Falah Sheikh

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Education

University of Calgary *Calgary, AB, Canada*
Bachelor of Science in Computer Science *Expected Sept. 2026*

Relevant Coursework: *Data Structures & Algorithms, Computer Architecture, Operating Systems, Database Management Systems*

Skills

Languages: Python, R, Java, C, C++, SQL, ARM Assembly, LaTeX
Developer Tools: Git, GitHub, IntelliJ IDEA, VS Code, PyCharm, Eclipse, Emacs

Experience

Machine Learning Researcher *Calgary, AB, Canada*
University of Calgary *Jan. 2025 – Present*

- Developing an efficient and interpretable AI model for early diagnosis

Machine Learning Researcher *Calgary, AB, Canada*
University of Calgary *May 2024 – Jan. 2025*

- Trained a CNN model for lunar phase classification, achieving **82.74% accuracy** on over 20,000 astronomical images and **98% prediction accuracy** on test cases
- Engineered end-to-end data pipeline using Python, Selenium, and NASA's API to create a first-of-its-kind dataset spanning 13 years of lunar imagery
- Optimized model architecture through transfer learning with ResNet18 and strategic data augmentation, **improving accuracy from 78% to 82%** while reducing false positives

Software Team Engineer *Calgary, AB, Canada*
TechStart UCalgary *Oct. 2022 – Apr. 2023*

- Designed and implemented a reinforcement learning pipeline for the Kinova Gen3 robotic arm, achieving a **90% success rate** in object manipulation tasks, demonstrating the efficacy of policy learning in real-world robotic applications
- Developed and optimized object recognition and distance estimation algorithms using Python and OpenCV, enhancing robotic perception for precise manipulation and autonomous operation
- Engineered a custom OpenAI Gym environment to simulate and evaluate robotic arm performance, enabling rapid prototyping and reducing reliance on physical hardware for reinforcement learning experiments
- Developed a custom OpenAI Gym environment to simulate and test robotic arm operations, accelerating prototyping by reducing dependency on physical hardware
- Successfully transferred a learned policy from simulation to the physical Kinova Gen3 arm within **2.5 days**, achieving real-world pick-and-place operations through integrated reinforcement learning and computer vision

Publications

Automated Lunar Age Detection Using Convolutional Neural Networks: A Photographic Approach to Determining the Day of the Synodic Month | *2025 | Co-author | Under review*

- Developed a CNN-based approach using ResNet18 to determine the moon's age in a synodic month from lunar images, contrasting with traditional mathematical methods

Explainable light-weight AI for early Alzheimer's detection using MRI scans | *2025 | First-author | Ongoing research*

- Designing a Lightweight AI model for early Alzheimer's detection from MRI scans, focusing on efficiency and clinical applicability

Adaptive Energy-Aware Round Robin Scheduling: A Dynamic Time Quantum Approach Integrating Battery Levels and Process Burst Characteristics | *2025 | First-author | Ongoing research*

- Proposing an energy-efficient Round Robin scheduling approach that dynamically adjusts time quantum based on battery levels and process burst characteristics