

# Austin Jetrin Maddison

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Delivers end-to-end solutions by bridging frontend frameworks and backend services, with real-time data processing and automation.

## 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

### 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.

### 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.

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.

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.

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.

Streaming Data Pipeline & Real-Time Visualization

PYTHON, KAFKA, ELASTICSEARCH, KIBANA

Real-time financial visualization platform using Kafka, Elasticsearch, and Kibana dashboards.

- Built a real-time streaming data pipeline integrating financial market and currency exchange data from Alpaca Stream API and Free Currency API using Kafka for ingestion and Elasticsearch for storage and indexing.
- Engineered Elasticsearch queries for structured search, filtering, and aggregation, optimizing data retrieval and enabling real-time insights into financial trends and correlations.
- Designed interactive dashboards in Kibana and applied time-series analysis and ETL transformations for efficient data processing, schema optimization, and trend visualization across top companies and sectors.

Technical Blog Platform

HUGO, TAILWIND, THREE.JS, FFMPEG

Responsive static blog platform with custom Hugo theme, Tailwind styling, and rich media content.

- Built a UI framework with custom snippets for grid-based elements, dropdown reveals, animated thumbnails, embedded Three.js, and filter content by tag or category.
- Developed parallax scrolling effects with tag-based filtering systems, creating a visually engaging browsing experience.
- Ensured subtle animations for most interactable elements, making all user interactions feel polished but doesn't get in the way of the content.

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