
EDUCATION**California Polytechnic State University, San Luis Obispo** (Cal Poly) - Bachelor of Science in **Computer Science***Degree
Received
in 2021*Coursework: Programming Language Construction, Systems Programming, Graphics, Object Oriented Programming, Game Development, Databases, Linear Algebra, Theory of Computation, Data Structures, Algorithm Classification

WORK EXPERIENCE

SOFTWARE DEVELOPMENT ENGINEER - AMAZON

- **Data persistence, server-side rendering, and asset distribution for [goodreads.com](https://www.goodreads.com).**
Was given a high visibility frontend redesign to implement in my first week - drove stakeholder communications and found technical workarounds to meet product's original (very ambitious) release timeline. Designed and implemented a new Relational Database Service using AWS Aurora, migrating three ~5TB self-hosted MySQL Clusters and eliminating over 70% of annual site downtime.
- **Content ingestion for Kindle Direct Publishing (KDP) - Amazon's self-publishing platform**
Created optimizations and hotfixes for a legacy system of 58 different content risk management, inspection, and analysis services connected by 8 different workflows. Researched, prototyped, and presented a method of modernizing two of the workflows using AWS ECS, SQS, Route53, and APIGateway. Proposal was accepted by VP-level management and is still in development.

*April
2022 to
Present**Sept 2021
to April
2022***JUNIOR SOFTWARE DEVELOPMENT ENGINEER - AMAZON**

- **Customer Relationship Management for KDP**
Designed and implemented a Data Subject Access Request (GDPR Compliance) automation system using AWS Cloud Development Kit, DynamoDB, Lambda, S3, and a React front-end.
- **Home page, Title Setup Workflow, and Bookshelf for KDP**
Delivered the "/terminated" endpoint, providing dynamic communication to thousands of customers per week.

*Sept 2019
to June
2021***COFOUNDER - GO FACE GAMES**

- **Team-based deckbuilding roguelike.**
One of two founding members of a nine-person team. Drove initial ideation sessions, official equity division agreements, and roadmapping for each sub-team. Recruited, onboarded, and now managing three artists, two writers, and a musician. Implemented a map customization interface using XML, instantiating the map in Unity. Implemented a card customization UI with ScriptableObjects. Contributing software architecture guidance.

*March
2022 to
Present***SOFTWARE LEAD - CAL POLY CUBESAT LABORATORY**

- **NASA Ames Research Center's XCube Project**
An environment management system and communications interface NASA's high-altitude aircraft use to carry third-party science payloads. Was responsible for the entirety of the project's software. Designed, documented, and presented a 16 bit i2c communications standard for common use by the science payload, the aircraft, and the XCube carrier's systems, vastly simplifying electrical design constraints. Led the lab's team in implementing asynchronous i2c communications software in Python.
- **Purdue's Aerodynamic Deorbit Experiment**
A satellite mission to deploy an experimental drag sail that will reduce the time that unused satellites remain in orbit. Mentored a total of twelve Purdue students on our custom Linux kernel for experiment state control. Designed and implemented motor controls external to their state machines, responsible for the delivery of mission-critical code.

*Jan 2018
and Sept
2019*

TECHNICAL PROJECT SAMPLES - UNITY

- **TRISOURCE - A 3D action/puzzle game set in a Tron-inspired cityscape.**
Modeled the cityscape and created fully rigged 3D models in Blender, integrating them with Unity. Implemented custom inverse kinematics animations on non-humanoid models. Wrote, performed, and edited three loop-able tracks of piano-based music. Provided general software architecture guidance for the team.
- **CYTOCELL - A top-down arcade game based on surviving as a microorganism in a tidepool.**
Created core game mechanics, including detection and destruction of enemies based on player-created polygons. Implemented all visuals using Unity's HLSL shading language using custom algorithms and area functions.
- **BLOODY UGLY - A survival game centering on line-of-sight mechanics.**
Implemented a generalizable swarm enemy control system using vector math and Boids concepts.

*Jan 2021
to June
2021**Dec 2020
and Dec
2021**Jan 2020*

AFFINITIES

- Unity, Blender, AWS Cloud Development Kit, Linux/Unix, REST, IP/HTTP, Git, Jira
- C#, C, C++, Java, Javascript, Typescript, Kotlin, Python, React
- Theater acting, improv comedy, piano

TECHNICAL PROJECTS - GENERAL

- *Air Force Association's Cyberpatriot* cybersecurity competition - **Two time national finalist** defending against red teams from Facebook and Twitter
- *FIRST Robotics Competition* - **State Champions** with the team I founded and captained.