Alexander Schwartz

aoschwartz7@gmail.com | 1-508-245-3801| linkedIn/alec-schwartz| github/aoschwartz7 | personal site

EDUCATION

BSc. Biochemistry and Molecular Biology Carlisle, PA | May 2016
Dickinson College

WORK EXPERIENCE

NATIONAL INSTITUTES OF HEALTH, NIDDK | Post-Baccalaureate Intramural Research Training Award Fellow Bethesda, MD | Oct 2020 – present

- Developed code in **Python** for computationally modeling the COVID-19 pandemic. Developed interactive tools to view results using **Rshiny**.
- Investigated if extensive synaptic pruning during training in a spiking neural network results in a network structure uniquely associated with the trained task. Coded in **Julia**.

DICKINSON COLLEGE, BIOLOGY DEPARTMENT | Consultant Carlisle, PA | July 2020 - Nov 2020

*As a student at Dickinson College, I took a Biology course taught by Professor Scott Boback and later TA'd for him when I was a senior. In the summer of 2020, I contacted him to see if he had any bottlenecks in his research that coding could help fix. We discussed the promise machine learning held for a data collection task he had. Among other projects, Scott studies patterns in rattlesnake basking activity. Using wildlife cameras focused on snake den entrances in the woods, he remotely collects images every 15 minutes from sunup to sundown in the spring and fall. Currently, analysis is quite cumbersome. Each image is closely examined by eye to check if snakes are present. Some are snake-less. Some reveal piles of snakes camouflaged in grass and twigs. If the examiner spots one, they manually annotate it with a small yellow arrow. Finally, these annotations get compiled to track frequency counts and time of day measurements. I investigated if I could use **Artificial Intelligence** to automate this.*

- Built a custom object detection platform for Dickinson College Professor Scott Boback to detect rattlesnakes in his lab's wildlife camera data using **Python**, **ImageAI**, and the object detection algorithm YOLOv3.
- Trained research students on how to create model training data from thousands of images to improve model performance.

THE RNA MEDICINES COMPANY | Senior Research Associate Bedford, MA | Oct 2016 – June 2019

The RNA Medicines Company was a subsidiary of Beryllium Discovery (2014-2017) and subsequently a subsidiary of UCB Pharmaceuticals (2017 - 2019). The company mission was focused on building a proprietary small molecule drug discovery platform for targeting small non-coding RNAs.

- Developed and supported a high throughput small molecule screening campaign.
- Maintained in mammalian cell cultures; engineered stable cell lines; ran in-vitro functional cell-based assays; performed biochemical and phenotype characterization; handled data analysis for all of my experiments.
- Led lab space build-outs and managed outside contractors to develop regulatory compliance programs, deliver liquid nitrogen and CO2, remove bio-hazard waste, and provide lab coat services.

PROJECTS

LANGUAGE LEARNER'S QUIZ Python, Flask, Docker

This Python-Flask application uses JSON representations of vocabulary dictionaries to help users learn a language via flashcards. The inspiration behind it came from living in Berlin, Germany, in the Fall of 2019 where I was taking language courses.

TWILIO RIDDLER Python, Flask, APIs

This application sends a user an SMS of a random riddle, listens for their response via a Twilio webhook, and sends either the answer or a new riddle.

SKILLS

Languages: Python, R, C, Julia, SQL
Web Development: Flask, HTML/CSS, R Markdown
Technology: Git, Docker, Pandas, Jupyter Notebook
Courses: Harvard's CS50, Coursera's Docker Essentials, Using Databases with Python, Using Python to Access Web Data