ZAHRA 'MINA' PARHAM

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WORK EXPERIENCE

Machine Learning Researcher Intern

StockholmSyndrome.ai   July 2021 - July 2022

Montreal, Qc

- Developed an algorithm to explain the behavior of a deep reinforcement learning algorithm thanks to standard data mining tools, i.e. association rules.
- Designed three agents with specific playing styles trained with a deep Q-learning algorithm for the game Street FighterTurbo II. A designed algorithm provided insight into each agent's behavior and demonstrated their specific playing style.

Data Developer

Snapp Company   Jul 2019 - Dec 2019

Tehran, Iran

- Wrote SQL queries to aggregate data.
- Performed business analysis and wrote SQL scripts to analyze data and parse it to Excel.
- Addressed ad-hoc to provide visible data for data analysts and businesses 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, and BigQuery.

Web Developer

BimeBazar   Dec 2017 - May 2018

Tehran, Iran

- Modeling the different insurance products.
- Developed the website of the company using the Django framework.

SELECTED PROJECTS

Hockey Goal Prediction

Data Science Course Final Project

- We analyzed hockey data, specifically the NHL stats API, in order to retrieve data for a specific period of time using REST API concepts.
- We have formatted the acquired data in a way that makes it easier to analyze the games.
- We created interactive and representative plots using matplotlib, Seaborn, and ploty to analyze and gain insights into the games and communicate the results more effectively.
- Designed and created downstream features, encoded features not directly usable in ML models, and created a good xG classifier.

EDUCATION

University de Montréal - Ecole Polytechnique de Montréal   2021 – 2023

M.Sc. in Computer Engineering   Montreal, QC

- **Visiting Student**, Mila, 2022

Amirkabir University of Technology   2015 – 2019

B.Sc. in Computer Science   Tehran, IR

PUBLICATIONS

👥 Conference Proceedings

- **Z. Parham**, V. T. de Lille, and Q. Cappart, "Explaining the behavior of reinforcement learning agents using association rules," under review at IDA, 2023.

HONORS & AWARDS

- **Mitacs Scholarship**
  Research Masters in Canada   2021

- **4th Place, RoboCup Asia-Pacific**
  Rescue Simulation Virtual Robot, SOS CS Team   2018

SKILLS

ML Toolbox
PyTorch, Tensorflow, Sklearn, Seaborn, Stable-Baselines, OpenCV, Pandas, Scikit-learn, Numpy

Visualization
Plotly, Power BI, Tableau, Streamlit

Development Tools
Jupyter, Git, Pytest, Jira, Comet ML, WandB, Docker

Programming Languages and Scripting
Python, C++, C, Java, MySQL, SQL Server, HTML5, CSS3, JavaScript, Bootstrap

- We tracked our experiments using Comet.ml.
- A model service flask app has been built using all the models that were trained and saved into Comet ML and deployed into a Docker container.
- In addition, we built a "Live game client" that retrieved shot events from live (or historical) NHL games, preprocessed them into features compatible with our model, and then queried our model service for expected goal predictions.
- Streamlit has been used to package the live game client into an interactive dashboard.
- You can view the deployed final project here. You can select the model and version, as well as the game ID to get the prediction.

Kaggle Competition

Machine Learning Course Final Project

- Implemented an efficient algorithm to classify a given set of animal images into 11 classes.
- The report for this project can be found here.

Regularization and Feature Selection in Least Squares Temporal Difference Learning

Reinforcement Learning Course Final Project

- Python-based implementation of Least Angle Regression Temporal Difference (LARS-TD) algorithm and Least-Squares Temporal Difference (LSTD).

Multi-Agent Deep Reinforcement Learning

Bachelor's Thesis

- Addressed pursuit-evasion problem with a multi-agent deep reinforcement learning algorithm.

VOLUNTEER EXPERIENCE

Programmer

PrideHack - QueerTech's annual hackathon   Jul 2022

- Helped some amazing non-profits and make a difference in vulnerable communities.
- Developed a website for Project10 company.
- Designed a database according to their requirements.