

# Chandler Calkins

Software Engineer / Developer

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## EDUCATION

### Computer Science (B.S.)

University of Idaho  
Moscow, ID | May 2023

### High School Diploma

North Creek High School  
Bothell, WA | June 2019

## SKILLS

C / C++

Python

Java

MySQL

HTML / CSS

PHP

Flex / Bison

Network Security

Machine Learning

Game Design in Unity / C#

Compiler Design

Digital Forensics

Discord.py API

Bash

PowerShell

GitHub

Video Editing

Leadership

## PROFILE

I'm a soon to be graduated computer science student looking for software engineering / software developer jobs. I specialize in cybersecurity and have experience writing and optimizing efficient code, so I can help your organization write secure and fast applications. I'm also a fast learner, a great teammate, I have leadership experience, and I love programming and learning new things.

## EXPERIENCE

### Research Assistant

University of Idaho | Moscow, ID | February 2022 – May 2022

Optimized a grammar based fuzzing tool originally written by a PhD student to run 10%-40% faster through removal of unnecessary code and replacing an  $O(N^2)$  algorithm with an  $O(N)$  algorithm. Also performed maintenance and testing on the code. Worked in Python and Ubuntu Linux.

### Auction Assistant

Maxsold | Seattle Area, WA | May 2021 – August 2021

Worked with a team to photograph and upload descriptions of auction lots for estate and downsizing sales. Also guided customers to their lots and provided security at auction pickups.

## PORTFOLIO

### [Wonky Wizards](#)

This is a 2D tower defense + shooter game made in Unity in Fall of 2021 for a University of Idaho software engineering class by a team of 7 people in about 12 weeks. I was the game design lead, which meant that I came up with the idea for the game and lead the team in designing both the game's mechanics and creative aspects. I was also one of two Software Architecture leads who were responsible for learning Unity by ourselves and then teaching the rest of our team how to use it, as well as designing the underlying systems in the game.

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## AWARDS

Eagle Scout

Scouts BSA

Troop 356 | November 2018

## CERTIFICATIONS

Cybersecurity Undergraduate

Academic Certificate

University of Idaho

Moscow, ID | May 2023

## ACTIVITIES

University of Idaho Robotics Club

Mobile Robot Team

August 2022 – May 2023

Lead Software Engineer

University of Idaho Cyber Team

NCAE Cyber Games | March 2023

2<sup>nd</sup> Place | Northwest Regional

Scouts BSA

Troop 356 | 2012 - 2019

Eagle Scout | Order of the Arrow

Senior Patrol Leader

PC Gaming, Hiking, Video Editing

## PORTFOLIO

### [Wonky Wizards cont.](#)

I gained lots of valuable leadership experience from these responsibilities. I was individually responsible for making the player, which involved making the controls, handling the player state (health, mana, etc.), and managing player physics interactions. Our team gained experience and practice with industry development methods like waterfall and agile, as well as with planning documents like RFPs, Gantt charts, and Pert charts over the course of this project.

### [Python Viruses](#)

These are demo viruses for windows that infect python files. They were made for a presentation on viruses in a University of Idaho cybersecurity class in the Fall of 2021. My partner and I were not required to write any code for this presentation, but we thought it would make the presentation more fun and interesting. I was responsible for writing viruses, and my partner was responsible for making antiviruses for my viruses to demonstrate. My partner was unable to make an antivirus for one of my viruses however since it was polymorphic, and therefore not detectable with signature methods. The viruses increase in complexity and danger from virus 1 to virus 3 so we could explain the steps of making a virus to the class incrementally. The discord virus infects discord bots and makes them kick everyone and delete every channel from every server that they're in when they start up. My professor hired me for the research assistant position after the presentation.

### [Random Sound Discord Bot](#)

This is a discord bot that I made in my free time for some of my friends as a joke. It joins voice channels at random times and plays random sound files that you can upload to the bot. It's a highly customizable bot; there are lots of settings that you can change in it. I made the bot in the Winter of 2021 – 2022 and it helped me learn a lot about Python, the Discord.py API, asynchronous programming, and how to use GitHub.

### [Database-Website Interface Project](#)

This project is a website that allows users to submit queries to a database to search for products and services.

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## REFERENCES

Jia Song

Professor, University of Idaho

[jsong@uidaho.edu](mailto:jsong@uidaho.edu)

Michael Wilder

Professor, University of Idaho

[mdwilder@uidaho.edu](mailto:mdwilder@uidaho.edu)

Gabriel Jones

Colleague, University of Idaho

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## CONTACT

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## PORTFOLIO

### [Database-Website Interface Project cont.](#)

It was created in the Spring of 2022 in under a month by me and a partner for a final project in a University of Idaho Database Systems class. To complete this project, I learned how to program in PHP, I used bootstrap for some of the project, and I learned how to interface with a MySQL database in PHP.

### [Quad-Legged Walking Bot](#)

This project is a work in progress codebase for a four-legged spider-like robot that can walk. It is being made for the Mobile Robot team in the University of Idaho Robotics Club, and the goal of the project is to get the robot to solve a maze while walking through it. It was initially created in the Fall of 2022. Over the course of this project, I've learned a lot about how to use Raspberry Pis and Dynamixel X-series servos. I've also been using this project to practice maintaining a clean codebase with good documentation and standards that gets used by multiple people since this project is supposed to last beyond my graduation, and we built it from scratch. As the lead software engineer of the team, I've also been teaching new computer science freshmen who joined the team about the codebase as well as how to code in Python. It's also been good leadership experience as well.

### [C- Compiler](#)

This project is a compiler for the C- programming language. It was made for a University of Idaho compiler design class in 14 weeks in the Fall of 2022. It checks for errors and generates executable files for the Tiny Machine (a virtual machine with its own assembly language). The class is notorious at my university for being the hardest computer science class and having a high failure rate. I managed to be one of the only people in my class who got a fully working compiler and received an A that semester. We learned how to make a compiler in C / C++ using Flex and Bison over the course of a semester.

### **Robotic Arm Assembly of Solar Arrays**

This project is to get two Denso robotic arms to automatically assemble solar arrays (grids of tiny solar cells). It is my senior engineering capstone design project for my degree at the University of Idaho, and it was given to me and a multidisciplinary team of engineers by NASA. The project started in the Fall of 2022 and will be finished by May 2023.

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## PORTFOLIO

### Robotic Arm Assembly of Solar Arrays cont.

The team working on the project consists of two computer scientists (me included), 3 mechanical engineers, and 1 electrical engineer. We've had to design parts to attach to the robots that can carry out the steps necessary to assemble solar arrays, connect everything together with circuitry, and then program the robotic arms and the attached parts to assemble the arrays. This project taught me a lot about working with a multidisciplinary team of engineers, as well as a lot about robotics and how to use Denso robotic arms.

### [Capstone Meeting Discord Bot](#)

This is a discord bot that keeps track of meetings and duties for my senior engineering capstone design team (mentioned in the Robotic Arm Assembly of Solar Arrays project). Since my capstone team uses discord to communicate, I made this bot to help us keep better track of when our meetings are and who's on what duty for each meeting. I also thought it would be fun to make the service available to other people, so I started running it on a personal server and invited all other capstone teams to use it. There are currently 12 other capstone teams using it. I learned a lot about programming things to revolve around dates and times from this project, as well as a bit about server management.