Sean Knight

seknight@mit.edu / (360) 787-0177 / Personal Website / GitHub / LinkedIn

Education

Massachusetts Institute of Technology (MIT) *August 2019 – May 2023 (Cambridge, MA)*
Computation and Cognition (6-9) Major / GPA 4.9 out of 5.0
Business Management Minor and Comparative Media Studies (CMS) Minor

- Introduction to Computer Science; Fundamentals of Programming; Mathematics for Computer Science; Introduction to Algorithms (includes data structures); Signal Processing; Linear Algebra and Optimization; Introduction to Machine Learning; Design and Analysis of Algorithms; Elements of Software Construction
- Introduction to Neuroscience; Introduction to Neural Computation; Sensation and Perception; Computational Cognitive Science; Projects in the Science of Intelligence; The Human Brain; Developmental Neurobiology; Machine-Motivated Human Vision
- Corporate Financial Accounting; People, Teams, and Organizations; Managerial Finance; Competitive Strategy

AI4ALL @ Carnegie Mellon University *June 2018 – July 2018 (Pittsburgh, PA)*

- Learned about and implemented numerous machine learning methods with the guidance of Carnegie Mellon professors.

Skills

- **Languages:** Python, Java, Julia, MATLAB, Shell Scripting (*Bash*, *PowerShell*), HTML/CSS/SASS/JS, TypeScript, C++
- **Frameworks and Technologies:** Git, REST (*Express.js*, *Flask*, *FastAPI*), WebSocket (*socket.io*), Linux, NoSQL (*AWS DynamoDB*, *MongoDB*, *Firestore*, *etc.*), PostgreSQL, GraphQL, ReactJS, Machine Learning (*PyTorch*, *TensorFlow*, *Keras*, *scikit-learn*)
- Chinese (Intermediate)

Experience

Software Engineer Intern @ Jump Trading *June 2022 – August 2022 (Chicago, IL)*

- Added numerous features to a production trading platform that allowed the platform to more easily handle trades at scale.
- Built a full-stack (*FastAPI*, *MongoDB*, *React*) automated configuration management system to increase development and deployment speed of multiple trading applications.
- Designed and created data pipelines to process and upload vast quantities of data at high speeds for quantitative analysis.

Undergraduate Researcher @ MIT (Brown Lab) *January 2022 (Cambridge, MA)*

- Migrated and developed a Python codebase that helps fit Hidden Markov Models to EEG and LFP data.
- Utilize computational tools to understand how anesthetic ketamine can affect neural circuits and rhythms in the brain.

Co-President @ MIT Student Events Board (SEB) *August 2021 – Present (Cambridge, MA)*

- As one of the founding leaders of MIT SEB, I was primarily responsible for developing the organization's internal structure and long-term goals.
- Developed and maintained MIT SEB's image and relationship with MIT administration, community, and numerous external vendors (e.g. talent agencies, production companies, etc.)
- Planned numerous successful, large-scale events for MIT's community through a balanced combination of direct involvement and delegation.

Software Engineer Intern @ Red Hat *June 2021 – August 2021 (Virtual)*

- Developed backend Rest API endpoints (*Django*, *FastAPI*) and improved a statistics processing pipeline.
- Developed the savings planner and reports page on Ansible Automation Analytics which will help individual customers save thousands of dollars on automated computing costs.
- Worked on unit test migration from Enzyme to React Testing Library.

Software Engineer Intern @ BusySquirrels *January 2021 (Virtual)*

- Developed the BusySquirrels browser extension that allowed for seamless visitation cashback and transaction recording. (*ReactJS*, *GraphQL*, *Amplify*, *AWS*, *Webpack*, *Polyfill*)
- Responsible for improving client website experience by developing essential features such as authentication flows.

Machine Learning Research Intern @ MIT Quest for Intelligence Initiative *June 2020 – September 2020 (Virtual)*

- Implemented AutoKNN regression algorithm which helped to improve sub-seasonal weather forecasting. The AutoKNN implementation was included in an ensemble that set a benchmark for the US Bureau of Reclamation and NOAA-sponsored Forecast Rodeo II competition.
- Expanded existing sub-seasonal weather forecasting models to predict on the contiguous US region by updating model report tools, data pipelines, and the models themselves.
- Mouatadid et al. "An Accurate and Scalable Subseasonal Forecasting Toolkit for the United States." *Microsoft CMT ICML* (2021)

IT and Web Developer @ United Home Technologies *March 2017 – August 2019 (Washougal, WA)*

- Developed and redesigned numerous websites as part of company image revitalization and subsidiary launch.
- Managed servers and domains to keep website, email, cloud storage, and other IoT assets running properly.

Projects (more @ GitHub)

Melodiq @ melodiq.herokuapp.com *2020*

- Multiplayer music quiz game that employed the use of the Spotify API and various NLP techniques.
- Implemented with ReactJS, ExpressJS, WebSocket, REST and deployed on Heroku.