Austin Jetrin Maddison

austin.mad.th@gmail.com   062 234 0864   https://austin-maddison.xyz   Mueng Phuket, Phuket, TH

Architects scalable server-side systems and data pipelines using Java Spring, Python, Kafka, and database technologies.

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

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)**.

- IImplemented **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.

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.

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.

- B**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.

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.

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.

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*