

# MAHDI MOEINI

NL, Canada (Willing to Relocate)

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## WORK EXPERIENCE

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**Research Assistant, *Memorial University of Newfoundland***

**Sep 2022 – Dec 2024**

- Explored the possibility of controlling a wheelchair through singing imagery by designing a Brain-Computer Interface (BCI) experiment to collect EEG time-series datasets from 15 subjects
- Enhanced the efficiency of data analysis by developing a comprehensive EEG data processing pipeline using MATLAB and Python for data cleaning and ETL processes
- Increased the classification accuracy by 10% through effective feature optimization by implementing the Filter Bank CSP for feature extraction and the mRMR algorithm for feature selection
- Achieved 85% accuracy in classifying EEG signals using deep learning and machine learning models (CNNs, SVM, XGBoost), and provided insights into model performance through statistical analysis
- Boosted the data analysis speed by 50% by building an automated pipeline on Compute Canada Cloud

[GitHub Code](#)

**Tech Stack:** NumPy, Pandas, Scikit-learn, PyTorch, TensorFlow, Matplotlib, Seaborn, SciPy

**Software Developer, *Toranj Innovation Technologies***

**May 2021 – Jun 2022**

Toranj Innovation Technologies is a health tech company specializing in creating software solutions for the healthcare industry, serving over 5000 customers to manage financial tasks such as claims processing.

- Expanded the system scalability by developing fault-tolerant MVC microservices using Java and Spring Boot
- Accelerated the speed of the manual testing process by 3 times via implementing User Acceptance Tests RESTful APIs, and integrating them with the [FitNesse](#) framework
- Utilized JPA and SQL in PostgreSQL databases for secure data storage and retrieval

**Tech Stack:** Java, SQL, PostgreSQL, Spring Boot, JPA, Git, Microservice Architecture, CI/CD Pipelines

**Software Developer, *Hoom Co.***

**Apr 2020 – Mar 2021**

Hoom is a smart home technology company focused on developing IoT solutions for home automation.

- Improved the smart home functionality and user experience by collaborating with the firmware team to develop an IoT hub similar to Amazon Alexa, using C and C++
- Increased the command transmission speed for communication between the IoT hub and smart home devices by 25% by replacing the HTTP protocol with MQTT

**Tech Stack:** C, C++, Git, Object Oriented Programming (OOP), SOLID Programming, Agile

## PROJECTS

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- **[Web Scraping Project](#):** Reduced manual data entry time by 75% by developing a Python-based web scraping script with Selenium to automate TAs' tasks, such as grade entry, on the web platform of Memorial University
- **[Mini-Marketplace](#):** Increased system scalability by implementing a microservice architecture for a mini online shop that could serve 1000 customers using Spring Boot, JPA, JWT, and MySQL
- **[Fundamental Image Filters](#):** Guided beginners in understanding fundamental image filters and resizers by providing detailed documentation on how they work and how to build them from scratch using Python

## EDUCATION

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**Master of Engineering- Computer Engineering**, *Memorial University of Newfoundland*      **Sep 2022 – Dec 2024**

- **Thesis:** Investigation of Different Motor Imagery Tasks in Continuous Control EEG-Based BCI

**Bachelor of Science - Electrical Engineering**, *Iran University of Science and Technology*      **Sep 2017 – May 2022**

- **Thesis:** Design and Implementation of an IoT Hub Working with MQTT Protocol

## SKILLS

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- **Programming Languages:** Python, Java, C++, MATLAB, SQL
- **Software Development:** Back-end Development, RESTful APIs, Microservice Architecture, MVC
- **AI/ML:** Machine Learning
- **Cloud Platforms:** AWS (EC2, S3, Lambda)

## CERTIFICATIONS

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- AWS Certified Cloud Practitioner
- Coursera Machine Learning Specialization