

Sean Knight

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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, Intro to Programming in C and Assembly
- 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; Neurobiology of Self, Introduction to Psychological Science, Emergent Computations within Distributed Neural Circuits
- Corporate Financial Accounting; People, Teams, and Organizations; Managerial Finance; Competitive Strategy; Entrepreneurship Lab, Consumer Behavior

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, C, Assembly, 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

Biology Teacher @ Liceo Scientifico Belfiore

January 2023 (Mantova, Italy)

- Collaborated with MIT GTL and teachers at Liceo Scientifico Belfiore to teach and plan a month's worth of biology lessons for high school students of all years.
- Created [unique lessons](#) on stem cells; restriction enzymes; Cre-Lox and CRISPR Cas-9; epigenetics and iPSCs; unique cells and their use in discoveries; neuroscience techniques; and modern drug discovery methods.

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 – May 2023 (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.onrender.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 Render