Mohammad Sheikh

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About Me

M.Sc. candidate in Data Science and Engineering at Politecnico di Torino, specializing in Generative AI and agentic systems. Built and deployed multiple production LLM applications — including a RAG-based AI career coach and an agentic network log assistant with operator action recommendations. Hands-on experience with prompt engineering, retrieval-augmented pipelines with semantic reranking, and predictive ML on large-scale datasets. Passionate about applying frontier AI to real enterprise challenges.

Education

2023 – Present **M.Sc. Data Science and Engineering** in Politecnico di Torino.
Thesis title: *Predictive Analysis of Climate Impact on the Italian Mediterranean Buffalo.*

2018 – 2022 **B.Sc. Computer Engineering** in University of Kurdistan.
Achievement: *Awarded Top Idea at the University of Kurdistan Startup Event from 44 submissions., Received funding from the University to establish a startup focused on AR technology., Research assistant (RA) and teaching assistant (TA), Student Union.*
GPA: 3.7/4.0

Work Experience

Dec 2022-Sep 2023 **Co-founder, Back-end Developer, VGostar**
• *Co-founded an AR technology startup, developed a cross-platform web-based AR execution platform, and presented products at ELECOMP international exhibition 2023.*

Jan 2022-Sep 2023 **Back-end Developer, Zharfa Accelerator**
• *Created and launched the Microlearning project using NodeJS, MongoDB, and Docker, accelerating employee readiness and earning initial funding with its first application in the Kurdistan Science and Technology Park.*
• *Guided the development team as Scrum Master on an online gold shop project, improving platform performance while gaining valuable teamwork and leadership skills.*

Projects

2026 **SKILLMAP — AI Career Coach**
• *Built and deployed a full-stack SaaS application implementing a Retrieval-Augmented Generation (RAG) pipeline: PDF ingestion, embedding generation, vector search with Supabase pgvector, and structured output via Google Gemini LLM.*
• *Engineered the data layer with Supabase PostgreSQL (row-level security) and Google OAuth; deployed to production on Vercel with CI/CD.*
• *Designed a multi-stage retrieval pipeline: retrieval → semantic reranking → structured LLM generation, with prompt engineering for output consistency and hallucination reduction.*

2026 **NETWORK LOG RAG ASSISTANT**
• *Built and deployed a RAG web app for network and service logs: line-window chunking, Supabase pgvector retrieval, grounded answers with source attribution via Google Gemini.*
• *Added an agentic layer that autonomously suggests operator actions per query and applies rule-based flagging of high-failure IPs — combining LLM reasoning with deterministic decision logic.*

Projects (continued)

2026 **Thesis Project: Machine Learning Applications in Dairy Buffalo Farming**
- *Designed and implemented predictive ML pipelines (XGBoost, Random Forest, Neural Networks) for hierarchical time-series forecasting of milk yield across a Total → Farm → Animal hierarchy on 2.5M production records.*
- *Engineered a multi-source data pipeline integrating hourly farm weather aggregates, computed heat-stress indices (THI, WHI), and analyzed climate impact on dairy production to inform farm-management decisions.*

2025 **URBAN TRAFFIC FLOW FORECASTING**
- *Developed a time-series forecasting pipeline to predict traffic volume for multiple toll plazas.*
- *Benchmarked classical statistical methods (Holt-Winters) against LightGBM algorithms.*

2024 - 2025 **CHRONOS FORECASTING FRAMEWORK**
- *Fine-tuned a T5-based model on a new dataset to improve model performance.*
- *Implemented a consistency calibration extension for Improving Uncertainty using Python.*

2024 **OIL SPILL DETECTION WITH HYPERSPECTRAL IMAGING**
- *Hybrid Random Forest and CNN model for Oil-Water Classification in Hyperspectral Images.*
- *Utilized the Hyperspectral Oil Spill Database (HOSD) for benchmarking and validation.*

2024 **VEHICLE PRICE PREDICTION USING MACHINE LEARNING**
- *Developed a model to predict vehicle prices using supervised learning.*
- *Performed data cleaning, feature engineering, and benchmarking.*
- *Achieved a top score of **96.736**, ranking **1st** among **88** participants.*

Skills

Generative AI & NLP	Agentic AI, LLM integration, RAG, prompt engineering, LangChain, vector search (pgvector), embeddings.
Programming Languages	Python, Java, Node.js, C#, SQL.
ML & DL Frameworks	PyTorch, TensorFlow, Hugging Face Transformers, OpenCV, scikit-learn.
Data & Databases	PostgreSQL, MongoDB, Supabase, Spark, Hadoop, Prisma, vector DBs.
Software & Tools	Git, Linux, Docker, Google Cloud, Vercel, Tableau, Jira, LaTeX.
Languages	English (IELTS 6.5), Italian (A2, improving), Kurdish (Native), Persian (Native).

Volunteer Experience

Research Assistant

2021 **Endolink**, The aim of this project is to identify and expand the list of names for a specific location across multiple languages.

2022 **KurdNet**, This project aimed to extend and enhance KurdNet, a Kurdish WordNet originally developed by Dr. Sina Ahmadi in 2014.

Teaching Assistant

2019 **University of Kurdistan**. Teaching Assistant for "Fundamentals of Computer Programming" (C language) with Dr. Amanj Khorramian at the University of Kurdistan.