

# Amirmohammad Shahbandegan

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## Work Experience

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### Artificial Intelligence Education Intern

Vector Institute

Sep 2022 – Present

Toronto, Canada

- > Designed the curriculum and developed the assignments for a forecasting workshop with models such as ARIMA, Prophet, LSTM, and DeepAR. ([Link to my talk](#))
- > Instructed a beginner data science workshop using Python, Pandas and Scikit-learn.
- > Designed the capstone project for an introduction to machine learning course in coordination with TAs.

### Co-Founder and CTO

Asan Sports (Iran's leading startup in the sports industry with 40K+ users)

Mar 2018 – Aug 2021

Tehran, Iran

- > Developed the backend for an online sports venue management and booking SaaS using PHP and MySQL.
- > Managed a team of three frontend and Android developers to implement B2B and B2C solutions.

### Software Engineer

Vira Negar

Aug 2018 – Sep 2019

Tehran, Iran

- > Developed a real-time augmented reality face makeup Android application using C++ and Android NDK.

## Projects

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### Evolutionary Robotics ([GitHub](#))

2020

Developed a quadruped robot that learns to control its joints to move towards an objective using genetic algorithm.

### Navigation system using deep Q-learning and CNN ([GitHub](#))

2020

Implemented a deep reinforcement learning agent that learns to navigate and collect rewards in a large world using lidar and camera inputs.

### CUDA C++ image classification model using extreme learning machine ([GitHub](#))

2021

Created an image classification model using DenseNet and ELM. This project was implemented using CUDA C++ and cuBLAS and trained on Caltech101 and Caltech256 datasets.

### Cyberbullying detection in Twitter ([GitHub](#))

2022

Designed and implemented a novel machine learning pipeline to detect cyberbullying in Tweeter using SentenceBERT and XGBoost.

### Electric motor temperature forecasting ([GitHub](#), [Paper](#))

2022

Created a data-driven electric motor temperature forecasting tool using CNN and LSTM networks.

## Publications

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- Garg M, Shahbandegan A, Chadha A, Mago V. An Annotated Dataset for Explainable Interpersonal Risk Factors of Mental Disturbance in Social Media Posts. Association for Computational Linguistics (**ACL**). 2023. (under review)
- [Shahbandegan A](#), Mago V, Alaref A, van der Pol CB, Savage DW. Developing a machine learning model to predict patient need for computed tomography imaging in the emergency department. PLOS ONE. 2022.
- Hosseini S, [Shahbandegan A](#), Akilan T. Deep Neural Network Modeling for Accurate Electric Motor Temperature Prediction. IEEE Canadian Conference on Electrical and Computer Engineering (CCECE). 2022.
- [Shahbandegan A](#), Naderi M. A Binary Butterfly Optimization Algorithm for the Multidimensional Knapsack Problem. 6th Iranian Conference on Signal Processing and Intelligent Systems. 2020.

## Education

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### Master of Science, Computer Science (AI Specialization)

Lakehead University

Sep 2021 – Aug 2023

Thunder Bay, Canada

- > Cumulative GPA: **4/4 (96/100)**
- > Conducted research in NLP and Health AI and published articles in top-tier journals and conferences as a research assistant at [DaTALab](#).

### Bachelor of Science, Electrical Engineering

Shahid Beheshti University

Sep 2016 – Sep 2020

Tehran, Iran

- > Last two years of studying GPA: **3.6/4 (17.28/20)**
- > Ranked in the **top 10%** among B.Sc. students of electrical engineering, 2020
- > Bachelor's project: A binary butterfly optimizer for the multidimensional knapsack problem ([paper](#))

## Teaching Experience

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### Graduate Teaching Assistant

Lakehead University

Sep 2021 – Present

Thunder Bay, Canada

- > Instructed lab sessions and marked assignments and quizzes in courses such as: Data Structures, Object Oriented Design, Computer Programming, and Computer Architecture.

### C++ Programming Teacher

Allame Helli Highschool

Jun 2018 – Sep 2018

Tehran, Iran

- > Taught C++ programming in group classes of first-year high school students.

### Teaching Assistant

Shahid Beheshti University

Jan 2017 – Jan 2020

Tehran, Iran

- > Held tutorial sessions for Computer Programming, Computer Architecture, and Logic Circuit Design courses.

## Honors and Awards

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### Faculty of Graduate Studies Special Computer Science Award

Sep 2021 and Sep 2022

Two times recipient of the Faculty of Graduate Studies Special Computer Science Scholarship awarded to outstanding master's level students undertaking computer science research valued at \$26,000.

### First place in Digikala Academy AI challenge

Nov 2019

Won first place in the competition among 76 contestants by implementing a ULMFit model trained on the Persian Wikipedia corpus for text classification.

### Deep reinforcement learning specialization certificate (Coursera)

Mar 2020

Awarded after successful completion of 4 courses in deep reinforcement learning and a capstone project of a complete reinforcement learning system, including environment modeling, agent training, and parameter study.

### Deep learning specialization certificate (Coursera)

Aug 2019

Awarded after successful completion of 5 courses and multiple projects in deep learning. Topics covered in this specialization include neural networks, computer vision, and natural language processing.

## Skills

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**Programming Languages** Fluent: Python, C++, SQL, PHP - Intermediate: Javascript, Java - Beginner: Verilog

**Tools and Libraries** TensorFlow, PyTorch, OpenCV, Docker, Git, ROS,  $\LaTeX$

**Languages** English (IELTS Academic Band 8), Persian (Native)