AmirMasoud Azadfar

Machine Learning Engineer | Data Scientist

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Tech Stack and Skills

Programming Languages	**Python**	**C/C++**	**C#**	**SQL**	**Cypher**	**Bash (Unix Shell)**	**HTML/CSS**	**JavaScript**				
Frameworks & Libraries	**FastAPI**	**Flask**	**Django**	**MFC**	**.NET**	**Bootstrap**	**Selenium**	**BeautifulSoup**				
Machine Learning	**PyTorch**	**TensorFlow**	**Scikit-Learn**	**Pandas**	**NumPy**	**Matplotlib**	**Seaborn**	**SpaCy**	**NLTK**	**Hugging Face**	**LangChain**	
DevOps & Databases	**Git**	**Docker**	**Uvicorn ASGI**	**Hetzner**	**AWS EC2**	**Neo4j**	**MongoDB**	**MariaDB MySQL**	**Redis**			
Technical Specializations	**AI Automation**	**Recommendation Systems**	**Data Engineering**	**Knowledge Graphs**	**Deep Learning**	**Financial Modeling**						

Work Experience

Data Scientist and AI Engineer (Remote) at CanApply, Montreal, Canada | AI Platform *Mar 2023 - Jul 2024*

- **Web Scraping and Data Pipeline**: Developed a pipeline for scraping, collecting, and processing 223 Canadian academic institutions data with over 13,000 degree programs. Used Selenium for web scraping, RegEx for data cleaning, and MariaDB MySQL server for data storage. Fine-tuned a SpaCy NLP model for NER and relation extraction, constructed a Neo4j knowledge graph for the AI assistant's RAG knowledge retrieval.
- **Degree Program Recommendation System**: Designed a content-filtering recommendation system with nearly 100% accuracy in top-10 recommendations across 11 program categories to help students find suitable degree programs based on preferences and background. Maintained sub-800ms response time for recommendations and sub-500ms for filtration and pagination. Deployed Docker containers on Hetzner VPS and handled 100+ daily API requests using FastAPI and Uvicorn ASGI.
- **GraphRAG-Enabled Chatbot**: Engineered a GPT-powered AI assistant for personalized study abroad guidance using retrieval-augmented generation and a Neo4j knowledge graph of academic institutions. Handled 1000+ monthly API requests with 1.8-7.2 seconds RAG response time via FastAPI on Uvicorn ASGI, leveraging OpenAI's text embeddings for semantic similarity and WebSockets for real-time chat token streaming to the frontend.
- **Admission Chance Service**: Programmed a scoring system to approximate admission likelihood for Canadian universities, using 14 weighted features based on admission data, university requirements, and student profiles. Implemented Instagram story image generation function for a marketing campaign, highlighting the admission chance score.
- **Data Analysis for Business Intelligence**: Conducted analyses on the Canadian educational technology market, identifying key segments, growth areas, and potential partnerships. Implemented statistical models to estimate future trends in international student enrollment, aiding in strategic decision-making for marketing and recruitment.

Data Engineer and Software Developer at Sepanta IT Co., Mashhad, Iran *Feb 2018 - Nov 2022*

- **Financial Data Pipeline**: Developed robust data pipelines for TSE stocks and cryptocurrencies, collecting, processing, and warehousing technical, fundamental, and news data. Decreased real-time data retrieval latency to sub-5s for TSE through web scraping and sub-500ms for 1000+ cryptocurrency pairs using asynchronous API calls and WebSocket streams. Utilized MongoDB for data warehousing and retrieval
- **NLP Model for Persian News Sentiment Analysis**: Built a sentiment analysis model for TSE stocks Persian news and analyst reports. Used Hazm Persian NLP toolkit for tokenization and preprocessing and implemented TF-IDF for vectorization on a dataset of 15,000+ news articles and reports. Trained a Multinomial Naive Bayes binary classifier and achieved a macro average F1 score of 0.85.
- **Market Analysis Platform Backend API**: Designed and deployed a backend API for a Telegram-based market analysis platform for TSE stocks using FastAPI for API request handling and MongoDB for date warehousing and user profiling, offering proprietary market analysis reports, news sentiment analysis, trading signals, and custom alerts.
- **Algorithmic Trading Strategy Development**: Created an option bonds pricing model using the Black-Scholes and Binomial Option Pricing Models. Implemented various fundamental and technical analysis strategies such as Momentum Trading Strategies and Market Microstructure Analysis. Developed clustering models for industry performance analysis based on technical and fundamental data using K-Means and DBSCAN algorithms.
- **Cryptocurrency Triangular Arbitrage System**: Programmed a real-time system for identifying triangular arbitrage opportunities on the Binance exchange in Python. Handled and scanned over 1000 trading pairs concurrently with a latency of under 100ms and deployed on AWS EC2.

Projects

Automatic Job Hunting AI Assistant | GitHub *2024*

- A GPT-powered AI assistant to streamline the job hunting process by interacting with job listing sites to extract listings based on user-defined preferences for roles and locations. Designed a recommendation system that efficiently matches highly aligned job descriptions with user resumes through a scoring mechanism. Integrated resume, cover letter, and email customization to generate tailored job applications.

RL-Driven Bidirectional Automatic Trading System | GitHub *2023 - Ongoing*

- Developing an automatic trading system utilizing a Deep Q-Network (DQN) reinforcement learning agent for optimal trading decisions based on profitable trading zone segmentation in historical price data. Created a segmentation module to identify these zones using pivot points, enabling the DQN agent to make informed long, short, or hold decisions. Integrating real-time data fetching, order execution, and risk management modules to ensure continuous market updates, execute trades, and minimize losses while optimizing the portfolio.

GNN-Based Drug Interactions Recommendation System | GitHub *2024 - Ongoing*

- Developing a Graph Neural Network (GNN) model to predict drug-drug interactions by analyzing contradiction severity and pharmacological properties. The project employs a multi-layered graph architecture within a Neo4j knowledge graph to accurately represent drug compounds and their interactions, aiming to provide precise recommendations for potential drug interactions, contraindications, and adverse effects.

Education

HBSc. in Computer Science, *Lakehead University, Canada* *Sep 2023 - Present*

Certificates

Deep Learning Specialization, *DeepLearning.AI, Coursera* *2022*

Artificial Intelligence, *IPM Advanced School on Computing* *2021*

MikroTik Certified Network Associate, *Forat Technical and Vocational Institute* *2020*