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
C#
HTML / CSS
Javascript
PHP
SQL / MySQL
Linux / Unix
Bash / Shell Scripting
GitHub
Cybersecurity
Robotics
Machine Learning
Game Design / Unity
Compiler Design
Digital Forensics
Discord.py API
Video Editing

PROFILE

I'm a computer science graduate 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 also have leadership experience, I'm very patient and love helping people, I'm a fast learner, and I love programming.

EXPERIENCE

Optimization Engineer

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

Personal Website

This website is a fancy version of my resume that I made to practice my web development skills. I modified the HTML and CSS code of a website template to create this website. I also taught myself some Javascript to optimize the Javascript code in the template and fix a bug in it as well. The background was recorded and edited by me and the site is hosted on Github Pages.

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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

CompTIA PenTest+
April 2023

ACTIVITIES

University of Idaho Robotics Club
Mobile Robot Team
August 2022 - May 2023
Lead Software Engineer

NCAE Cyber Games
March 2023 | University of Idaho
2nd Place | Northwest Regional

Scouts BSA
2012 - 2019 | Troop 356
Eagle Scout | Order of the Arrow
Senior Patrol Leader

PC Gaming, Hiking, Video Editing

PORTFOLIO

TF2 Match Predictor Neural Network Framework
This project was to collect data and research different neural networks that can predict the exact scores of each team in competitive Team Fortress 2 Matches given what players were on each team, what map they played on, and the date of the match. It was for a final project in a machine learning class and was made in one week in May 2023. It contains a program that can automatically collect data on competitive TF2 matches from a website called logs.tf and a program that can build various neural networks that predict the scores of each team in a match. Using a dataset of logs from professional TF2 players, I built and tested several neural networks with the best one achieving a test set accuracy of 66%.

Robotic Assembly of Solar Arrays
The goal of this project was to make it so two Denso robotic arms could automatically assemble solar arrays (grids of tiny solar cells). It was 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 was completed in April 2023. We designed parts to attach to the robots that can carry out the steps necessary to assemble solar arrays, created circuits to connect everything together, and programmed the robotic arms and the attached parts to assemble the arrays. We used the PAC programming language to control the robotic arms and Python programs on a Raspberry Pi to control the attachments on the arms.

Quad Legged Walking Bot
This project is a codebase for a four-legged spider-like robot that can walk. It was made by me for the Mobile Robot team in the University of Idaho Robotics Club, and the goal of the project was to build a robot from scratch that could walk. The project started 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 continue beyond my graduation. As the lead software engineer of the team, I took on a leadership role and taught people with less coding experience how to program the robot using this codebase. I also made sure that the codebase was easy enough to use for people with little coding experience.

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REFERENCES

Kip Sikes
Robotics Club Mentor, University of Idaho
kipsikes@uidaho.edu

Jia Song
Professor / Supervisor, University of Idaho
jsong@uidaho.edu

Michael Wilder
Professor, University of Idaho
mdwilder@uidaho.edu

Gabriel Jones
Colleague, University of Idaho
toastfulboast@gmail.com

CONTACT

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PORTFOLIO

Capstone Meeting Discord Bot
This is a discord bot that kept 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 used discord to communicate, I made this bot to help us keep better track of when our meetings were and who was 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. Eleven other capstone teams used it after I made it available. I learned a lot about programming things to revolve around dates and times from this project, as well as a bit about server management.

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). I used Flex and Bison to make this compiler.

Database-Website Interface Project
This project is a website that allows users to submit queries to a database to search for products and services with several different search types. 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, we used HTML and CSS with some Bootstrap code, taught ourselves how to program in PHP, and taught ourselves how to interface with a MySQL database in PHP.

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 also highly customizable. 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.

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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 led 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. 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 to make them run malicious code at the start of their execution. They were made for a presentation on viruses in a University of Idaho cybersecurity class in the Fall of 2021 by me and a partner. The virus1.py to virus3.py programs are viruses that incrementally increase in complexity for the purpose of showing the class the steps of making a virus. The DiscordVirus.py program demonstrates the infection of a discord bot for fun. 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 virus3.py however since it was polymorphic, and therefore not detectable with signature methods. My professor offered me a position as a cybersecurity research assistant after the presentation.