Seyyed Soroush Mortazavi Moghaddam

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EDUCATION

University of Waterloo — Waterloo, Canada
Master of Applied Science in electrical and computer engineering — *Sep. 2022 – present*
- Supervisor: Dr. Yash Vardhan Pant

Amirkabir University of Technology — Tehran, Iran
Bachelor of Science in computer engineering — *Sep. 2017 – Mar. 2022*
- Total GPA: **18.08/20**
- Thesis: Learning the game of Gobblet through reinforcement learning

Shahid Beheshti High School of Exceptional Talents — Qayen, Iran
Diploma of mathematics and physics — *Sep. 2013 – Jun. 2017*

RESEARCH AND WORK EXPERIENCE

Learning The Game of Gobblet through RL (B.Sc Thesis)
Under the supervision of Prof. Safabakhsh — *Oct. 2020 – Sep. 2021*
- Implemented self-play with Monte-Carlo learning and used a combination of DNN value function, Monte-Carlo tree search and minimax search to act as close as possible to the optimum policy, i.e, the Nash equilibrium
- Implemented a user interface to play the game against the self-learned agent

Research Assistant (deep learning lab) — Amirkabir University of Technology
Under the supervision of Prof. Safabakhsh — *Mar. 2020 – Jul. 2020*
- Implemented RNN models for stock market prediction
- Gathered and preprocessed Iran's stock data, then experimented many different models on them
- Learned about time series data, various layer types and how to work with TensorFlow, TensorBoard and Keras; also to efficiently design and train DNNs

Research and Development Intern — Tehran, Iran
At Roshan - AI knowledge enterprise — *Jul. 2020 – Oct. 2020*
- Gathered a Persian text corpus by developing a web crawler application
- Used the mentioned corpus to create Persian word embeddings
- Cooperated in the data gathering and the design of a stock market predictor model

TEACHING EXPERIENCE

Computational Intelligence Teaching Assistant
Supervisor: Prof. Ebadzadeh — *(3 semesters) Sep. 2020 – Jan. 2022*

Artificial Intelligence Teaching Assistant
Supervisor: Dr. Javanmardi — *Sep. 2021 – Jan. 2022*

Data Mining Teaching Assistant
Supervisor: Dr. Nazerfard — *Feb. 2021 – Jun. 2021*

Principles of Cloud Computing Teaching Assistant
Supervisor: Dr. Javadi — *Feb. 2021 – Jun. 2021*

Operating Systems Teaching Assistant
Supervisor: Dr. Zarandi — *Feb. 2020 – Jun. 2020*

Computer Architecture Teaching Assistant
Supervisor: Dr. Zarandi — *Sep. 2019 – Jan. 2020*

As a teaching assistant in the courses mentioned above:
- Designed and graded assignments, test-quizzes and course projects
- Coordinated the teaching assistance team (computational intelligence)
- Created video tutorials for assignment solutions, course materials and extra resources
- Helped students with their questions and problems regarding the assignments and the projects

Honors And Awards

Ranked 19th/30K: In the national university entrance exam among 30 thousand students (2016)

Announced as an Outstanding Student: in Amirkabir University of Technology

Top Work and Selected Course Projects

AI Related Course Projects *Sep. 2019 – Jun. 2021*
- Solved the Rubik's Cube by Implementing A*, bi-directional and IDS algorithms | *python*
- Implemented MLP neural networks, evolutionary algorithms and fuzzy C-means clustering | *python*
- Implemented an image compressor (K-means) and a voice gender recognizer | *MATLAB*
- Implemented a text classification program using n-grams | *python*
- Implemented an optimized text search engine | *python and C*
- Solved CSP problems using AC-3 algorithm | *python*
- Implemented pairwise and multiple sequence alignment algorithms (Clustal, HMMs, PSSM, etc.) | *python*

Robot PI Controller | *ROS, python* *Jun. 2021*
- Controlled a TurtleBot to go through spiral, oval, and square paths
- Developed a maze explorer robot

Portal CAPTCHA Solver | *Python* *Oct. 2019*
- Implemented an application to solve university's portal CAPTCHA and sign into one's account
- Gathered the training data by a script and trained a CNN model on them

Java Projects *Feb. 2017 – Jun. 2017*
- Developed a download manager application for Windows
- Developed a multiplayer tank game (similar to NormalTanks)

E-Shop | *Python, JavaScript, HTML, CSS* *Feb. 2021 – Jun. 2021*
- Full stack development of an E-Shop website

Skills

Programming Languages: Python, MATLAB, Java, C, JavaScript, SQL-Server

Frameworks and Libraries: TensorFlow, ROS, PyTorch, Keras, TensorBoard, Numpy, Scikit-learn, Pandas

Developer Tools: Git, Google Colab, Jupyter lab, VS Code, PyCharm, IntelliJ, Code::Blocks

Languages: English (Advanced) [TOEFL-ibt: **109**, R:30, L:27, S:27, W:25], Persian (Native)

Extracurricular Activities

Online Courses
- Machine learning, by Andrew Ng: Coursera (100/100)
- Reinforcement learning, by David Silver: Audited
- Deep reinforcement learning, UC Berkeley (CS285): (Ongoing)

Curriculum Advisor (Remote) Tehran, Iran
Iliyasteel - educational group *Sep. 2020 - Jun. 2021*
- Helped a group of six high school students with their study plans and study methods during the year

Volunteer Member Tehran and Qayen, Iran
Sepehr NGO - cultural enrichment and empowerment foundation *Jan. 2017 - present*
Abolmafakher NGO - student-operated foundation, for educational and cultural development *Jul. 2017 - Sep. 2018*
- Helped design and create graphical materials and advertisements (posters, banners, Brochures, id cards, etc.)
- Helped with the holding of several educational and cultural events, contests and meetings in Tehran and Qayen

References

Reza Safabakhsh, *Professor:* safa@aut.ac.ir

Mohammad Mehdi Ebadzadeh, *Professor:* ebadzadeh@aut.ac.ir

Hamidreza Zarandi, *Assistant professor:* h_zarandi@aut.ac.ir

Ehsan Nazerfard, *Assistant Professor:* nazerfard@aut.ac.ir

Seyyed Ahmad Javadi, *Assistant Professor:* sajavadi@aut.ac.ir