for a locally hosted GPT-OSS-20B model.
- **High-Throughput Architecture:** Built a quality control backend to analyze conversational voice data for call center support teams, processing over 50,000 analysis reports daily on a single GPU server.

Software Engineer

CalidadSoft @ Poland (Full Remote Contractor)

12/2025 - 07/2026, Tehran, Iran

- **Cloud-Native Solutions:** Designed scalable, distributed software architectures for international clients across **AWS**, **GCP**, and **Azure**, utilizing modern containerization and **CI/CD** pipelines.
- **Observability & Data:** Implemented advanced cloud-based platforms, heavily leveraging **Datadog** for comprehensive system monitoring and **Couchbase** for scalable, high-performance data management.

Software Engineer

Personal / Freelance

- **AI Virtual Try-On & Generative Art:** Engineered a full-stack **virtual try-on** application featuring a **Flutter** frontend and **PyTorch** backend. Designed custom generative video and image pipelines using **ComfyUI** through a year of iterative refinement.
- **Automated Security Orchestration:** Developed robust security reconnaissance architectures and **OSINT** tools like **Shadow Sentinel**, leveraging **Python**, **Celery**, **Redis**, and **LangChain** to automate complex threat-intelligence workflows, enhancing token-efficient RAG and AI coding harnesses (Cursor, Claude Code) via **Graphify** and CaveMan methodologies.

SUMMARY

Passionate generalist Software & AI Engineer with 12+ years of experience, bridging low-level systems (**C++**) with cloud-native architecture. Grounded in the deep mathematics of **ML** (linear algebra, calculus) and cutting-edge architectures (**JEPA**, **CLIP**, **U-Net**). A rigorous practitioner of Test-Driven Development (**TDD**) and spec-driven design (**BMAD**), excelling at deploying scalable, multi-modal AI systems from edge devices to high-throughput multi-cloud environments.

EDUCATION

Bachelor in Computer Science

Azad University (Hashemi-Rafsanjani Branch)

2024, Tehran, Iran

SKILLS

AI/ML Foundations:

Deep Learning Mathematics, PyTorch, TensorFlow, JAX, Deep Learning Fundamentals (Loss, Optimizers, BackProp), Embeddings (CLIP), RAG, Agentic Workflows, Attention Mechanism, Transformers.

Cloud, DevOps & Backend:

System Architecture Design, API Gateways, LoadBalancing & Rate Limiting, Tradeoffs evaluation, Docker, K8S, GitOps, Terraform, Helm, CI/CD/CM, Prometheus, Grafana, FastAPI, Fastify, Flask, Django, Elasticsearch, Nginx, Redis.

System Design:

K8s Auto-scaling, (HPA/VPA), DB Sharding/Replication, API Gateways, Microservices, Caching (On-Device, CDN, Redis), Blue-Green Deployments.

DevSecOps & Low-Level:

TDD, Docker, Terraform, Prometheus, Reverse Engineering, Malware Analysis, OWASP, Async IO, Profiling.

Languages & Stacks:

Python, C++, C#, JS/TS, Dart, FastAPI, React/Next.js, Flutter, Postgres, DuckDB, ELK Stack.