

# Alex Saalberg

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## EDUCATION

California Polytechnic State University - San Luis Obispo, CA

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*Bachelor of Science: **Computer Science**, Minor: **German***

## SOFTWARE PROJECTS

Remote-File-Copy                      C, UDP                      2018

- ❑ Released 2 program server/client project for downloading files remotely.
- ❑ Designed custom layer 4 protocol for transmitting data using POSIX Sockets
- ❑ Implemented error-control (ARQ) for reliable data transmission over UDP

TCP Chatroom                      C, TCP                      2018

- ❑ Created 2 program server/client project used to chat remotely
- ❑ Constructed a custom Layer 4 protocol built on TCP

Base-ic Data                      Scala, Apache Spark                      2017

- ❑ Analyzed effect of MLB pitch type on hitter performance using distributed computing
- ❑ Utilized Scala and Apache Spark, the in-memory cluster-computing framework.

ARM Emulator                      C++, ASM                      2016

- ❑ Implemented logic of ARM Thumb-Mode assembly instructions for virtual machine

## WEB PROJECTS

Personal Website                      HTML, CSS                      2018

- ❑ Created alexsaalberg.com, a github pages website written using HTML and CSS

## GAME PROJECTS

Game of Stones                      C++, git, CMake, GLSL                      2018

- ❑ Released a 3D Voxel-Terrain, "Colony Management" video game prototype
- ❑ Created a custom OpenGL 'Voxel' Engine using the PolyVox and BulletPhysics libraries

Helico-opter                      C++, git, CMake, GLSL                      2018

- ❑ Released a co-operative side-scrolling 'arcade' video game
- ❑ Collaborated on a 6 person graphics project over the course of 10 weeks
- ❑ Designed a custom 3D C++ OpenGL Engine using GLFW and GLAD
- ❑ Implemented a semi-fixed timestep with implicit euler integration and interpolation
  - ❑ Integrated Box2D physics library

Dead Giveaway                      Java, SVN, JSwing, Junit, Mockito                      2016

- ❑ Released a turn-based networked card game (rules based on Clue the Card Game)
- ❑ Managed a 6 person software engineering team for 6-months
- ❑ Developed a GUI using Java Swing, and a network protocol using Java.net
- ❑ Implemented the Model-View-Controller user interface architectural pattern
- ❑ Contributed to full unit test coverage using the JUnit and Mockito frameworks

Restart                      Java, Greenfoot                      2013

- ❑ Developed a top-down 2D stealth/puzzle game using the Greenfoot IDE and Engine
- ❑ Contributed to a 10 week, 4 person game design project

## SKILLS

**Programming Languages:** C++, C, C#, Java, Python, GLSL, Asm(Arm), HTML, CSS, JS, SQL

**Frameworks/Libraries:** OpenGL, JUnit, BulletPhysics, Box2D, Handlebars