

Owen Finucan

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Education

University of Pittsburgh

Pittsburgh, PA

B.S. Computer Science, Mathematics Minor

Aug 2022 - Dec 2025

- Coursework: Deep Learning, Machine Learning, OS, Data Structures and Algorithms, Linear Algebra, Multi-Variable Calculus

Work Experience

New Student Ambassador - University of Pittsburgh

May 2023 - May 2024

- Created, organized, and led large-scale social programs for incoming first-year students at the University of Pittsburgh
- Mentored 200+ incoming students, providing academic, professional, and social advice via face-to-face interactions and through social media

Sales Associate - Staples

Mar. 2022 - Oct. 2022

- Responsible for creating and selling various print products, driving thousands of dollars in sales

Projects

From-Scratch Transformer Language Model | Python, PyTorch, CUDA

- Implemented a custom decoder-only Transformer model with causal masking, attention, and sinusoidal positional encoding with PyTorch
- Built custom BPE encoder (vocab size of 2,725), which was used to tokenize & cache IDs for ~3.3M training and ~15.8M validation tokens
- Optimized training with AdamW + weight decay, label smoothing 0.1, LR warmup; effective batch 256 (64x accum 4); stride 16
- After training over 10 epochs, achieved 2.65 validation loss (ppl 14.1), which allowed for a RAG chatbot demo for trained files

Abracadabra Song Recognition | Python, SQLite, Librosa, ffmpeg

- Engineered hash-based audio fingerprinting system with 100% accuracy on URL tracks and ~98% on noisy recordings
- Created and managed a fingerprint DB of 4,300+ songs across 7 languages, optimized for efficient time-offset matching with SQLite
- Developed tooling to stream tracks via yt-dlp/ffmpeg, generate fingerprints, and recognize 10s mic snippets in real time
- Designed reproducible scripts for dataset curation, DB rebuilds, and evaluation, enabling scaling to tens of thousands of tracks

Movie+ Streaming Platform | React, TailwindCSS, JS, Python, PostgreSQL, Stripe, Docker

- Full-stack Netflix-style streaming application with multi-step user onboarding, Stripe-powered payment system, and user authentication
- Designed and deployed a modular frontend with React / Tailwind, with dynamically filled carousels of movies via the TMDb API
- Created backend with FastAPI and PostgreSQL for user management, password and payment encryption, and plan tracking
- Containerized with Docker, then successfully deployed to the cloud for users

Med-Day: EMT | Python, PyGame | Pitt Challenge Hackathon Supporting Caregivers Track Winner

- EMS/EMT training game designed to help new first responders learn proper site-arrival protocols and procedures
- Responsible for UX/UI of the whole project, along with the dictionary backend to manage player progression based on choices made

Skills

Languages: Python, Java, JavaScript, C, R

Libraries / Frameworks: PyTorch, NumPy, FastAPI, Flask, React, TailwindCSS

Other Skills: Office 365, Figma, PostgreSQL, Docker, Git