Rafael Barash

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Education

Bachelor of Science, Computer Science, Expected May 2020
College of Science and Engineering, University of Minnesota-Twin Cities, MN
GPA: 3.490
Minor: Math
Coursework: Discrete Structures; Applied Linear Algebra; Multivariable Calculus; Machine Architecture; Advanced Programming Principles; Algorithms and Data Structures II

Skills

Languages: Python, Java, JavaScript (Advanced), C, HTML, CSS (Proficient); OCaml (Basic)
Frameworks/Libraries: React (Advanced), TensorFlow, Bootstrap 4, Django (Proficient), Pandas (Basic)

Work Experience

Web Development, University of Minnesota Humphrey School of Public Affairs (October 2017-Present)

- Built website hosting descriptions of open access urban datasets collected by a network of international researchers for collaboration with the Humphrey School.
- Developed website fully in React.js; database, hosting, and admin management provided through Firebase.
- Integrated data querying abilities and full text search, and submit forms directly connected to database.
- https://globalcitydata.com.

Software Development Internship, Optum – UnitedHealth Group (June-August 2018)

- Built internal call-center web app that guides employees through questions to ask and dynamically shows new questions based on customer responses (similar to a decision tree).
- UI is built with ReactJS on top of a Spring Boot backend.
- Followed modern Agile and ATDD practices using Rally Dev, Jenkins, and Cucumber.

Projects

Machine Learning March Madness – Personal Project (March 2018)

- Achieved 0.55 log loss and 72.4% prediction accuracy with basic linear classification using seed difference.
- Improved to 0.45 log loss and 73.5% accuracy with neural network classification using regular season data.
- Trained models using Kaggle datasets of regular season and tournament data from 2003-2017.

Diabetes Risk Dashboard Web App – Optum Hackathon Project (July 2018)

- Built platform to hold diabetes related health data for each user, submitted by a doctor post-checkup and ran through a neural network model to calculate patient risk in real time.
- Integrated graphing page to visualize user's diabetes risk changes over time.
- UI is built with React.js, charts with Chart.js, TensorFlow neural net hosted on a local Flask REST API.
- Authentication and user data statically hardcoded into website for demonstration purposes, would incorporate user authentication and database if further pursued.

Planet Wars Strategy – School Project (December 2017)

- Ranked 16th in class of over 125 engineers with Java strategy to take over the solar system.
- Implemented a HashMap, List, and Priority Queue to organize data.
- Worked with legacy code to visualize bot in simulation.

Forest Fire Simulation – School Project (April 2017)

- Created Python script with Tree objects, a Forest data structure, and main simulation.
- Inputs wetness of forest, pine vs oak trees, and forest density affect how simulation will run.
- Visualized simulation in Turtle Graphics.

Leadership

Gopher Invite Coordinator, Club Tennis (July – October 2017)

- Contacted teams from around the country to organize 24 team, two-day tournament.
- Booked hotel block for tournament, organized catering.
- Designed promotional flyer, t-shirt and Snapchat filter.

Activities and Honors

Volunteer, CoderDojo Twin Cities (2017 – present)
Peer Mentor, CSE Peer Mentor Program (2017 – present)
Member, Club Tennis, University of Minnesota (2016 – present)
Bentson Scholar, University of Minnesota (2016 - present)