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 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

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

TF2 Match Predictor Neural Network Framework

This project was to collect data and research different neural networks that can predict the outcomes of competitive sixes 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 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.

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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 cont.

Using a dataset of logs from professional TF2 players, I was able to build a network that could predict the exact scores of each team in a competitive match with 66% accuracy.

Robotic Assembly of Solar Arrays

This project was making 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. The team consisted of two computer scientists (me included), three mechanical engineers, and one electrical engineer. 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. 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 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.

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REFERENCES

Kip Sikes

Robotics Club Mentor, University of
Idaho

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Jia Song

Professor, University of Idaho

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Michael Wilder

Professor, University of Idaho

mdwilder@uidaho.edu

Gabriel Jones

Colleague, University of Idaho

toastfulboast@gmail.com

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PORTFOLIO

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.

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 3 different search types. The 3 types of searches that it allows you to do are string-matching searches to find products and services based off their names, an attribute-based search for products, and an attribute-based search for services. 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.

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.

PORTFOLIO

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 make it so the num lock, caps lock, and scroll lock lights on your keyboard flash on and off repeatedly while the string "LOL " gets spammed through your keyboard over and over again as well so you can't type anything. On top of that, the script that does this to your keyboard gets run every time your computer gets restarted too. 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 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. My professor hired me for the research assistant position after the presentation.

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. 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.