

Austin Jetrin Maddison

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Marries artistic vision with technical pipelines to create shaders, procedural tools, and optimized asset workflows.

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

Faithful Plant Placement

VEX, OPENCL, C++, PYTHON, HLSL, HOUDINI-ENGINE, UE5

Procedural vegetation simulation tools for Unreal Engine 5 based on environmental data.

- Developed **procedural simulation tools** for vegetation placement using climate, topology, and species data.
- Implemented **adaptive placement algorithms** and seeding logic using iterative optimization.
- Rendered **photorealistic snapshots** supporting simulation accuracy and art direction.

ATK Generator

ELECTRON, PYTHON, BLENDER-CLI

Cross-platform desktop app generating photorealistic ATK test results with handwritten timestamps.

- Developed a **desktop app** enabling users to input metadata and **generate photorealistic ATK test images** with handwritten timestamps with preset environments.
- Modeled and surfaced **high-poly 3D ATK asset** using Blender, Substance Painter, and Designer.
- Engineered a Python backend with **Blender CLI** to automate input textures and render jobs based on user-defined parameters.

Seamless City - Bangkok Design Week 2024

UNITY, C#, INTEL-REALSENSE

Multiplayer 3D installation

showcased at Bangkok Design Week 2024 with advanced graphics and depth sensing.

Implemented advanced graphics:

multifocal vignetting, cloth dynamics, SDF-based collisions, and interactive bloom/glare.

Extended Intel RealSense C# API

for onsite depth camera calibration.

Praised by 200+ attendees

for it's unique multiplayer interaction.

Separable Convolution Circular Lens Blur

C#, MATLAB, HLSL, UNITY-URP

Efficient real-time

Bokeh blur post-processing effect using separable convolution in phasor domain.

Implemented a post-processing Bokeh blur algorithm with O(n) runtime

instead of O(n²) using separable convolution in imaginary phasor space.

Prototyped algorithm in MATLAB

then ported to Unity HDRP using ShaderLab HLSL, enabling real-time cinematic lens effects.

Interactive Pathfinding Algorithm Visualizer

C#, HLSL, UNITY-URP

Real-time pathfinding algorithm visualizer

with modular search support and interactive UI.

Built a real-time algorithm visualizer supporting multiple search algorithms (A*, BFS, Dijkstra, Greedy)

with modular architecture.

Developed an event-driven UI system

with dynamic updates and heuristic cost overlays.

Integrated real-time performance metrics

and intuitive grid editor for scenario customization.

Hello Mascot

UNITY, C#, GOOGLE-MEDIAPIPE

Interactive mascot demo

enabling full-body pose tracking and stylized GPU shaders.

Enabled full-body interactions

using Google MediaPipe pose tracking.

Designed GPU shaders

for stylized visuals and procedural sprite based facial animation via UV sets and blending.

Modeled and animated high-fidelity characters

for live installations.

Delivered a successful proof-of-concept

for internal company's product portfolio.

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.

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