

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:

Household Electricity Cost Estimator Web App 5/2025 - 6/2025
End-to-End ML Project Forecasting Household Energy Costs

- Built an end-to-end machine learning pipeline using a RandomForest model to predict household electricity usage and estimate annual energy costs.
- Used Python, scikit-learn, FastAPI, and React to develop and deploy an interactive web app for real-time predictions.
- Delivered a user-friendly tool that transforms household inputs into clear, cost-based energy insights.

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.

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, scikit-learn) SQL, Excel
- Programming Languages:** Python, Java, JavaScript, HTML, CSS, React
- Additional Skills:** Microsoft Office Suite, Google Suite, MacOS, Windows, Slack, Leadership, Organization, Communication, Writing