

# ISABELLA LAYBOURN

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## EDUCATION

### Carnegie Mellon University

Pittsburgh, PA

B.S. Computer Science, Concentrations in Software Engineering and Computer Graphics

May 2023

- Dean's List Fall 2019, Spring 2021
- Relevant Coursework:

15-151 Mathematical Foundations of CS	15-251 Great Ideas in Theoretical CS	15-213 Intro. to Computer Systems
15-122 Principles of Imperative Comp.	15-210 Parallel Data Structures and Alg.	15-259 Probability and Computing
15-150 Principles of Functional Prog.	17-214 Principles of Software Eng.	17-355 Program Analysis

## WORK EXPERIENCE

### Salesforce

(Remote)

Infrastructure Security Intern, REDSCAR Team

May 2021 – August 2021

- Researched and improved Salesforce's security posture with regard to XXE and deserialization attacks
- Wrote and tested 7 Semgrep rules for Java and Python for a tool run on all code reviews across Salesforce
- Caught 20 new, high-priority bugs in production code

Infrastructure Security Intern, REDSCAR Team

June 2020 – August 2020

- Categorized over 600 security bugs filed by Infrastructure Security Advisory team
- Collaborated with Secrets team to integrate secrets management program Vault and internal database APIs to develop automated support for secret rotation (Python script for AWS Lambda and Go program in Docker container)
- Performed design reviews for security assessment

### Cyber Crucible, Inc.

Pittsburgh, PA

Software Engineering Intern

January 2020 – May 2020

- Developed voice recognition software for security authentication in Java to be used in an Android app
- Integrated REST APIs with Android app

### Evalulogic

Sitka, AK

Data Analysis Intern

July 2019 – August 2019

- Analyzed and designed more than 100 Excel graphs sorting and depicting information from 2 surveys of high school students regarding usage of and attitudes toward controlled substances
- Formal presentation of the data to client Sitka Counseling at their monthly meeting

## ACADEMIC EXPERIENCE

### SIGGRAPH Student Volunteer

May 2021 – August 2021

- Performed quality assurance tests for AR/VR pieces submitted to the SIGGRAPH VR Theater

### Undergraduate Research

January 2021 – May 2021

- Created mutation analysis-based guidance plugin for fuzzer JQF
- Programmed mutation analysis functionality in Java
- Currently working toward testing mutation-guided fuzzing on large benchmarks for catching security vulnerabilities

Teaching Assistant, 15-151/21-128 Mathematical Foundations of Computer Science

August 2020 – December 2021

- Taught weekly recitations, held office hours, and graded homework and exams
- Helped students understand and apply class concepts including logic, functions, and probability

### Wired Wolves Robotics Club

2017 – 2019

- Leader and sole programmer for the Wired Wolves in the 2017-18 and 2018-19 First Tech Challenge robotics competitions (Alaska State Control Award in 2019)

### Girls Can Code Club

2015 – 2019

- Taught Python and Unity as leader and participated and mentored others in Technovation 2017 and 2018 (semifinalist)

## PROJECTS

### Game Creation Society

September 2019 – December 2019

- Programmed sports-themed fighting minigame Sporshmallow in Unity with team

### Biometric Shirt for Dravet Patient

2018 – 2019

- Programmed biometric shirt using LEDs to monitor temperature and activity for a Dravet patient
- Created two working prototypes using Arduino, Adafruit, and Particle IoT boards
- Tested a feature that writes the gathered temperature/activity information to a ThingSpeak channel

### Transitions and Effects for AMVs

2017 – 2019

- Programmed 2D video effects and transitions, including feathered sweeps and a background-independent chroma key

## SKILLS

**Programming Languages:** Java, Python, C, C++, Go, SML, OCaml, C#, Arduino, Particle, HTML, JavaScript, LaTeX, bash

**Programs:** Adobe (Premiere Pro, Photoshop), Autodesk Maya, Unity, Semgrep, Docker, AWS, JQF, Maven, Soot, git, vim