Hayley Zorkic

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EDUCATION

The University of Texas at Austin, Austin, TX December 2021
Bachelor of Science in Computational Biology, ***GPA:*** *3.74*
Relevant Coursework: Biostatistics, Computational Biology, Bioinformatics, Quality Assurance, Biomanufacturing
Certifications: *Elements of Computing Certificate (UT), Advanced Technical Certificate in Biotechnology (ACC)*

SKILLS

Laboratory Skills: *Bioreactor Preparation, Cloning, Restriction Digest, PCR, Plasmid Design and Production, Western Blots, DNA Purification, ELISA, Spectrophotometry, Isothermal Loop Mediated Amplification, SOP creation, HEK, HeLa, and E.Coli Cell Culture, Fast Protein Liquid Chromatography (FPLC), Endotoxin Removal, Light and Fluorescence Microscopy Techniques, Flow Cytometry*
Computational Skills: *R, Python, Bash, CSS, exposure to: Supercomputing, JavaScript, AWS, C++*
Statistical/Data Science Skills: *NGS Refseq Gene Expression Analysis, Bioinformatic Analysis of Sequence Data, Data Wrangling (tidyverse & pandas), Data Visualization (ggplot, matplotlib, & seaborn), T-Testing, ANOVA, MANOVA, PERMANOVA, Randomization Tests, Machine Learning: Regression (Linear, Multiple-Linear, Logistic), Clustering (K-Means, PCA), Resampling techniques (Cross-Validation & Bootstrapping)*
Engineering Skills: *Fused Deposition Modeling (FDM), Stereolithography (SLA), Selective Laser Sintering (SLS), Laser Cutting, CNC Milling, Electronic Circuit Design (Eagle), 3D Modeling (Fusion 360, Solidworks), Arduino/RaspberryPi*

EXPERIENCE

THE FINKELSTEIN LAB, UT Austin, *Austin, Texas* January 2020 - Present
Student Research Scientist

- Performing Exploratory Data Analysis of sequence data for a proprietary Cell Spike Display project.
- Scaling up and validating constructs through molecular cloning, culturing, purification, and analysis.
- Programming software for high-throughput synthetic DNA libraries including Alanine Scanning, Combinatorial, and Site Directed Libraries.

THE ELLINGTON LAB, UT Austin, *Austin, Texas* January 2020 - Present
Student Research Scientist

- Genetically engineering Retron-CRISPR chimeras for applications in clinical gene editing.
- Developing modular cloning toolkit for Retron Modification using Golden Gate and Gibson Assembly.
- Minor Project: Purifying Retron reverse transcriptase to obtain crystal structure.

COCKRELL SCHOOL OF ENGINEERING, *Austin, Texas* January 2019 - Present
Texas Inventionworks Design and Fabrication Area Lead and Software Developer

- In charge of creating and executing training for hundreds of students and faculty to safely operate additive and subtractive manufacturing machines for initial product design iterations.
- Oversee the UX/UI front end software development team for the Student Portal Website (restricted access, thus not linked here). Fullstack includes: AWS, GraphQL, React.

MINICIRCLE, *Austin, Texas* August 2019 - January 2020
Research Scientist

- Aided in the development of a minicircle based platform for affordable antibody gene therapy for HIV and Follistatin gene therapy for age-related muscular atrophy.
- Teach interns basic laboratory skills such as buffer preparation, Sterile technique, weighing, and performing lab calculations.

THE UNIVERSITY OF TEXAS INVENTORS PROGRAM, *Austin, Texas* January 2019 - December 2019
Howard Huges Medical Institute TRIC Program Research Fellow

- Developed a gene amplification diagnostic assays that minimizes diagnostic time for Malaria, TB, Enterococcus, Tick Borne Illnesses to 30 minutes using pH Isothermal Loop-Mediated Amplification (pH LAMP) and oligonucleotide strand displacement (LAMP OSD).
- Engineered a simple box to run assays in low resource areas and map outbreaks using experience Python, C++, basic electronics, computer automated design, and printed circuit board design.
- Presented at the Capital of Texas Undergraduate Research Conference and (find the name of this conference)

THE EHRLICH LAB, UT Austin, Austin, TX August 2018 - August 2019

Research Scientist

- Engineering and manufacturing a high resolution confocal microscope platform for tissue-stabilizing in-vivo intravital imaging for immunological applications.
- Research suspended due to COVID

ACTIVITIES & LEADERSHIP

DELL MEDICAL SCHOOL, Austin, TX January 2019 - May 2019

Medical Device Design Practicum

- Member of a ten-person student team that partnered with leading Doctors and Medical School Students, and Engineering and Kinesiology students to develop a comprehensive design and rollout of a unique medical device, "Reinventing the Wheel-", a wheelchair cover that improved the grip strength of patients suffering from paralysis of the hands and paraplegia
- Pitched concept to a panel of over 50 industry experts competing against 20 student teams

PRECIOUS PLASTIC TEXAS , Austin, TX August 2018 - August 2019

Chapter Co-Founder and President

- Establish first of its kind international student organization in Texas to raise awareness of and develop devices to combat plastic pollution
- Developed a design for and successfully built, a suite of recycling machines to up-cycle plastic waste including a shredder, injection molding machine, extruder and compression machine
- Featured at 2018 South by Southwest (SXSW) conference, participate high-profile Austin sustainability events, as well as meet with community Sustainability and Eco-leaders
- Featured Chegg Student Story on the Chegg Website. Youtube: "Chegg Student Story: Precious Plastic Texas"
- Prepared and submitted four successful grants such as the Green Fund
- Pitched concept to a panel of over 50 industry experts competing against 20 student teams

IEEE ROBOTICS AND AUTOMATION SOCIETY, Austin,TX August 2018 - December 2018

General Member, Computer Aided Design Specialist

- 2018 Robotathon Championship Winner. Member of the first team of non-engineering majors to beat more than 100 participants in the annual robotothin championship after a 4 month long robot building competition.
- Helped other groups with Computer Aided Design complications and questions.