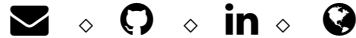


ZAHRA PARHAM

Curriculum vitae last updated on January 10, 2022

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RESEARCH INTERESTS

- Explainable Reinforcement Learning
- Deep Learning
- Deep Reinforcement Learning

EDUCATION

Master Computer Engineering- Thesis-based 2021-2023
Polytechnique Montreal, Montreal, Canada
Supervisor: Prof. Quentin Cappart

Mitacs Scholarship(internship) - August 2021- present

Bachelor of Science in Computer Science 2015-2020
Amirkabir University of Technology(Tehran Polytechnic), Tehran, Iran
CGPA: 3.55/4
Last Two Years GPA(71 Credits): 3.73/4 Selected Courses ¹

RESEARCH EXPERIENCE

Design explainable AI-based framework for bots in multiplayer video games. 2021- present
Master's thesis, Supervisor: Dr. Quentin Cappart

- designed a solution based on data mining algorithms (i.e., association rules) for understanding the behavior of an intelligent agent.
- plug this algorithm inside an agent trained with reinforcement learning.

Deep Double Q-Learning for Continuous Control 2021- Present

- The main objective is to improve the result of "Deep Radial-Basis Value Functions for Continuous Control" article by using the impact of the Double Q-learning algorithm to prevent the Radial-Basis Value function algorithm from overestimating the reward.

WORK EXPERIENCE

Research Intern 2021 - present
Stockholm Syndrome

- Develop an innovative pipeline to model the behavior of human players based on previous gaming histories.
- Train bots that are able to mimic the modeled behaviors with high accuracy. Develop an interpretable model to access the rationale behind the bot's decisions.

Data Developer 2019 - 2020
Snapp Company

¹ Introduction to Computer and Programming : A; Statistics and Probability 1 : A ; Foundation of Matrix and Linear Algebra : A; Foundation of Combinatorics : A⁺ Linear Optimization : A Foundation of Numerical Analysis : A⁺ Database : A⁺ Principles of Computer Systems : A⁺ Computer Networks : A⁺ Compiler : A⁺ Principles of Operating Systems : A⁺ Numerical Linear Algebra : A⁺ Numerical Methods for Linear Algebra(Master's Course) : A⁻

- Wrote SQL queries to aggregate data
- Performed business analysis and wrote SQL scripts to analyze data and parse to Excel.
- Generated ad-hoc to provide visible data for data analysts and business using SSRS and Power Bi
- Developed ETL pipeline in python
- Developed Clickhouse Data Pipeline for Real Time Analysis and Reporting
- Developed Powerbi/Superset/Grafana Tech Stack for Visualization and advanced reporting and dashboard analysis
- Worked on Clickhouse, MySQL, Sql Server, BigQuery

Web Developer

December 2017-May 2018

bimebazar

- The job partially consisted of modeling insurance products
- Self taught Django and React.JS to build websites

PROJECTS

Kaggle Competition

Fall 2021

Machine Learning Project

- you can read our report related to this competition [here](#)

Regularization and Feature Selection in Least Squares Temporal Difference Learning

Fall 2021

Reinforcement Learning Project

- This is Python implementations of Least Angle Regression Temporal Difference (LARS-TD) algorithm and Least-Squares Temporal Difference (LSTD).

Multi-Agent Deep Reinforcement Learning

2019 - 2020

BSc Project

- Addressed pursuit-evasion problem with multi-agent deep reinforcement learning

Deep Neural Network for Image Classification

June 2020

deeplearning.ai Course

- Built a deep network, and applied it to cat vs non-cat classification
- The first course of Deep Learning Specialization by [deeplearning.ai](#)

Rescue virtual robot

Fall 2018

Computer Science Robotics Lab

- The main objective was to prevent the robot from getting stuck next to the walls while crossing.
- We benefited Gazebo for 3D simulation. As for developing the robot and its model, we utilized ROS and P3AT respectively.

Linear Algebra Project

Jan 2019 - July 2019

Numerical Methods for Linear Algebra(Master Course)

- Solved a tridiagonal Toeplitz and block-Toeplitz matrix with Jacobi and Gauss-Seidel and SOR methods.
- Investigated the convergence of several iterative methods

Created a website for a company

Sep 2018

Freelance Project

- My first ReactJS website for my freelance client.

Birthapp: An application that helps you buy birthday gifts

Jan 2018 - July 2018

Software Engineering Course Project

- This project is a platform on which people can follow each other while proposing a list of their most desired birthday gifts.
- The application was Developed using Scrum Methodology for Agile Software Development.
- The coursework required 5 presentations throughout the semester which included a 5-minute startup pitch presentation and the presentation of the first MVP(Minimum Viable Product).

HONORS AND AWARDS

4th Place - RoboCup Asia-Pacific 2018

winter 2018

Math and Computer Science Faculty

- Field: Rescue Simulation Virtual Robot
- Team: SOS CS Team

Ranked Within the Top 1% (among 300,000 students) in Iranian University Entrance Exam

Jul 2015

Tehran, Iran

- The competition is intense since it is the only means to gain admission to universities.

SKILLS

Programming Languages

C/C++, Python, Java, Matlab

Web Technologies

HTML, CSS, Javascript, MySQL, SQL Server, Django, Reactjs

Libraries

numPy, Pandas, TensorFlow, PyTorch Scikit-Learn, Keras, Matplotlib

Robotics

Robot Operating System(ROS), Gazebo

Miscellaneous

L^AT_EX, Jupyter, Git, GAMS

❶ References, further information, and proofs are available upon request