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; GPA: 5.0/5.0 — *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; Algorithms & Data Structures; Computer Systems Engineering; Statistics, Computation, & Applications; Machine Learning; Machine Learning & Data Science in Politics; Matrix Methods; Linear Algebra; Probability

Skills

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

Experience

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

- Constructing preprocessing, training, testing, and inferencing pipeline with transformer models for text descriptions from crowdsourced crisis reports
- Built pipeline for training, testing, and inferencing with CNNs for image data from crowdsourced crisis reports during disasters

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
- Wrote manual tests to ensure that implementation met functional & design requirements

Projects

- **Evolution of the U.S. TV News Narrative on Climate Change**: Data Science & NLP project in Python that investigated the evolution of climate change coverage frequency & content between U.S. TV News Networks CNN, Fox News, and MSNBC over Jul. 2009-Jan. 2020.
  - Constructed TFIDF embeddings for documents made from climate change news audio transcripts based on network, year, and network & year combinations to extract the most important words to each network, to each year, and to each network in each year
  - Computed cosine similarity between document embeddings to have a measure of content similarity between the documents to see how climate change coverage content differed between the networks over time
- **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.
- **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