

Luke Cullen

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EDUCATION

University of Central Florida

Bachelor of Science in Computer Science - Minor in Data Science - 3.72 GPA

Orlando, FL

August 2023 – May 2027

EXPERIENCE

Web Developer Intern

October 2025 – Present

CDL Techrangers

Orlando, FL

- Developing web software with the **CDL Techrangers**, a team inside UCF which develops **open-source educational software** used by **100+ institutions** and **tens of thousands of students** worldwide.
- Deployed an open-source **Flask** tool for processing quiz accessibility requests on **AWS EC2** servers, after rewriting **41** unit tests and refactoring the app to use **Docker**, as well as the latest LTI 1.3 standard, resolving **over a dozen** open GitHub issues.
- QA tested** and **rewrote 30%** of all widget components from **PHP to Python** in porting our flagship product, **Materia**.
- Redesigned our Crossword widget to be **fully responsive**, rewriting camera controls and **implementing full mobile support**, which increased the maximum supported puzzle area by **over 400%**.
- Working with our **UI/UX team** to implement their **Figma** design for our Word Guess widget, **rewriting** most of its front-end and scoring systems while improving its **responsiveness** and **accessibility**.

Senior Hackathon Organizer, Developer

July 2025 – Present

Knight Hacks

Orlando, FL

- Organized the **Knight Hacks VIII** hackathon with **90% positive ratings**, as well as developing for our hacker management infrastructure, **Blade**, which achieved a peak of about **850** concurrent users during the event.
- Authored **attendance tracking systems** and an accompanying management interface in **React, Tailwind, and tRPC/Node**, storing valuable metrics for **60** workshop/sponsor events and **6,400+** check-in instances throughout the weekend while implementing **rapid hot-fixes**.
- Designed a point system** for our hackathons, which **tracks participant engagement** through point-based rewards for event attendance and presents a leaderboard to **promote competition** between teams.
- Created a **permission management system** for **Blade**, which syncs roles with our Discord community to allow for **improved onboarding** of new team members and **heightened security** for our hackathon operations.

Lead Developer, Vice President

May 2025 – Present

DenTraceX

Orlando, FL

- Co-founded a non-profit organization** dedicated to collecting dental records of missing persons, in order to cross-reference them with unidentified remains.
- Authored our organization infrastructure **entirely from scratch** using **React/Tailwind, ExpressJS/Node, PostgreSQL**, as well as our own self-hosted **AWS-compatible S3 bucket** storage solution.
- Constructed a **novel** code-based representation for jaw/tooth records, allowing easy searching/filtering to identify **real-world** human remains, intended for use by **medical examiners and independent investigators**.

PROJECTS

VL-ADK | *Google ADK, Python, NVIDIA NemoTron, YOLO-E, React, FastAPI*

September 2025

- Created at **ShellHacks 2025** with a **team of 3**, won **1st place** for **NVIDIA's Hack the Future Challenge**, **2nd place** for **Microsoft's AI for Good Challenge**, and **3rd place** for **Waymo's Reimagining Navigation Challenge**.
- Mimicks the functionality of a **generalized VLA robotics model** using a fleet of **Google ADK** agents.
- Allows **dynamic prompting** of a cost-effective **NVIDIA Jetson Orin**-powered robot, achieving **intelligent movement and spatial reasoning**, even with extremely limited sensing capabilities.
- With the assistance of a **YOLO-E** model for object detection, accomplished **structured paths and object search/navigation** behaviors, completely operated by **autonomous AI agents**.

ReStory | *Python, WhisperX, ArcFace, React, Gemini AI*

January 2026

- Worked with a **team of 4** to create a wearable/web-app at **SwampHacks 2026**, that **helps Alzheimer's patients** passively remember their loved ones, won **1st place** overall out of **112** projects.
- Uses an **ArcFace** model with **WhisperX** to generate face embeddings that are then intelligently paired with the person's voice signature to track their conversations.
- Generates personal profiles with **no user input** based on face/voice data that **summarizes a person's relationship** to the user.

Lootcode | *React, Clerk, TypeScript, MySQL, Zx Shell, Docker, tRPC*

February 2024 – May 2024

- Developed a **gamified study application** with my **team of 5** over **3 months** for **Knight Hacks Project Launch 2024** to study Data Structures and Algorithms, featuring **100+ unique problems**, which won **1st place**.
- Live-generates **Docker containers** to self-host code grading instances for *each user*, maintaining **server security**.
- Accumulated **50,000+** page visits and **500+** monthly active users, featured in **Linux Magazine's** OSS section.

TECHNICAL SKILLS

Languages: Java, Python, C/C++/C#, Lua, SQL, TypeScript, HTML/CSS, PHP

Software/Services: MySQL, PostgreSQL, MongoDB, Redis, Node.js, Google Gemini, Google ADK, GraphQL/REST/RPC APIs

Libraries/Frameworks: React, ExpressJS, FastAPI, Flask, Django, S3, Prisma, Clerk, JWT, tRPC, Tailwind CSS, Websockets, OpenCV, MediaPipe, pandas, YOLO-E

Developer Tools: Linux, Coolify, Git, Docker, VS Code, Eclipse, Cursor AI