Mahriban Yalkapova

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EDUCATION

University of Washington September 2023 - June 2026
B.S. in Computer Science and Computer Engineering – GPA 3.5 *Tacoma, WA*
Related Coursework: Object-Oriented Programming, Data Structures, Design and Analysis of Algorithms, Discrete Structures, Natural Language Processing

EXPERIENCE

Privacy-preserving AI Research Assistant October 2024 – March 2025
University of Washington Tacoma, WA

- Researching different prompt engineering to optimize AI behavior, exploring methods like zero-shot, chain of thought, and retrieval-augmented generation (RAG) using both public and private data.
- Collaborating on training conversational datasets and developing an AI nurse for tuberculosis patients, leveraging the **OpenAI API** and **Python**.

Software Engineering Fellow July 2024 – August 2024
Headstarter AI Fellowship Remote

- Participated in a selective 5-week program focused on AI/ML, building 5 projects and gaining hands-on experience with cutting-edge technologies.
- Developed projects using tools like **Next.js**, **OpenAI**, **Firebase**, and **Stripe**, including an AI-powered support assistant and a Flashcard SaaS platform.

Software Engineering Intern April 2024 – July 2024
ATVAGA LLC, Development team Remote

- Developed and executed unit tests for backend services using **Mocha** and **Chai** for **Node.js**, ensuring good functionality and code quality.
- Collaborated with the development team to identify and resolve bugs, contributing to a more stable and efficient product.

LEADERSHIP & INVOLVEMENT

Vice President, Society of Women Engineers (SWE), UW Tacoma September 2024 – Present

- Organize both industry-focused and community-building events, including tech panels, social activities, and the annual Evening with Industry to connect students with professionals and foster engagement.

Computer Science Club President, Highline College October 2022 – June 2023

- Led a club of 100+ members, organizing weekly technical sessions on Python, GitHub, and coding fundamentals, while also coordinating a successful hackathon with 15 coding challenges varying in difficulty.

PROJECTS

UHackathon Winner – Fetchly App (Experimental Track) May 2025

- Developed a **cross-platform mobile application** using **React Native with Expo**, enabling users to locate misplaced items via real-time camera input.
- Integrated **OpenCV.js** with the app to implement object detection and tracking functionalities.

Diaeta – AI-Powered Meal Planning Chatbot May 2025

- Built a conversational AI chatbot using a fine-tuned **GPT-2 Small model**, trained on custom nutritional data with **Hugging Face Transformers**, leveraging **Python** and **Pandas** for preprocessing and early stopping for optimized performance.

16-Bit Processor on FPGA May 2025

- Designed and implemented a 16-bit processor on an **FPGA** using **Verilog**, including instruction decoding, control logic, and ALU operations, with comprehensive testbenches for functional and timing verification.

NASA Space Apps Hackathon - Global Connection Award Winner October 2024

- Worked on the data processing part using **Pandas** and **NumPy** to clean and analyze datasets related to exoplanets.
- Implemented **React JS** to build an interactive user interface for displaying processed exoplanet data.

Microsoft Quantum Research Challenge at QRISE 2024 April 2024

- **Implemented the Deutsch-Jozsa algorithm in Q#** and obtained quantum resource estimates using Microsoft's Azure Quantum Development Kit.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, C/C++, HTML/CSS, Q#
Frameworks: React.js, Next.js, Node.js, Firebase, MongoDB,
Developer Tools: Git, VS Code, Visual Studio, IntelliJ, PyCharm, AWS, Arduino IDE
Libraries: NumPy, Pandas, OpenAI API, Mocha, Chai, Stripe, QDK