ANDREW COOKE

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Link to Personal Website: https://acooke1.github.io/acooke-website/

EDUCATION

Brown University, Providence, RI **Expected Graduation: June 2022**
Sc B. Computer Science **GPA: 3.5/4.0**

- Relevant Coursework: Linear Algebra, Intro to Computer Systems, Discrete Structures/Probability, Computer Vision, Statistical Inference, Artificial Intelligence, Deep Learning, 2D Game Engines, Software Security and Exploitation, Computational Linguistics, Operating Systems, Design and Analysis of Algorithms, 3D Game Engines

PROGRAMMING SKILLS & INTERESTS

- Languages: Java, Python, C, C#, C++, Racket, HTML, CSS, SQL, MATLAB
- Technologies: Git, Linux, Unity, Photoshop, SolidWorks, 3D printing, Illustrator, Docker, GCP, Microsoft Office Suite

EXPERIENCE

Undergraduate Teaching Assistant, *Software Security and Exploitation* **August 2021 – December 2021**

- Conducted biweekly office hours to help students better understand software exploits and defense
- Designed and graded course projects which used strategies such as code injection and JIT-ROP attacks

Onset Computer Company, *Software Engineering Intern* **July 2021 – August 2021**

- Worked as a Java backend engineer to develop testing capabilities to ensure company software implementations operate as expected under high load
- Used SQL queries to dynamically access fields in a snapshot customer database to emulate active loggers and upload data payloads via RESTful web services to an Amazon Redshift warehouse
- Added command line functionality with a REPL to allow users to edit the number and type of running emulations

St. Andrew's School STEM Camp, *Camp Director* **July-August 2016 – 2021**

- Instructed students ages 8-14 the basics of engineering through the building of LEGO and Tetrix robots as well as designing parts to be 3D printed
- Introduced a week-long circuitry curriculum using Arduinos and breadboards

PROJECTS

Flashcard Study Tool, *Software Engineering Final Project* **February 2021 – April 2021**

- Built a web app that allows users to create decks of flashcards for studying
- Implemented the SuperMemo algorithm which uses space repetition to make memorization more efficient as well as the PageRank algorithm to recommend public decks to users based on their history
- Used Java with Spark and SQLite for the backend and Javascript with React for the frontend

Fully Implemented 2D Game Engine, *2D Game Engines Semester Project* **September 2020 – December 2020**

- Designed and implemented the framework for a 2D game engine around a game object and component-based system
- Added features in order to support multiple styles of games as well as necessary algorithms including collisions and hitboxes, AI scripting, animation support, accurate physics, ray casting, parallax, and a save/load system
- Used engine to implement several unique games

PPO Model Implementation, *Deep Learning Final Project* **November 2020 – December 2020**

- Developed my own implementation of a proximal policy optimization model tasked to play a 'dungeon crawler' game
- Experimented with procedurally generated maps, randomly spawning coins, and an enemy NPC
- Observed consistent learning and the emergence of strategies employed by the model in order to increase rewards

3D Printer (Prusa i3 model) & CNC Machine, *Personal Project* **April 2014 – September 2016**

- Constructed a homemade 3D printer and CNC machine made of stepper motors, extruder/drill head, 3D printed parts, and Arduinos

VARSITY ATHLETICS

Brown Men's Crew Team **September 2018 – Present**

- Trains for 30 hours per week and competes against the top teams in the country
- Raced as part of the team selected to travel to the IRA National Championships, placing 6th and 5th overall
- Won first place at Head of the Charles Regatta 2021 in the Men's Club 8+ event