Dylan Lewis

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Cambridge, MA

Education

Massachusetts Institute of Technology — Cambridge, MA
Masters of Engineering in Electrical Engineering and Computer Science; Concentration: Artificial Intelligence — *Expected February 2022*

Massachusetts Institute of Technology — Cambridge, MA
Bachelor of Science in Electrical Engineering and Computer Science; GPA: 4.3/5.0 — *May 2020*

Relevant Coursework: Software Studio, Data Structures & Algorithms, Software Construction, Machine Learning, Machine Learning & Data Science in Politics, Statistics & Applications & Computation, Computer Systems Engineering, Linear Algebra, Probability

Skills

- **Languages**: Expert:{ Python, JavaScript, R, HTML/CSS }, Proficient:{ Java, TypeScript, SQL } **Technologies**: Docker, Git, Linux
- **Libraries & Frameworks**: Express.js, Vue.js, React, Redux, Bootstrap, NumPy, pandas, PyTorch, scikit-learn

Experience

MIT Urban Risk Lab — Cambridge, MA
Research Assistant — *September 2020 - Present*

- Utilizing convolutional neural networks, natural language processing techniques, and unsupervised machine learning methods to automate the assessment of crowdsourced crisis reports consisting of image, text, estimated flood height, and geospatial data during flood events in order to reduce the cognitive overload of crisis responders

MIT Department of Electrical Engineering and Computer Science — Cambridge, MA
Software Studio Teaching Assistant — *September 2020 - December 2020*

- Led recitation sessions covering the fundamentals of software design from pencil & paper concept ideation and wireframing to full-stack web application implementation
- Mentored project teams providing feedback to students as they developed their final project web apps
- Created problem sets for students to practice and solidify concepts taught in lecture and recitation

Southwest Research Institute — San Antonio, TX
Software Engineering Intern — *June 2020 - August 2020*

- Developed a full-stack web application with React, Redux, TypeScript, Google Protocol Buffers, and CouchDB
- Utilized Docker for a containerized development environment as well to build a shareable image of the web application
- Designed UI/UX of the application by iterating on the React-Redux frontend based on feedback from peer review

Isobar — Boston, MA
Front-end Development Intern — *May 2019 - August 2019*

- Translated business logic and user stories into enhancements to a popular car rental company website UI using React
- Stylized webpages with SCSS based on design specifications and mockups
- Wrote manual tests to ensure that implementation met functional & design requirements

Projects

- **Graph Neural Networks for Taxi Fare & Surge Prediction**: Machine Learning project which evaluated graph neural networks (GNNs) for the tasks of NYC taxi fare and demand surge prediction using pandas, NumPy, Deep Graph Library, PyTorch, and scikit-learn.
  - Cleaned and constructed a contrived dataset for fare prediction from a large raw taxi dataset
  - Implemented, fine-tuned, and evaluated the alternative models of linear & ridge regression, random forests, and fully-connected neural network (FC NN) models for fare prediction
  - Benchmarked GNN method against alternative methods: we found that the GNN method performs comparably to the best alternative model in both prediction tasks, FC NN, but the GNN models are significantly less complex than the highly-parameterized FC NNs.
- **Analysis of Trump's Campaign Rhetoric on a Regional Level**: Data Science project utilizing R & pandas that investigated how Donald Trump's 2016 campaign speeches may have influenced public sentiment on a regional level.
  - Cleaned data collected from multiple speech corpus in preparation for analysis
  - Conducted descriptive analysis: we found that in swing states like Florida, Trump emphasized words related to Hillary Clinton and her email scandal more than across the entirety of his campaign suggesting that he was strategizing his rhetoric to hurt Hillary's campaign in an effort to win the swing states.
- **Boomerang**: Full-stack web application where users can efficiently and reliably borrow items from others within their communities.
  - Drafted wireframes and implemented full-stack functionality for login page and sign up flow
  - Developed central concepts to meet application's purpose and to create database schemas
  - Wrote back-end web services using Express.js and front-end logic in Vue.js