JEREMY ZAY

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EDUCATION

Wesleyan University, Middletown, CT | Expected Grad: May 2026
Bachelor of Arts, GPA: 3.76/4.00 (CS GPA: 3.95)
Majors: Computer Science, Mathematics, Integrative Sciences

SKILLS

Languages: Python, C, Java, OCaml, SML, Swift, SQL, JavaScript, Bash
ML & Data: PyTorch, NumPy, pandas, scikit-learn, matplotlib, NLP
Development Tools: Git, Docker, HPC, SLURM, Vim, Flask

EXPERIENCE

Software Engineer & Research Fellow, Thayer Lab, Wesleyan University | May 2024 – Present

- Architected a molecular generation framework in PyTorch, using reinforcement learning and diffusion to generate realistic graph-structured data from pure noise.
- Designed training and evaluation pipelines for deep learning models on a HPC at scale.
- Selected for a full-time fellowship to engineer generative AI models for drug discovery.
- Presented findings at UC Merced Mercury Conference, Biophysics Retreat, and ACS NERD 2025.

PROJECTS

Chess Engine [jeremyzay.com/zaychess] | June 2025 – Present

- Shipped a full Java chess application on the macOS App Store [link], with on-device AI opponents, local and multiplayer game modes.
- Implemented a low-latency engine stack including board representation, legal move generation, search, evaluation, and multiplayer networking.
- Developed an AlphaZero-style chess engine in Python using PyTorch, implementing self-play, MCTS, and ResNet-based policy/value networks.
- Integrated Serendipity, a state-of-the-art Java UCI chess engine, for high-strength offline play.

EAR (Embedding Audio-visual Retrieval) [jeremyzay.com/ear] | Oct 2025 – Dec 2025

- Built an AI system that lets users search images using sound, or sounds using images, with real-time results.
- Achieved 51.6% image-to-audio and 52.2% audio-to-image top-1 retrieval accuracy, outperforming a random baseline by over 10×.
- Implemented a CLIP-style dual-encoder model using ResNet-50 (vision) and Wav2Vec2 (audio), and deployed a Flask web app that performs cosine-similarity semantic search over a pre-indexed dataset.

eQoScan (WesHack 2024) [jeremyzay.com/eqoscan] | Nov 2024

- Built a platform in 24 hours that ensures reusable containers are returned by using rotating QR codes that can't be reused or spoofed.
- Awarded the ActualFood Internship Prize at WesHack 2024 for sustainability innovation.
- Led a 4-person team across frontend (HTML/CSS/JS), Flask backend with Firebase/GCP integration, and Swift-based iOS scanner.

LEADERSHIP & TEACHING

Teaching Assistant, Wesleyan University | Jan 2023 – Present

- Led weekly help sessions (4 hrs/week) and graded ~30 assignments per week across 5 core CS courses.
- Taught and explained core concepts including data structures, graph search (MCTS, DFS, A*), probabilistic reasoning, and reinforcement learning to 200+ students.
- Tutored at the Scientific Computing and Informatics Center (SCIC), offering one-on-one code reviews.

President, Wesleyan Table Tennis | Sept 2025 – Present

- Organize and lead weekly practices, making decisions on practice schedules and events.
- Coordinate email communications with university, regional tournament administration, and club members.

RELEVANT COURSEWORK

Math & CS Theory: Real Analysis, Abstract Algebra, Automata Theory, Algorithms & Complexity, Probability & Statistics, Calculus III, Linear Algebra
Systems & Applications: Machine Learning (Grad), Artificial Intelligence, Program Analysis, Computer Networks