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
Computer Science, BS
Expected May 2023 | Ithaca, NY
- College of Engineering
- Dean's List

GPA: 3.706 / 4.0

COURSEWORK

Spring 2021
- Functional Programming
- Reinforcement Learning
- Large Scale ML
- Computer Vision
- UNIX Tools and Scripting

Fall 2020
- Machine Learning
- Computer Organization
- Probability and Statistics

Spring 2020
- Object-Oriented Programming
- Linear Algebra
- Differential Equations

Fall 2019
- Discrete Structures
- Multivariable Calculus
- Operations Research

SKILLS

Languages:
- Java • Python • C • Ruby • Swift
- HTML5 • CSS • JavaScript • SQL

Tools:
- Visual Studio • Vim • UNIX
- Windows • Ruby on Rails
- Xcode • Unity Game Engine

CAREER INTERESTS

- Software Engineering
- Artificial Intelligence
- Algorithm Design
- Modelling/Simulation

EXPERIENCE

ECHOAR | Software Engineer Intern
September 2020 – November 2020
- Assisted in the development of a cross-platform real-time cloud engine
- Created tools and infrastructure to help developers build AR/VR applications
- Wrote backend functionality to download and zip associated files with Java

CAPE CRYSTAL | Research Assistant
September 2020 – Present | Ithaca, NY
- Wrote an algorithm in Python to classify 3D crystal structures
- Implemented BFS to partition nearby particles of the same grain
- Used SSH to access data from Linux cluster and analyzed it with Matplotlib

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 | Software Engineer, Entrepreneur
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

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

LEADERSHIP/AWARDS

- Academic Officer in the Association of CS Undergraduates at Cornell
- Cornell Orientation Leader, Fall 2020 - mentored incoming students
- 1st place in the world - Destination Imagination Scientific challenge
- Eagle Scout, one of ~300 Scouts in history to earn every merit badge
- Rookie All-Star and Highest Seed Award - FIRST Robotics Competition
- 4th place of 22 - Games Factory Jam 5