

# Alexander Bui

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## EDUCATION

### Texas A&M University

*Bachelor in Computer Engineering*

College Station, TX

Aug. 2024 – May 2028

### Westwood High School

*GPA: 3.96*

Austin, TX

Aug. 2020 – May 2024

## PROJECTS

### OpenGL Graphics Engine | C/C++, OpenGL, CMake

Apr. 2023 – Present

- Programmed the graphics pipeline from the ground up with OpenGL and C++
- Implemented rendering using an ECS architecture with lighting, textures, and imported .STL models using a custom loader
- Created both static and dynamic bounding volume hierarchies to detect broad-phase physics collisions

### CUDA Accelerated Raytracer | Python, CUDA, Taichi

May 2024 – Present

- Explored raytracing algorithms and material rendering using JIT compilation to heavily increase runtime and prototyping speed
- Used CUDA concepts like kernels and thread synchronization to accelerate code by 20x
- Modeled the reflection and refraction of light through different glassy materials

### Custom Radio

June 2023 – August 2023

- Built and soldered a custom radio kit to learn circuit assembly basics
- Made modifications to increase volume and improve sound quality

## EXPERIENCE

### Taco Cabana, Line Cook/Cashier

Summer 2023-2024

### Fazoli's, Line Cook

Summer 2022

### Fantastic Magic Camp, Camp Counselor

Summer 2021

## LEADERSHIP

### Coding Club Project Manager

Sep. 2024 – Present

*Texas A&M University*

*College Station, TX*

- Led and taught a team of 7, using Git to track issues and push project features
- Developing a full-stack web application using Nextjs, Expressjs, and PostgreSQL to crowd-source event and organization information
- Deployed website on a virtual private server using Docker to streamline the automated startup and create process redundancy

### Cyberpatriot Team Lead

Aug. 2020 – May. 2024

*Independent*

*Austin, TX*

- Led an independent team of 6 to complete a series of cybersecurity challenges hosted by the United States Air Force
- Created public learning materials for securing Ubuntu-based operating systems
- Received the *National Platinum Semifinalist* award

### FIRST Robotics Lead Programmer

Aug. 2023 – May. 2024

*Westwood High School*

*Austin, TX*

- Led and worked alongside a team of 13 during afterschool and weekend meetings, building a robot for the FTC competition
- Created custom vision pipelines using Java and OpenCV for autonomous decision-making
- Guided 6 other school teams using my robotics experience

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, C#, SQL(Postgres), JavaScript, CUDA, HTML/CSS, Bash

**Frameworks:** Node.js, React, Nextjs, Expressjs

**Developer Tools:** Git, Github, Docker, Firebase, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, Unity

**Libraries:** pandas, NumPy, Matplotlib, Taichi