

# Alexander Bui

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## EDUCATION

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### Texas A&M University

Bachelor's of Science, Computer Engineering

College Station, TX

Aug 2024 — May 2028

- Cumulative GPA: 4.0/4.0
- Relevant Coursework: Program Design and Concepts, Calculus III, Linear Algebra, Statistics I, Intro to Python

## PROJECTS

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

Apr. 2023 — Present

- Built a graphics pipeline from scratch using OpenGL and C++.
- Implemented rendering with an Entity-Component-System (ECS) architecture, supporting lighting, textures, and custom .STL model loading.
- Accelerated broad-phase physics collision detection with static and dynamic bounding volume hierarchies.

### Aggie Events | React, NextJS, ExpressJS, PostgreSQL, Docker

Sep 2024 — Present

- Designed and developed a full-stack web application to crowdsource event and organization information for the Texas A&M campus.
- Built a REST API and middleware with Express.js and PostgreSQL to optimize complex tag search queries.
- Engineered robust authentication and session management systems with OAuth 2.0 to safeguard user interactions.
- Enhanced website deployment speeds by 250% through a custom CI/CD pipeline using Docker and Bash.

### CUDA Accelerated Raytracer | Python, CUDA

May 2024 — Sep 2024

- Developed a raytracer to explore raytracing algorithms and material rendering, leveraging JIT compilation with the Taichi library for rapid prototyping and runtime optimization.
- Applied GPU parallelization techniques, including kernels and thread synchronization, to achieve over 20x performance improvement.
- Simulated realistic light interactions with reflective and refractive materials for realistic rendering.

## WORK EXPERIENCE

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### Taco Cabana, Line Cook/Cashier

Summer 2023 — Summer 2024

### Fazoli's, Line Cook

Summer 2022

### Fantastic Magic Camp, Camp Counselor

Summer 2021

## LEADERSHIP

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### Project Manager

Sep. 2024 — Present

Texas A&M University

College Station, TX

- Led a 7-member team, mentoring in full-stack web development and streamlining task management.
- Managed version control, issue tracking, and deployment scrips using Git.
- Recognized as **Best Project Manager** for Fall 2024.

### FIRST Robotics Lead Programmer

Aug. 2023 — May 2024

- Led a 13-member team in designing, programming, and building a competition-ready robot for the FTC challenge during afterschool and weekend sessions.
- Developed custom vision pipelines with Java and OpenCV, enabling autonomous decision-making capabilities for robot.
- Mentored and provided technical guidance to six other school robotics teams, leveraging extensive robotics expertise.

## SKILLS

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- Languages:** C/C++, JavaScript, Python, SQL, Java, TypeScript, CUDA, HTML/CSS, Bash, Rust
- Technologies:** Git, Linux, Docker, Node.js, OpenGL, React, NextJS, ExpressJS, PostgreSQL
- Soft Skills:** Oral & written communication, public speaking, presentations, teamwork