David Liu

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EDUCATION

Boston University   Boston, MA

Ph.D. with focus on Artificial Intelligence for Audio

Computer Software: LaTex, G Suite, Microsoft Office, Linux, Unity

Music Creation: FL Studio, Musescore, Serum

Languages: Java (Fluent), Python (Fluent), C (Fluent), Rust (Intermediate), Haskell (Intermediate), JavaScript (Intermediate), C# (Intermediate), R (Intermediate)

University of Wisconsin - Madison   Madison, WI

Bachelor of Science   May 2023

Majors: Computer Science, Data Science, Mathematics   GPA: 3.868/4.000

Relevant Courses: Introduction to Artificial Intelligence, Introduction to Algorithms, Linear Optimization

WORK EXPERIENCE

Boston University - Department of Computer Science   Boston, MA

Teaching Fellow for Combinatorial Structures with Dr. Peter Golbus   August 2023-Present

- Prepare an outline for coursework on a weekly schedule
- Teach discussion sections, which reinforces topics discussed during lectures
- Hold office hours and answer questions regarding the course material as well as any general questions about the course
- Planned the examinations as well as organized grading assignments

University of Wisconsin - Madison Math Learning Center   Madison, WI

Peer Mentor   October 2021-May 2023

- Explain concepts in a group setting to Calculus 1 and Multivariable Calculus students to further their understanding of the material.
- Reinforced the students' knowledge in multiple courses such as Linear Algebra and Analysis.
- Communicate effectively with students and other peer mentors to help the students' learning processes.
- Planned meetings to help students prepare for their examinations

PROJECTS

Transcription Transformer Model   Boston University, MA

Group Project with Brian Kulis and Sadie Allen   Fall 2023 - Present

- Innovatively utilizing spectrograms as the primary input for the transformer model
- Implement algorithms to convert the output sequence back into symbolic music as well as creating scripts for data processing

Logistic Model   University of Wisconsin-Madison

Data Programming II   November 2021-December 2021

- Developed a logistic model using SKLearn to predict which users of a site are interested in a promotion.
- Consolidated training data for the logistic model by combining data into one dataframe using Pandas DataFrames.
- Utilized the actual user participation as the testing data in order to find the accuracy of the model.

Monopoly ELO Bot   Madison, WI

Independent Project   June 2022

- Developed a method for ranking players over multiple games
- Connected the bot to Discord by using the Lightbulb API
- Created a formula to change a players current elo based on the players and rankings in the current game

Gomoku AI   Madison, WI

Independent Project   Fall 2022 - Spring 2023

- Learning reinforcement learning in order to develop a bot to place more optimal moves.
- Start with finding the State and Action spaces for a smaller version, similar to Tic-Tac-Toe

AWARDS

Zero Robotics NASA/MIT World Competition: World Champion 2019 (First Place)
NFMC Junior Composition Contest: Honorable Mention for National 2019
WSMA Composition Project: First Place for Piano Solo 2016 and First Place for Ensemble 2020
University of Wisconsin - Madison Dean's List

ORGANIZATIONS

BU AIR, *Member*   September 2023- Present
- Attended seminars as well as reviewed papers submitted to multiple conferences

Putnam Club, *Member*   November 2020 - Present
- Discussed questions from previous exams.

Boxing Club, *Member*   September 2021 - Present
- Practiced the sport and volunteered for the community in events such as parades and book sales.

Taiwanese Undergraduate Student Association, *Member*   September 2021 - Present
- Attended multiple events and learned more about Taiwanese culture

Quiz Bowl Team, *Member*   September 2021 - Present
- Practiced Quiz Bowl questions and traveled to other schools to compete

VOLUNTEER EXPERIENCE

Overseas Youth English Teaching Volunteer Service Program in Taiwan   Pingtung, Taiwan
Assisting Individuals with Disadvantages (A.I.D.) Volunteer English Instructor   June 2019-July 2019
- Taught 27 children English by designing curriculum from scratch and presented in the classroom 8+ hours daily.
- Created engaging and helpful activities to ensure students learned material while improving their English skills.

Boxing Club Book Sale   Madison, Wisconsin
Boxing Club   Spring 2022
- Organized books in the book sale and help attendees find their desired material
- Packed the books and put them into storage once the event was over