Mahdi Farrokhimaleki

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Summary

Machine Learning and Software Engineer with an M.Sc. in Computer Science, experienced in building user-facing software systems across web, cloud, and applied AI domains. Hands-on experience designing, testing, debugging, and deploying end-to-end ML systems using Docker, FastAPI, and cloud platforms. Background spans ML-driven systems, web services, databases, with a strong emphasis on software quality, performance, and maintainability.

Skills

Programming Languages: Python, C++, C#, Java, JavaScript

Software Engineering: Object-Oriented Design, Debugging, Testing, Performance Optimization, Agile Development

Web & Services: FastAPI, REST APIs, Full-Stack Development

Databases: PostgreSQL, MongoDB

Cloud & DevOps: Docker, CI/CD (GitHub Actions), AWS, Azure

ML & Applied AI: PyTorch, TensorFlow, Scikit-learn, Computer Vision, Reinforcement Learning

Tools & Platforms: Linux, Git, Unity, Unreal Engine, ArcGIS

Education

M.Sc. in Computer Science, University of Calgary 2023 – 2025
Calgary, Canada

B.Sc. in Computer Engineering, University of Tabriz 2018 – 2022
Tabriz, Iran

Work Experience

Serious Games Research Group, Research Assistant Sep 2023 – Present
Calgary, Canada

- Researched the application of AI for procedural content generation in games, leading to publications at international conferences:
  - **From Unstable to Playable: Stabilizing Angry Birds Levels via Object Segmentation** (AIIDE 2025)
  - **Procedural Content Generation in Games: A Survey with Insights on Emerging LLM Integration** (AIIDE 2024)
  - **Exploring the Potential of Generative AI in Prototyping XR Applications** (AVI 2024 Workshop)
- Implemented PCG repair Pipeline using Python, C#, and Machine Learning models, enhancing procedural content generation efficiency by 45%.

City of Calgary, GIS R&D Intern May 2024 – Sep 2025
Calgary, Canada

- Developed a full-stack web dashboard for city planning data using **JavaScript**, **PostgreSQL**, and **MongoDB**, reducing system runtime by 35%.
- Built a **Unity**-based visualization tool for a Digital Twin Model of the city, increasing user engagement.

Game Developer, Unipoly Games Sep 2021 – Jan 2022
Istanbul, Turkey

- Developed mobile games for iOS and Android using **C#** and **Unity** in an Agile environment.

Projects

Stock Market Prediction
Course Project

- Developed a model to predict stock market trends using historical data, technical analysis, and time-series analysis.
- Scraped news from Investing.com using Selenium and BeautifulSoup, performed sentiment analysis, and correlated with price trends.

End-to-End ML Pipeline: Churn Prediction
Personal Project

- Built a complete ML pipeline with preprocessing, training (Scikit-learn), and evaluation.
- Deployed via **FastAPI + Docker**, tracked experiments with **MLflow**.
- Integrated CI/CD with GitHub Actions for automated testing and deployment.

LLM-Powered Text Summarizer
Personal Project

- Built a text summarization tool using Llama and LangChain APIs.
- Applied prompt engineering and chaining to improve factuality and coherence.
- Deployed as a **FastAPI** REST API containerized with **Docker**.

Humming Bird & Flappy Bird RL Agents
Personal Project

- Developed reinforcement learning agents using imitation learning and **Unity ML-Agents**.

Face Segmentation Mobile App
Personal Project

- Built a real-time face segmentation app using **Unity** and **TensorFlow**.

Leadership & Voluntary Roles

Intelligent Narrative Technologies (INT) Workshop Organizer
AIIDE Conference 2024 & 2025

- Co-organized two international workshop on AI-driven narrative systems in games.

VP Internal
CSGS, Dept. of Computer Science, University of Calgary Jun 2023 – Sep 2025

Member
Robotics Association of Tabriz University Sep 2022 – Jan 2023