

Thomas Bird

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EDUCATION

Rensselaer Polytechnic Institute

B.S. in Computer Science; Leadership Scholarship; Dean's List

Troy, NY

Aug. 2021 – May 2025

EXPERIENCE

Machine Learning Researcher

Rensselaer Polytechnic Institute

August 2023 – Present

Troy, NY

- Supported the research and implementation of a new unsupervised method for detecting geometric anomalies in high-resolution 3D point clouds, adapting established 2D anomaly detection techniques to three dimensions.
- Leveraged 3D scanning hardware and point cloud data processing techniques to generate highly detailed renderings from scanned objects, improving training database and data visualization capabilities.

Software Engineer Intern

Route4Me

June 2023 – August 2023

Tampa, FL

- Developed Route4Me's Python SDK, enhancing software quality by identifying and debugging HTTP errors and implementing existing features from the Java and C# SDKs in order to provide clients with proper API access.
- Constructed a robust web scraper leveraging Python, Selenium, BeautifulSoup, Pandas, and Requests, automating and enhancing data collection processes.

React Developer

Aixus Health

May 2023 – Sep 2023

Albany, NY

- Spearheaded the development of a patient-focused MVP application for Aixus Health utilizing React Native, creating an intuitive and user-friendly interface.
- Linked the front ends for iOS, Android, and web through a database hosted on Supabase.

PROJECTS

iOS Fitness Application | *SwiftUI, Mapbox, Firebase, Git*

November 2022 – Present

- Led development on an iOS application programmed in Swift with SwiftUI, integrated location features with Mapbox's mapping SDK, and connected online features to an updating database via Firebase.
- Developed an algorithm to generate random running routes on a map that start and finish at the same destination and span a specified length derived from the Dijkstra's and 5Sum algorithms.

Machine Learning Agents | *Unity, C#, ML-Agents, PyTorch, Python, TensorFlow*

April 2023

- Trained multiple agents to defeat a boss character using PyTorch in a Unity "bullet hell" game.
- Employed TensorFlow for data visualization and tracking of algorithm performance throughout the training process in order to author a research paper on the project, effectively summarizing the procedures, results, and insights derived from the work.

C-Code Disassembler | *C, Assembly*

March 2022

- Developed a compiler in C that processes and converts basic C code to working MIPS instructions for Assembly.
- Programmed capabilities for basic math instructions (add, subtract, multiply, divide), looping, and functions.

AI Video Curator | *HTML, CSS, JavaScript, Selenium, BeautifulSoup, APIs, LLM*

Sep 2023 – Present

- Developed an AI-powered video curation website and Chrome extension that analyzes video data evaluate quality and provide users with video summaries.
- Programmed web scraping for Youtube videos, and processed said data to query an LLM API.

TECHNICAL SKILLS

Languages: C, C++, C#, Python, Java, Swift, Assembly, JavaScript, HTML, CSS, SQL, LaTeX, Dafny

Frameworks: Git, React, Unity, Node.js, JUnit, Valgrind, GCP, Firebase, Supabase, VS Code, Visual Studio, Eclipse

Libraries: Pandas, TensorFlow, ML-Agents, Bootstrap, Selenium, BeautifulSoup, Requests

Relevant Coursework: Data Structures, Algorithms, Computer Organizations, Principles of Software, Intro to Artificial Intelligence; Discrete Math, Modern Binary Exploitation, Computational Geometry, Game AI, Database Systems, Software Design and Documentation, Multi-variable Calculus, Differential Equations