Lara Alotaibi

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Portfolio Links

LINKEDIN: https://www.linkedin.com/in/lara-alotaibi-380121242/ **GITHUB**: https://github.com/Larito

WEBSITE: https://larasportfolio.cyclic.app

SCHOLAR: https://scholar.google.com/citations?user=YrH5p9gAAAAJ&hl=en&authuser=1

Education

- 3.6+/4, **Bachelor of Science**, Prince Mohammad Bin Fahd University (PMU) 2020-Present
  - **Double Major in Software Engineering and Computer Engineering**
  - ABET Accredited Program
  - Expected graduation date: May, 2024
  - Dean's Honor List Student
- 3.7+/4, **American High School Diploma**, Saad National School for Girls 2018-2020

Experience

January 2023 - Present: **Part-Time Research Assistant**, Prince Mohammad Bin Fahd University
June 2022 – August 2022: **Robotics Engineer Intern**, Robotics Lab at Prince Mohammad Bin Fahd University.

Skills/Tools

Web Development	Flask, HTML, JS, jQuery, CSS
Machine Learning	PyTorch, Sklearn, Pandas, NumPy,
Languages	Java, Python, JavaScript
3D Modeling	TinkerCad, Fusion360, AutoCad
Electronics and Microcontrollers	Arduino, Raspberry Pi
Productivity Tools	Word, Excel, PowerPoint, Overleaf

Projects

- **Classification of Potholes using Instance Segmentation Methods and Decision Trees**
  - Images depicting potholes were collected (17400 images). An Instance Segmentation model was trained (YoloV8).
  - Structural features such as pothole area, height and width were extracted from the segmented images.
  - A decision tree classifier is trained on the extracted features; highest accuracy yielded was 98.9%.
- **Haptic VR glove for Unity using Arduino**
  - A glove was constructed using IMUs and flex sensors which collected hand movement data
  - The data was fed to a Unity environment, where a virtual hand reflects the hand movement data collected from the glove
  - Events in the game result in haptic feedback on the glove
- **Inventory Management System using Deep Learning (No QR/Barcodes)**
  - Items are recognized by a raspberry pi through live video feed from a webcam

- Users can check-in and check-out items. Inventory database is updated accordingly
- Inventory, stock, check-outs and user information is displayed on a web application.
- New items can be registered by an admin using the 'Register Item' feature. Images of new items are captured which are used to retrain the deep learning model
- Designed a 3D printed wall mounting case for the system using Fusion360

- **Simulation-based learning environment for Operating System Algorithms**
  - Web application that displays interactive simulations for Operating Systems algorithms
  - Simulations include Job Scheduling, Memory Page Replacement, Round Robin, etc
- **Airline Management System**
  - Web application for airline management
  - Backend is managed by a Flask server
  - SQLite database with seven entities manages the airline system
- **Electronic Xylophone with LCD using Arduino**
  - A system that is designed to teach beginners how to use a xylophone
  - An array of momentary switches correspond to a note on the xylophone
  - LCD displays the note played by the user
- **Web Application for Gym Services Management**

Research

Interests

- IoT
- Robotics
- Cryptography
- Machine Learning
- Software Engineering
- Sustainable Development

Publications

- **Lara Alotaibi, et al, "Low Cost and Scalable Haptic VR Glove"**, International Conference on Computational Intelligence and Communication Networks, **CICN, Dec 2022, Khobar KSA**

Achievements & Awards

- **Cybersecurity Essentials,** Cisco (2023)
- **SDAIA-KAUST Academy Introduction to AI Bootcamp,** KAUST (2022)
- **Tutoring CS1 Students**, College of Computer Engineering & Sciences PMU (2022)
- **Cloud Infrastructure Foundations Associate**, Oracle (2021)
- **Dean's List Honors**, Prince Mohammad Bin Fahd University (2020)
- **MISK Distinctive** College Prep Program, (2018)
- **Harvard Summer School Scholarship,** completed 2 college-level courses (2018)

Extra-Curricular Activities

- President of **Robotics Society, PMU**
- Vice President of **Undergraduate Research Society, PMU**
- Treasurer of **IEEE Women in Engineering, PMU**
- Managed an AMA booth with colleagues for the **Robotics Society, PMU**
- Organized Arduino Workshop held by **IEEE Women in Engineering, PMU**
- Mentor in the **MISK mentoring program**