Alex Butler

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EXPERIENCE

Olin College Aquaculture Profiler (OCAP)

Research Assistant: Fluorometry AUGUST 2020 – PRESENT

- Developing novel fluorometer for algae & dissolved oxygen detection in aqueous solutions
  - Iterating prototype to increase sensing capabilities, defining limits of system
  - Programming in Python, Electronics and Hardware hand assembled

Research Assistant: Electrical & Sensing SUMMER 2020

- Researched and designed the parameters, and scope of experiment, focus on the dinural cycle of Dissolved Oxygen
- Rapidly designed and prototyped autonomous system for sensing and data-logging Dissolved Oxygen for experiment testing
  - Programmed in Arduino C, Electronics and Hardware hand assembled
- Data analysis on results to correlate external environmental factors in Python

Olin Rocketry

Avionics Software Lead MAY 2020 – PRESENT

- Part of Olin Rocketry leadership team
  - Advise, support, and lead subteam to meet project deadlines
- Creating and Implementing multidimensional Kalman filter, allowing for accurate apogee detection
  - Initial modeling and simulation done in Matlab
- Developing firmware in Arduino C for rocket hardware

Avionics Member SEPT. 2019 – MAY 2020

- Designed hardware for the flight computer in Kicad
- Wrote preliminary firmware in Arduino C to incorporate sensor modules for use in the flight computer

Multicultural Innovators Experience (The MIX)

Organization within Olin for students of diverse backgrounds to come together and bond while gaining professional skills and opportunities. We currently host both of Olin's NSBE and SHPE collegiate clubs/chapters.

Founding Member SEPT. 2019 – MAY 2020

- During first year on campus, helped create framework for NSBE and SHPE chapters on campus that otherwise would not be able to exist.

Treasurer MAY. 2020 – PRESENT

- Organization Budget Officer, member of the Executive Board

PROJECTS

IMDb Fake Movie Generator

Software Design Final Project

- Using Python, scraped IMDB to build a data set which was used to train a LSTM Neural Network capable of outputting a unique movie synopsis and title
- Exploratory deep-dive into neural networks outside of course curriculum

Liquid Rocket Engine

Creating a custom liquid-fueled rocket engine by the end of Fall Semester 2020 from the ground up with group to be integrated into our college's rocketry program

- Working to incorporate sensing and control system into the engine
  - Creating manual and automatic deadman switch
  - Designing to evaluate the engine's performance during testing
  - Forming basis for electrical integration into the rocket flight computer

Operand Analysis

Computer Architecture: Heavy Lift #2

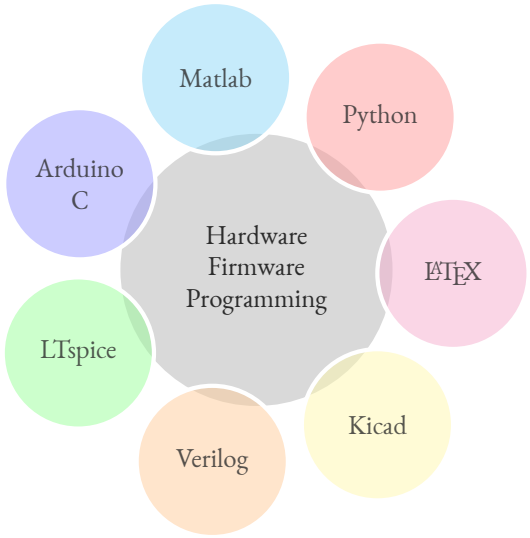
- Used Python to discern the average consecutive number of carry bits in any n-bit ripple-carry adder.

EDUCATION

MAY 2023 **Olin College of Engineering**
Bachelor of Science
Electrical and Computer Engineering

MAY 2019 **James T. Hutchison High School**
Concentration in the IT Cluster

SKILLS



AWARDS

2019 **Olin 50% Tuition Merit Scholarship**
Olin College of Engineering

2019 **Hispanic Scholarship Fund Scholar**
Hispanic Scholarship Fund

2018 **University of Alaska Scholar**
University of Alaska

RELEVANT COURSES

Computer Architecture

Encompasses: *Digital Logic, Computer Organization, Computer Architecture*

Introduction to Microelectronic Circuits

Software Design

Quantitative Engineering Analysis

Introduction to Sensors, Instruments, and Measurements