


ELAINE LIU

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Education

Massachusetts Institute of Technology

Sep. 2020 – May 2024

Bachelor of Science in Mathematics with Computer Science. GPA: 4.9/5.0

Cambridge, MA

Relevant Coursework: Stochastic Processes, Algebraic Combinatorics, Design and Analysis of Algorithms, Intro to Machine Learning, Probability, Theory of Computation, Real Analysis, Abstract Algebra, Calculus

Experience

Hudson River Trading

Jan. 2022

Women in Trading Technology Internship Program

New York City

- Implemented raw printer and orderbook in C++.
- Modelled cryptocurrency price signals on a 30-second horizon and implemented trading strategies.

MIT Mobile Technology Lab

Sep. 2021 – Dec. 2021

Undergraduate Researcher

Cambridge, MA

- Conducted linear and logistic regression to predict stress level from heart signals.
- Extract meaningful features to improve performance.
- Poster to be presented at 43rd meeting of Society of Behavioral Medicine (April 2022).

Media Lab

Sep. 2020 – Aug. 2021

Undergraduate Researcher at Personal Robotics Group

Cambridge, MA

- Developed an automatic suicide risk evaluation system using statistical analysis and feature selection.
- Extracted, cleansed, and analyzed real-world raw eye and head movement data from videos.
- Identified the top 12 facial bio-markers of suicide risk to be used in clinical settings (> 97% accuracy with MLP and SVM classification, far exceeding the 42.4 % in similar studies).
- First authored paper to be published in the 24th International Conference on Human-Computer Interaction (June 2022).

Projects

Linguistic Sexism in the Gaming Community | *Python, OCR, Sentiment Analysis*

August 2019 – May 2020

- Conducted ethnographic data collection to record interaction among *League of Legends* players.
- Documented text-based conversations using Optical Character Recognition techniques.
- Constructed context-specific dictionary and computed sentiment of each line of exchange.
- Evaluated levels of linguistic sexism among players of different ranks using ANOVA and T-tests.
- Paper published in *The Young Researcher* in August 2020.

Curling Stone Trajectory Analysis | *Data Analysis*

Feb. – May 2019

- Modelled trajectories of different curling shots and analyzed the effects of sweeping with data collected on ice.
- Achieved 95% accuracy under near-ideal scenarios.

Political Language Analysis | *Statistical Analysis*

April – June 2019

- Quantified and established correlation between linguistic complexity and political tendency in a news article.

Technical Skills

Python, C++, Tensorflow, Java, L^AT_EX, Statistical Analysis, Probability

Leadership and Extracurricular

- Leadership: Social Activities and Special Events Coordinator, Delta Phi Epsilon
- Arts: Pit Orchestra, MIT Musical Theatre Guild

Honors and Achievements

European Girls' Mathematical Olympiad: Bronze Medalist (2019), Honorable Mention (2020)

Math Prize for Girls Olympiad: Silver (2019), Bronze (2018) Medalist

United States of America Junior Mathematical Olympiad: Qualifier (2018)