TUGBA CAGLA EREN

Computer Engineer

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SUMMARY

Computer Engineering graduate with experience in .NET development and Python-based AI applications. Skilled in building LLM and RAG systems using FastAPI, LangChain, ChromaDB, and local LLMs. Interested in NLP, Generative AI, backend systems, and scalable machine learning solutions.

WORK EXPERIENCE

Full Stack Developer Intern

Basarsoft, Ankara, Turkey 07/2022 – 09/2022

- Developed a full-stack geospatial data management system using .NET Web API, PostgreSQL, OpenLayers, Node.js, Bootstrap, and JavaScript for real-time mapping.
- Optimized database queries to reduce geospatial data synchronization latency by 20%.
- Processed and managed over 500 geospatial data points while ensuring data integrity and system accessibility.

Software Engineer Intern

Atosis Arac Takip ve Iletisim Sistemleri, Ankara, Turkey 07/2020 – 08/2020

- Developed a .NET-based data integration system that crawled and migrated over 12,000 vehicle listings from external web platforms to a centralized MS SQL Server database, reducing manual data entry by 85%.
- Implemented custom parsing logic using .NET Regex and HTTP clients to extract vehicle attributes (price, year, mileage) from semi-structured web pages with 96% accuracy.

EDUCATION

Kirikkale University, Kirikkale

Computer Engineering 09/2018 – 02/2024

PROJECTS

Genomic-RAG for RARS1 Gene Analysis

Python, LangChain, ChromaDB, Ollama

- Engineered a local RAG system using LangChain and ChromaDB, enabling precise analysis of genomic research data with an integrated local LLM, enhancing research efficiency by 40%.
- Used metadata filtering and prompt engineering to make responses more accurate and limited to relevant documents.
- Improved retrieval accuracy using vector embeddings and documented the system architecture for future scalability.

AI Fraud Detection System

Python, TensorFlow, Scikit-learn, Pandas, FastAPI, Redis, Streamlit

- Built a real-time fraud detection system using TensorFlow, FastAPI, Redis, and WebSockets for live transaction monitoring.
- Trained and evaluated machine learning models on an imbalanced financial dataset with 0.17% fraud cases, achieving a 0.95 ROC-AUC score.
- Used Redis caching to reduce response time and improve live risk analysis performance.

TECHNICAL SKILLS

AI/ML: Deep Learning, NLP, LLMs (Llama 3, GPT-4o, Mistral), RAG, Agentic AI, PyTorch, TensorFlow, Scikit-learn

Backend and APIs: FastAPI, REST APIs, WebSockets, .NET

Databases: PostgreSQL, Redis, SQL, ChromaDB (Vector DB)

Programming: Python, C#, JavaScript

Tools and Practices: Git, CI/CD, Agile, Scrum, SDLC, Docker

AI Assistants: Cursor, GitHub Copilot, Claude

CERTIFICATES

- BTK Academy: Python and TensorFlow for Data Science
- Google Cloud: Introduction to AI & ML Boostcamp
- Data Science & Machine Learning: 100-Day Intensive Camp