Simon Rodriguez

esimonrodrig@gmail.com | srodrig9@nd.edu | 978.873.3839
Campus: 226 Keenan Hall, Notre Dame, IN 46556 | Permanent: 87 Thornton St, Lawrence, MA 01841

Education

University of Notre Dame — Notre Dame, IN
Bachelor of Science — May 2022
Major: Computer Science — GPA: 3.0

Presentation of Mary Academy — Methuen, MA
GPA: 4.23 | Class Rank: 3/49 — May 2018

Experience

Systems Programming — Notre Dame, IN
Password Cracking Project, Participant — Spring 2020

- In class project to determine a password given the MD5 encrypted key by "brute-forcing" all possible permutations of alphanumeric characters.
- Implementation of password cracker utilizes Functional Programming paradigm in order to logically divide tasks into functions.
- Utilized parallel computing to divide tasks among CPU cores in order to complete list of 12,000 passwords in seconds on four cores rather than upwards of 20 minutes on a single core.
- Analyzed data using the Python "Generator" data structure in order to reduce memory usage and computation time.

Fundamentals of Computing — Notre Dame, IN
Conway's Game of Life Project, Participant — Fall 2019

- Class project replicating famous Conway's Game of Life in a terminal window in C++.
- Board and tiles are represented as classes, implemented with Object-Oriented Programming paradigm in design.
- Program implements interactive mode, allowing user to add tiles to 40x40 board in real time, and enabling them to run algorithm one step at a time, or running algorithm continuously.
- Program includes option to input a text file with coordinates to automatically place tiles onto board. Program runs automatically, demonstrating a variety of shapes, including "Still lives," "Oscillators," "Gliders," and "Spaceships."

Introduction to Engineering Systems — Notre Dame, IN
Collaborative Design Project, Team Member — Spring 2019

- Collaborated across engineering disciplines to model behavior of a flying wing aircraft in MATLAB.
- Applied scientific reasoning to select specifications that would produce best design for aircraft according to speed and lift, and designed aircraft in student fabrication laboratory.
- Tested aircraft in flight, making measurements in its speed in order to verify accuracy of model.
- Collaborated to create a visual interface in MATLAB to display created model, allowing user to input specific dimensions of the aircraft and receive various predictions about the aircraft's computed speed.

Effective Technical Writing for Global Development Proposals — Notre Dame, IN
Mock Global Development Proposal, Participant — Spring 2019

- Project surrounding a United States Agency for International Development request for proposal on global development project in Central America on preserving biodiversity in region.
- Practiced effective and concise communication of complicated technical solutions to non-technical audience.
- Balanced and presented a proposed budget for the $17 million grant.
- Presented proposal to a panel of four professors to describe narrative and answer questions.

Skills

Spoken Language: Spanish (Fluent/Bilingual)
Programming: C++, C, Python, Unix, Java, MATLAB, JavaScript, HTML, Shell, Verilog