Aya Hourani

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EDUCATION:

RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

Rutgers School of Engineering, New Brunswick, NJ — Sep 2019 – May 2023
Bachelor of Science: Electrical and Computer Engineering

Rutgers Graduate School of Studies, New Brunswick, NJ — Sep 2022 – Dec 2023
Master of Science: Software Engineering

PROFESSIONAL EXPERIENCE:

Westlock Controls - CRANE Chempharma & Energy Saddlebrook, NJ — May 2023 – Aug 2023

Software Cloud Developer Intern

- Utilized Jira to create the software development framework for agile project management.
- Collaborated with the engineering team to determine necessary steps involved in starting and completing a new project.
- Managed a process for monitoring the progress of individual requirements and overall project milestones.
- Constructed software engineering diagram structures to illustrate the processes. Workflows were used to describe the necessary steps for each process, and a swim lane diagram showing the integration of both processes.
- Ensured seamless integration of processes to create an overall project structure.

ACADEMIC PROJECTS:

Stock Portfolio Web Application — Jan 2023 – May 2023

- Developed a Django-based web application using the Yahoo Finance API to enable users to analyze stock statistics.
- Application offers data visualization tools, recommending insights based on user preferences.
- Users can access stock data from diverse industries (pharmaceutical, motor, tech) with key fields such as 52-week low, high, change, market cap, and sector.
- Implemented stock prediction models like SMA, EMA, and LSTM, enhancing analytical capabilities.

Data Exploration Using Machine Learning — Sep 2022 – Dec 2023

- Conducted data analysis using an Atari Human-Eye tracking dataset. Feature engineering was applied to the dataset to extract the relevant fields for analysis and clean the data. Fields included the games, performances, and difficulty levels.
- Applied dimensionality and clustering techniques to visualize patterns in the data.
- Used CDF and extracted “good” and “bad” sessions for each game. Applied Gaussian Mixture Modeling (GMM) to successfully form cluster distributions for each game. Sample sizes for each game were determined with random sampling.
- Measured the correlation between a player’s gaze during a particular game and their performance by studying the silhouette scores.

Adversarial Machine Learning With Image Classification — Sep 2023 – Dec 2023

- Built a successful CNN image classifier model that predicts number and shape images using the Tensorflow library.
- Demonstrated an adversarial example of a white-box attack using Projected Gradient Descent. Multiple examples were generated to measure the level of perturbation required to incorrectly classify an image.
- Concluded that retraining with adversarial examples will lead to a more robust model that is less susceptible to attacks.

TECHNICAL SKILLS:

- Programming Languages: Python, Javascript, HTML, C, MATLAB, SQL
- Data Analysis Tools: Pandas, Scikit-Learn, TensorFlow, Keras, Tableau
- Design and Engineering Tools: LTSpice, Cadence Virtuoso, Adobe Photoshop
- Project Management Tools: Jira Software
- Microsoft Office: Word, Excel, Powerpoint