

Jackson Hall

Machine Learning Engineer / Data Scientist

jacksonthall22@gmail.com ◇ (802) 356-4622 ◇ New York City ◇ GitHub ◇ LinkedIn

EDUCATION

University of Vermont Honors College

B.S. in Computer Science, GPA: 3.4

Burlington, VT

Sep 2018 – Mar 2022

- Honors Thesis: *The Introspective Case Study Framework: Crowdsourced Introspection as a Research Pipeline for Humanlike General Intelligence* (<https://tinyurl.com/ICSFr>)

WORK EXPERIENCE

Hyperchess.ai

Founder

Side project

Jun 2023 – Present

- Creating the first language model (LM) purpose-built for hyper-personalized chess education
- Trained a LM architecture that bridges chess and language, mostly using trained LMs and neural chess engines (PyTorch, huggingface, AlphaZero)
- Building a knowledge production economy using RL & embarrassingly-parallel GPUs (modal.com) to mine for strategies/language that cause downstream performance lift
- Trying to use production-ready stacks from day one to learn new & best tech

Mathpix

Machine Learning Engineer

Full-time

Mar 2025 – Oct 2025

- Worked across ML & devops teams to design, launch training runs for, and monitor PyTorch OCR models for converting STEM documents to markdown/HTML
- Debugged poor losses when required by stepping through layer operations manually, used ML/information theory to determine where context was lost
- Overhauled chemistry recognition stack end-to-end (data annotation schemas, ML targets, post-inference error-correction, test pipelines), enabled OCR for PhD-level organic chemistry diagrams
- Improved core chemistry data structures & algs, including ring/chain detection, recursive SMILES parsing, stereochemistry handling (chiral centers, E/Z), export formats

Flipmine.com

Data Scientist & Machine Learning Engineer

Half-time

Jan 2024 – Mar 2025

- Designed ELT pipelines for large-scale data streams coming from eBay & Amazon
- Implemented product recommendation & matching algs using deep learning from scratch
- Used Docker and nginx to manage distributed backend resources
- Reduced calls to expensive 3rd party APIs by 10x with custom-built cache servers

Dynamic Organics

Machine Learning Engineer

Full-time

Jan 2023 – Apr 2023

- Researched & implemented state-of-the-art multivariate time-series forecasting algs with hierarchical reconciliation of forecasts
- Cleaned and organized data from a ~5TB database
- Designed custom ML architectures leveraging graphical and hierarchical datasets
- Improved mean absolute percentage error (MAPE) by 70% (5% to 1.5%)

Aimchess.com

Senior Python Developer

Full-time

May 2021 – Nov 2022

- Designed low-level chess-specific data structures and graph search algs to extract metrics over hundreds of thousands of user chess games, balancing accuracy & speed and managing compute costs

SKILLS

Programming & Tools: Git, Python (15+yr), TypeScript, Jupyter, C++, Java, FastAPI, Svelte(Kit), SQL/NoSQL

ML & AI: PyTorch, LLMs, Ollama, Transformers, Multimodal learning, Vector DBs, AI/ML system design,

Embedding spaces, Dynamical systems, Geometric intuition deep learning and generalization/AGI

Other: Spanish – conversational (11yr), Chess – 2398 peak online