Ben Xu

benxu.dev | (917) 822-2148 | benjamin.xu@utexas.edu | github.com/AlterionX | US Citizen

EDUCATION

University of Texas at Austin — **Bachelor of Science in CS (Turing Scholar)**
Planned Graduation: May 2020 — **GPA:** 3.7

KNOWN TECH Rust, C, C++, OpenGL, TypeScript, Kotlin, Java, Golang, Android, Python, React, Git, Bash, Linux

EXPERIENCE

Goodtime *— San Francisco, CA*

Fullstack Engineering Intern (May—August 2019) (JavaScript, TypeScript, React, SCSS, PostgreSQL)

- Enhanced email sending by implementing a mechanism for tracking and resending emails.

Vieyra Software, Inc. *— NYC, NY*

Architecture Consultant (December 2018, August 2019) (Java 8, Kotlin, Android, ARCore)

Android Engineering Intern (May—July 2017) (Java)

- Architected an AR magnetic field visualization application for Android. Currently being implemented.
- Built an Android application to teach physics through small activities. 1K+ downloads.

Visa Inc. *— Austin, TX*

Backend Engineering Intern (May—August 2018) (Java 8, Maven, WebAuthN, OAuth2)

- Lead intern team in implementing a WebAuthN prototype. Presented to VP. Adopted by internal security.
- Devised & developed specialized Java annotations to eliminate 90% of boilerplate code in a custom framework.

OneTesla Inc. *– Boston, MA*

Android Engineering Intern (May—August 2016) (Java 6, Android, BLE, C)

- Built Android app communicating over BLE for connecting to custom hardware.

PROJECTS

benxu.dev (Rust, WASM, Diesel, Rocket, JS, CSS, HTML, PostgreSQL, Google Cloud Platform, Cloudflare)

- Built my personal site almost entirely with Rust. Implementing a CMS, a key rotation system, and PASETO.

Totality (Rust + FFI, Vulkan)

- Explores rendering/simulation system for fluids as well as meshes and their interactions.

Mesh shattering (C++14/17, Eigen)

- Experimented with the collision and shattering of rigid bodies as tetragonal meshes.
- Optimized ~10 seconds lag spikes to near real time (~50-20 milliseconds).

Explosion (Gas/Heat) simulation — Thermal Lillette (C++14/17, OpenGL, GLM, GLSL)

- Architected the framework for the model and implemented voxel-based data structures.
- Implemented Compute Shaders to take advantage of GPU acceleration.

Ocean Simulation (C++14, OpenGL, GLFW, GLM, GLSL)

- Prototyped wave generation, object motion caused by waves, dynamic mesh construction and instancing.
- Architected multithreaded, buffered key inputs for buttery smooth multikey input as well as job queue.

Ray Tracer (C++14, OpenMP)

- Developed a simple ray tracer. Implemented various filters, including depth of field filters.

Bifrost — Compiler (Java)

- Designed and implemented a multi-stage compiler for context-free languages.
- Implements a regex engine, a lexer, an LR parser, and an AST and IR translation.
- Exposed a tree walking API for arbitrarily complex compile time operations and able to dynamically load code.

Capture the Flag Agent (Python, TensorFlow)

- Created neural net model for running capture the flag games against other teams. Placed at 10th of 30 agents.