

# Logan J. Reddell

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## EDUCATION

**Indiana University**, Luddy School of Informatics, Computing, and Engineering  
Bloomington, IN

May 2027  
GPA: 3.86 / 4.00

**B.S. in Computer Science**, Artificial Intelligence | Minors: Data Science, Entrepreneurship

Hutton Honors College | Hudson and Holland Scholar | 4x Dean's List Recipient | Study Abroad: London, UK (Summer 2025)

Relevant Coursework: Machine Learning, Data Mining, Intro to AI, Data Representation, Generative AI, Knowledge-Based AI, Deep Learning Hardware, Data Structures

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## TECHNICAL SKILLS

**Languages:** Python, SQL, Java, R, TypeScript

**Frameworks and Libraries:** React, Three.js, React Three Fiber, Pandas, NumPy, PyTorch, scikit-learn, LangChain, LangGraph

**ML and GenAI:** RAG, vector databases (ChromaDB), JSON schema validation

Data Engineering: data cleaning and transformation, API data ingestion

**Tools and Platforms:** Git, Docker, Electron, Vite, Web Workers, IndexedDB

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## LEADERSHIP

**Machine Learning for All Club – President**

Fall 2025 – Present

- Relaunched the chapter for Spring 2026, implementing a new technical curriculum that increased average meeting attendance to 20 members and established a pipeline of 3 ongoing student projects.
  - Led hands-on GenAI workshops for IU students, teaching practical workflows for LLM tooling and agentic reasoning.
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## PROJECTS

**Voxel Sandbox Game Engine** | [GitHub](#), [Demo](#)

December 2025 – Present

TypeScript, React, Three.js, React Three Fiber, Electron, Vite, Web Workers, IndexedDB

- Built a desktop voxel sandbox game engine using TypeScript, React, Three.js, and Electron, featuring procedural terrain generation, chunk streaming, and real-time block interaction systems.
- Architected a worker-based world pipeline for chunk generation and meshing with prioritized loading, geometry caching, chunk eviction, autosave, and IndexedDB-backed persistence to keep large worlds responsive during gameplay.
- Implemented core gameplay and engine systems including biomes, caves, rivers, tree generation, inventory and crafting, chest and furnace tile entities, fluid simulation, plant growth, and world save/export/import functionality.

**Agentic Lyric and Audio Generation Assistant**

October – December 2025

- Developed an agentic songwriting assistant in Streamlit that uses LangChain tool calling with local Ollama LLMs to route user requests into lyric drafting, multi-step “smart” lyric generation, and Suno-based audio generation.
- Designed a retrieval workflow with a Pydantic-parsed tagging agent that generates search tags and similar songs, fetches reference lyrics via an API, and falls back to RAG using **5,000+ songs** from Ollama embeddings.
- Implemented a robust tool layer with Pydantic-validated tool inputs, a session-scoped “last lyrics” cache, persistent chat history, and defensive error handling so the agent can chain lyric tools and audio tools while rendering exact tool outputs and downloaded audio files in the UI.

**GSM8K Reasoning Engine & Optimization Pipeline**

October 2025

- Built an automated evaluation pipeline over the GSM8K dataset to measure accuracy across prompt variants and self-correction strategies.
  - Implemented a verifier-resolver loop that detects incorrect intermediate reasoning and re-generates solutions, improving accuracy from **24.33% to 90.67%**.
  - Performed error analysis on failure cases to guide iterative improvements to prompting strategy and verification logic.
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## WORK EXPERIENCE

**Indiana University Auditorium – Box Office Associate**

August 2025 – Present

- Processed high-volume POS transactions, ensuring accuracy and safeguarding sensitive payment information.
- Delivered quality customer support in person and by phone, clearly explaining event and ticketing options.