

# Thomas Lawton

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## EDUCATION

**Boston University, B.A. in Computer Science** 9/2020 - 8/2024  
President of Theta Chi Fraternity - Kappa Pi Chapter  
Selected Coursework: *Data Science Tools and Applications, Probability and Statistics, Database Management, Artificial Intelligence, Machine Learning, Full Stack Development, Computer Systems*

## DATA SCIENCE & MACHINE LEARNING PROJECTS:

**LMSYS - Chatbot Arena Human Preference Predictions** 6/2024 - 8/2024  
*Human Preference Predictor to Improve ChatBot Performance*

- Used an LLM ensemble with Gemma and Llama to develop a framework to predict human preference between competing chatbot responses.
- Employed advanced techniques, including threshold tuning, probabilistic normalization and model weighting, to enhance prediction accuracy.
- Successfully fine-tuned the model's inference process, achieving significant improvements in LMSYS's log loss performance metrics.

**AI Math Olympiad** 4/2024 - 7/2024  
*Leveraging LLM to Solve Complex Mathematical Problems*

- Adapted the DeepSeekMath language model for LaTeX input and fine-tuned the model to improve its performance on Olympiad-level math problems.
- Implemented machine learning techniques including self-consistency mechanisms, iterative generation, and prompt engineering to significantly improve the model's accuracy.

**NBA Player Performance Prediction Using ML Models** 10/2023 - 12/2023

- Utilized a combination of machine learning methods including recurrent neural networks (RNN) and RandomForestClassification to predict NBA players' performance in different box score statistics.
- Trained prediction models using a wide array of attributes including previous box score statistics, team statistics, opponent statistics, game time and travel.
- Independently developed metrics, such as player rank, fatigue, and moving averages to improve model accuracy.

## WORK EXPERIENCE:

**Outlier AI** 9/2024 - Present  
*Freelance AI Trainer*

- Conducted testing to identify and address potential vulnerabilities by eliciting and analyzing false responses in AI models generating code.
- Reviewed and refined human and AI-generated prompts to ensure accuracy and relevance.

**Boston University - Education Resource Center** 5/2023 - 8/2023  
*Programming Tutor*

- Conducted project-based python tutoring sessions for students in both group and individual sessions.
- Crafted lesson plans based on individual skill level, which included syntax, data types and structures, and modules and libraries.
- Supervised student projects to ensure appropriate application of learned skills.

**Perks Coffee Shop and Beer Garden** 6/2022 - 8/2022  
*Bartender and Server*

- Served customers as a bartender and server, and supported chef staff with food preparation.
- Assisted manager in training new employees.
- Utilized communication skills to provide superior customer service.

**Music in Chappaqua** 5/2019 – 8/2021  
*Music Instructor*

- Led workshops for students aged 8-18, teaching students how to play guitar, piano, drums, and bass.
- Assisted in planning performances, focusing on organizing logistics and ensuring student participation.

## SKILLS

- Data Science:** Machine Learning, LLMs, Python (NumPy, Pandas, PyTorch) SQL, Excel
- Programming Languages:** Python, Java, JavaScript, HTML, CSS
- Additional Skills:** Microsoft Office Suite, Google Suite, MacOS, Windows, Slack, Leadership, Organization, Communication, Writing