

Austin Jetrin Maddison

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Creates software from OS-level tools to multithreaded servers, optimizing efficiency in C/C++.

EDUCATION

Mahidol University International College

Expected Graduation: Jan 2026

B.S in Computer Science, Minor in Applied Mathematics (In major GPA 3.3)

EXPERIENCE

Mahidol University International College

Apr 2023 - Apr 2025

Teaching Assistant

Salaya, Nakhon Pathom

- Assisted students in mastering core programming concepts across courses including **Functional and Parallel Programming**, **Data Structures**, **Abstraction & Object-Oriented Programming**, and **Intro to Programming**.
- Provided **personalized guidance** in problem-solving and debugging, fostering a deeper understanding of course material.
- Graded **300+ assignments** across courses using automated scripts and manual instrumentation.
- Developed and refined **technical communication** and logical analysis skills, effectively conveying complex concepts to students.

Adapter Digital

Nov 2023 - Mar 2024

Software Developer, Part Time

Ari, Bangkok

Collaborated with design and innovation teams to create **3-player 3D game installation "Seemless City" for Bangkok Design Week 2024**.

- Implemented **real-time rendering features** such as **procedural meshes**, **HLSL shaders** using Unity's C# framework and high definition render pipeline.
- Highlight features: **dynamic multiple focal point vignetting** with variable feathering using signed distance fields (SDF), **inertia animation hooks**, fluttering cloth using **multi-scale perlin noise wind**, **SDF particle collisions**, **bloom/glare**.
- Extended **Intel RealSense's C# API** to allow for depth normalization and remapping to be used in calibration tool onsite.
- The reception was **overwhelmingly positive from 200+ participant surveys** and optional comments described that the full-body motion controls, multiplayer and 3D aspects were refreshing and unique.

Adapter Digital

Aug 2023 - Sep 2023

Software Developer, Internship

Ari, Bangkok

Developed a **real-time motion capture 3D installation** project "Hello Mascot" for the firm's product portfolio as their part of diversifying the kinds of digital products they can give to clients. The project's reception with colleagues was very positive and **surpassed expectations**.

- Collaborated with the innovation team's C# developer to implement **motion controls** using **Google's MediaPipe** library for pose landmark detection from external camera feed to interact with virtual character and world.
- Implemented **shaders for vegetation and cloud wind**, **stop motion clay river water wakes**, **stop motion clay character** and **fully gpu-driven 2D facial animations** using multi UVs and sin/cos functions for scheduling expressions.
- Modeled, textured, animated, layout and lit environment props and character assets using high-poly to low-poly pipeline.

PROJECTS

Shell + Terminal Animation Library

C++

Custom Linux shell with animated terminal UX, command parsing, and job control.

- Built a **simplified Linux shell** with interactive and batch modes, featuring **custom command parsing**, **built-in commands** (echo, !!, jobs, etc.), and **I/O redirection** using fork, exec, and wait.
- Implemented **job control** for **foreground/background processes**, **signal handling** (SIGINT, SIGTSTP), and **asynchronous notifications** for background jobs.
- Designed a **bash-like UX** with **prev command history**, **custom prompts**, **true-color text formatting**, and **splash screen animations** using flip-book rendering and animated UI elements.

Web Server

C++

Built a **multi-threaded web server** in C++, supporting a subset of **HTTP/1.1 (RFC2616)** and **CGI-based POST request handling (RFC3875)**.

- Implemented **request parsing**, **response generation**, and **dynamic content integration** using **YACC** for structured input processing.
- Designed **concurrency architecture** to efficiently handle multiple client connections and serve dynamic responses in real-time using threads.

E-Sports Minecraft Modding and Server DevOps

JAVA, DOCKER, HTML, JS, FFMPEG-(WEBM), PYTHON, UNIX

E-sports competition platform with modding, server deployment, and participant coordination.

- Managed end-to-end competition logistics, including scheduling and participant coordination.
- Deployed dockerized game servers for matches, ensuring reproducibility and stability.
- Programmed custom mods by forking plugins to enforce competition rules and enhance gameplay.
- Built static websites and assets for onboarding and competition information using GitHub Pages.
- Created a registration dashboard using Python and Google Workspace API for seamless participant management.

Single Cycle MIPS Simulator

C++

Developed an instruction-level simulator for a subset of the MIPS architecture, supporting execution with accurate state transitions and core instruction emulation (arithmetic, branching, memory, system calls).

- Implemented instruction parsing, decoding, and shell-based execution controls (go, run <n>, mdump, rdump, etc.) with structured modeling of registers, memory, and program counter.
- Integrated endian-aware memory functions and verified correctness through simulation logs, register dumps, and extensive debugging.

Streaming Data Pipeline & Exploratory Data Analysis

PYTHON, KAFKA, DUCKDB

Real-time data pipeline integrating financial and event streams for time-series analysis.

- Developed a real-time data pipeline integrating financial market data (Yahoo Finance) and global event streams (GDELT) using Kafka, with ETL workflows for ingestion, cleaning, and transformation.
- Optimized data storage by converting .CSV.zip to Snappy-compressed Parquet, enabling fast, SQL-based analytics via DuckDB and reducing query latency.
- Applied time-series analysis and statistical hypothesis testing (Pearson correlation, Granger causality) to uncover relationships between media coverage and stock market movements across sectors.

JSON-Based Resume Generator

FLASK, JINJA2, TAILWIND, POSTCSS, JAVASCRIPT, SSE

Automated resume generator creating position-specific resumes from JSON using Flask and Jinja2.

- Engineered a Flask and Jinja2 web application that generates position-specific resumes from JSON data sources.
- Implemented server-sent events (SSE) via subprocesses to provide real-time updates during resume generation.
- Developed a filesystem watching system that automatically rebuilds resumes when source content changes.
- Created an index interface to browse all generated resumes for each position.
- Designed a modern Harvard-style theme using Tailwind CSS with PostCSS processing.

HateMatch - Dating Platform Web Application

VUE, VUETIFY, JAVA, SPRING

Dating platform web application that connects users through shared dislikes and contrasting preferences.

- Designed and developed the entire frontend using Vue and Vuetify, including user authentication, profile management, and simple interactive matching interface.
- Engineered custom Vuetify theme and a context sensitive floating cursor for fun profile navigation, elevating UX.
- Integrated Java Spring backend for secure user authentication and data management.
- Prototyped matching algorithm using pairwise user preference negation, enabling MVP-level functionality with future optimization in mind.

SKILLS

Programming Languages

C#/.NET Java Python JavaScript C/C++ TypeScript Go Scala Lua VEX GLSL

Web Development

HTML/CSS React Hugo Tailwind Spring-Boot Jinja2 Flask Vue NextJS Bootstrap Vite REST WebAssembly Electron ThreeJS Firebase Redis SQL MySQL PostgreSQL

Data Science

Jupyter-Notebook NumPy SciPy Pandas Seaborn Matplotlib MATLAB TensorFlow Apache-Spark

Graphics & 3D

OpenGL Godot Unity UE5 Houdini Maya Blender Cinema-4D Redshift Adobe-Suite ComfyUI DearImGUI CUDA OpenCL FFMPEG OpenCV

DevOps & Tools

Git Unix CMAKE JUnit GitHub-Actions Kafka Apache-Airflow Kibana-ElasticSearch Docker

AWARDS

Outstanding Cambridge Learners Awards - Thailand: Highest Achievement Award for Digital Media and Design 2020

Cambridge Assessment International Education

LANGUAGES

English: Native speaker, Thai: Conversational