

Shabnam Khalaj

Biomedical Engineer/Self_Taught in Deep Learning &Agentic AI Systems

Before entering machine learning and AI, I was drawn to innovation and technology transfer. I initially aimed to build a device for cancer treatment using nanorobots, but came to see that soft methods, systems thinking, and participatory design offer greater scalability, impact, and cost-efficiency, along with deeper insight – much like innovation itself, which follows a visible model on the surface but relies on a far deeper, interconnected process beneath it.This shaped how I approach complex, data-rich problems: recognizing hidden layers and systemic effects that standard metrics often miss. I self-taught Python and SQL, then progressed through classical machine learning, deep learning, neural networks, and LLMOps – focusing on system design, implementation, storage, model management, and distributed, agentic, and autonomous architectures.I bring this systems-level perspective and technical depth to this role.

SKILLS

- Machine Learning / Deep Learning
- PyTorch
- MONAI (medical imaging deep learning framework)
- CatBoost
- scikit-learn
- Llava
- Conditional GAN (pix2pix architecture)
- Attention U-Net, PatchGAN discriminator
- 3D U-Net (segmentation)
- Model training/fine-tuning workflows on GPU (Google Colab)
- Agentic AI / LLM Orchestration
- CrewAI
- Multi-agent system design & orchestration
- Groq API (Llama 3.3 70B inference)
- Ollama (local LLM deployment)
- Three-tier intent routing (regex → keyword → LLM fallback)
- Graceful degradation architecture design
- Prompt engineering
- Data Science / Statistics
- Pandas, NumPy
- SciPy
- LangChain
- Pearson / Spearman correlation analysis
- Multivariate regression modeling
- Exploratory data analysis & visualization (Matplotlib)
- MLOps / Infrastructure
- Docker, Docker Compose
- Kubernetes (manifest design)
- Git / version control workflows
- Streamlit (dashboard/app deployment)

MY PROJEC https://shy-sea-1a59.shabnamkhalaj68.workers.dev/

EDUCATION

- B.SC. IN BIOMEDICAL ENGINEERING – BIOELECTRIC
  2011_2015
  TECHNICAL SUPERVISOR CERTIFICATION FOR MEDICAL EQUIPMENT
  MEDICAL EQUIPMENT MANUFACTURERS ASSOCIATION (IRAN)
  RUSSIAN LANGUAGE CERTIFICATE/TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV, UKRAINE2008_2009

EXPERIENCE

- 1_SALES COORDINATOR, ULTRASOUND EQUIPMENT DIVISION)SONOSITE/2015_2016.
- 2_SERVICE ENGINEER – FETAL MONITORING, DOPPLER ULTRASOUND, URODYNAMICS & COLPOSCOPY EQUIPMENT)HELIX,ELIPSE,EDAN/2016_2017.
- 3_HEAD OF MEDICAL EQUIPMENT DEPARTMENT – TECHNICAL SUPERVISOR FOR ICU, OR & EMERGENCY WARDS/2017_2019/ HOSPITAL RESALAT. (HTTP://RESALAT-HOSPITAL.IR)
- 4_HEAD OF MEDICAL EQUIPMENT DEPARTMENT – TECHNICAL SUPERVISOR FOR ICU, OR & EMERGENCY WARDS./2019_2020/ HOSPITAL MARDOM (HTTP://MARDOMHOSPITAL.COM)
- 5_ANALYST &SOLUTION ARCHITECTURE_CO-FOUNDER/AZNOBESAZ -STARTUP(2022 TO PRESENT)

LANGUAGE

Russian SQL PYTHON English

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