Caleb Biddulph

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Github | LinkedIn | Portfolio

SUMMARY

Cornell student with 5 years of experience creating innovative programming projects, interested in further developing skills through a challenging internship

EDUCATION

CORNELL UNIVERSITY

BS in Computer Science
Expected May 2023 | Ithaca, NY
College of Engineering
Dean's List
GPA: 3.706 / 4.0

COURSEWORK

UNDERGRADUATE

Spring 2020
Object-Oriented Programming
Linear Algebra
Differential Equations
Fall 2019
Discrete Structures
Multivariable Calculus
Operations Research

HIGH SCHOOL

Data Structures
Mobile App Development
Video Game Design

SKILLS

Languages:
Java • Python • C# • Ruby • Swift
HTML5 • CSS • JavaScript

Tools:
Visual Studio • Ruby on Rails
Unity Game Engine • Xcode
Windows Command Line

CAREER INTERESTS

Software Engineering
Artificial Intelligence
Algorithm Design
Modelling/Simulation

EXPERIENCE

CORNELL AUTONOMOUS BICYCLE | Project Team Member

February 2020 – Present | Ithaca, NY

- Implemented the pure pursuit path-following algorithm in Python, allowing the team's robotic bike to drive without human intervention
- Wrote code to convert routes from Google Maps API into a list of coordinates

THREE BEARS | Co-founder, Software Engineer

May 2020 - August 2020

- Developed a website in Ruby on Rails that allows users to record events
- Designed an interactive timeline interface in HTML/CSS/JavaScript
- Presented a business plan in a pitch competition as part of ORIGIN Bootcamp, a summer program for startups

FIRST ROBOTICS COMPETITION | Team Co-founder

January 2018 – July 2019 | Frisco, TX

- Co-founded a student-run FRC team by recruiting sponsors and teammates
- Engineered the robot's drivetrain program in Java to smoothly respond to varying angles and magnitudes of thumbstick input

SUBWAY / CORNELL DINING | Food Service Worker

Summer 2019, October 2019 - March 2020, Summer 2020

PROJECTS

POLYGON ART GENERATOR [link]

- Developed a program in Python that automatically synthesizes visually-pleasing polygon art from photos
- Program reduces unappealing jagged edges by decreasing color variance per triangle to under 50%, compared to the naive solution

NEURAL NETWORK / ADVERSARIAL ATTACKER [link]

- Implemented a neural network in Python that recognizes handwritten digits using the MNIST dataset with up to 95% accuracy
- Designed a white-box algorithm that adds noise to an MNIST image to fool the neural network into identifying it as the wrong digit
- Adversarial images differ from original by only 2%

"CAMEL UP" AI PLAYER [link]

- Hand-coded an AI in Java to play a strategy board game
- Solution uses Monte Carlo analysis to choose ideal moves given board layout and past behavior of other players

CONJUGATE [link]

- Launched a puzzle-platforming game with a teammate in Unity and C#
- Sold a license to Cool Math Games

AWARDS

- 1st place in the world - Destination Imagination Scientific challenge
- Eagle Scout, one of ~300 people in history to earn every merit badge
- 4th place of 22 submissions - Games Factory Jam 5
- Rookie All-Star and Highest Seed Award - FIRST Robotics Competition