

## Education

### **B.S. in Biological Engineering**

2015 – 2019

Purdue University, West Lafayette

GPA: 3.88/4.00

Graduated with Distinction | Gruel Memorial Endowment Scholarship

## Experience

### **SDM North Coast – Rutherford, NJ**

Jan 2020 - Present

*Full-Stack Developer*

- Lead developer of internal software tools for processing monthly database import anomalies to optimize data mapping workflows.
- Designed and developed user interface built with React.js and designed/developed Python API using flask for SQL Server database manipulations and facilitating data pipelines.

### **Indiana Biosciences Research Institute – Indianapolis, IN**

May 2019 – Feb 2021

*Assistant Research Associate*

- Assisted in establishing a fundamental high-throughput In-Fusion cloning and expression framework for therapeutic antibody engineering and development.
- Led and helped optimize purification efforts for all antibodies targeting substances of abuse.
- Designed a computational framework using the Rosetta Commons codebase to help predict antibody binding efficiency.

### **Tutor Matching Service – Indianapolis, IN**

Aug. 2019 - Present

*College/High School Math and Science Tutor*

- Ran a self-employed tutoring service to assist local college and high school students in their math and science courses.
- Significant experience teaching the following college level courses: General Chemistry 1 & 2, Calculus 1 & 2, Geometry, Algebra, and computer science (Python and C/C++).

### **Tantama Research Group – Purdue University**

Jan. 2016 – May 2019

*Undergraduate Research Assistant*

- Ran computational analysis of recombinant protein constructs for future prediction and validation of successful protein structures.
- Developed novel recombinant FRET – based fluorescent protein biosensors for use in future neurobiological research.
- 4 years of foundational molecular biology and protein purification/characterization methods including cloning, plasmid prep, PCR, SDS PAGE, cell culture, protein expression and affinity chromatography.

### **Purdue University Dept. of Agricultural & Biological Engineering**

December 2018 – May 2019

*Teaching Assistant*

- Provided outside help sessions and educational opportunities to students to help learn the process of modeling biological phenomena in many languages and software packages
- Led workshops and office hours to teach supplemental concepts like numerical integration techniques for partial differential systems, programming methods, and system analysis.
- Responsible for significant portion of semester project grading, feedback, and one-on-one project development plans with students.

## Eli Lilly and Co. – Indianapolis, IN

May. 2018 – Aug. 2018

### *Computational Biologist (Intern)*

- Developed mathematical models of ligands binding to pharmacologically relevant G-protein coupled receptors using Python.
- Identified key kinetic parameters to mathematical models to subsequently predict the behavior of drugs and their performance
- Examined two possible models of positive allosteric modulation in M2 muscarinic receptor systems.

## Leadership

### **Agricultural and Biological Engineering Ambassador Program**

April 2018 – May 2019

#### *Vice President*

- Lead outreach and recruitment of students of all ages into the field of Agricultural and Biological Engineering (ABE)
- Develop hands-on programs and labs which introduce the idea of ABE to interested students through scientific experiments.

### **Purdue Music Producers**

August 2017 – May 2019

#### *Vice President*

- Oversee the fundraising, the marketing, and the recruitment of Purdue's newest music club.
- Helped to increase membership by 200% over two semesters of involvement with the club.

## Projects and Portfolio

### **Threeo.one | <https://threeo.one/> (January 2021)**

#### *URL Shortening Database/Server*

- Developer for simple URL shortening server to condense long complex URL's into simple, small, easily sharable short-links.
- Backend developed in Golang using the Gin framework, while the frontend was developed with React.js.
- Hosted on Heroku and URLs are managed via Postgres.

### **Indcovid.com | <https://indcovid.com> (September 2020)**

#### *COVID-19 Dashboard and Indiana Health Disparities Tracker*

- Codeveloped website Indcovid.com – a website dedicated to investigating how people from communities who historically face health disparities are disproportionately affected by the COVID-19 pandemic.
- Responsible for database management using MySQL, API development with Python/Flask, and front-end development with React
- Co-author of all content on site and assisted in data acquisition.

### **Optipyzer.com | <https://optipyzer.herokuapp.com> (April 2020)**

#### *Multi-Species Codon Optimization Web Tool*

- Full stack developer for codon optimization web-application capable of optimizing towards multiple species. Both the front end and back end were developed by me.
- Backend was written in Python using the Flask framework, while the frontend was written using React.js.
- A python SDK was written to interface with the public API – it can be installed with pip.

### **Spottydata.com | <https://spottydata.com> (March 2020)**

#### *Spotify Playlist Analysis Tool*

- Full stack developer for the Spotify playlist analyzer web application. On use, the application can pull all of one's Spotify playlists and conduct a thorough musical analysis of the songs on each playlist – in addition to a lyrical analysis.
- Backend was written in Python using the Flask framework, while the frontend was written using React.js. It interfaces directly with Spotify API and servers.

## Publications, Presentations, and Abstracts

1. Radhakrishnan, S., Norley, J., Wendt, S., LeRoy, N., Hall, H., Norcross, S., Doan, S., Snaider, J., MacVicar, B. A., Weake, V. M., Huang, L., & Tantama, M. (2020). Neuron Activity Dependent Redox Compartmentation Revealed with a Second Generation Red-Shifted Ratiometric Sensor. *ACS Chemical Neuroscience*, 11(17), 2666–2678. <https://doi.org/10.1021/acscchemneuro.0c00342>
2. LeRoy, N., Norley, J., Radhakrishnan, S., & Tantama, M. (2017). FRET Biosensors: Engineering Fluorescent Proteins as Biological Tools for Studying Parkinson's Disease. The Summer Undergraduate Research Fellowship (SURF) Symposium. <https://docs.lib.purdue.edu/surf/2017/presentations/158>