

Joshua P. Schaaf

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EDUCATION

Temple University, College of Science and Technology

Philadelphia, PA

Professional Science Masters (PSM)

May 2022

Bioinformatics

Cumulative GPA: 4.0/4.0

Bachelor of Science

May 2021

Biochemistry, Minor in Computer Science

Cumulative GPA: 3.88/4.0

Honors and Distinctions: **Magna Cum Laude**, Distinction in Major, Dean's List, **Temple Honors Program**,

Natan Luehrmann-Cowen Memorial Award (College-Wide Academic Excellence, Musical Instrument)

Scholarships: NSF REU at CSUSM with Dr. Arun Sethuraman (Cancelled due to SARS-CoV-2), **Science**

Scholars Program (SSP), Temple Academic Scholarship, TUDMB Scholarship

EXPERIENCE

Data Analyst, FOXO Technologies, Minneapolis, MN

July 2021-Present

- Analyze 'wide' epigenetic data (~1 million features) using Python (pandas, numpy) and R to provide accurate predictors for clinical targets using automated machine learning platform DataRobot. Analysis using working knowledge of *scikit-learn* and other machine learning/data mining algorithms
- Develop [RAPA](#) (Robust Automated Parsimony Analysis), an open-source Python package for performing recursive feature reduction of ML models created with DataRobot
- Create unit tests and update/maintain documentation for RAPAs
- Quickly switch between projects, adapting to different techniques in the start-up environment
- Utilize GitHub for software development, version tracking, and data analysis collaboration
- Utilize AWS Sagemaker and Cloudwatch to analyze/create ML models with data stored in S3
- Present analytical findings to groups of 5-10 people in a clear, understandable, and concise manner
- Create easy to understand figures/interactive dashboards with data visualization tools in Python (plotly, matplotlib, seaborn), R (ggplot), and lucidchart

Assistant Research Scientist, TheWell Bioscience, North Brunswick, NJ

May 2021-June 2021

- Created a chatbot with Zoho's Customer Relationship Management with a workflow meant to help customers with specific questions at the landing page
- Reported on performance metrics for consumer engagement and retention

Genetic Research Experience, Balciunas Lab, Temple University, PA

December 2018-May 2021

- Effectively collaborated with a team to engineer a fully 'flox' *tcf21* allele for the study of post-embryonic regenerative abilities of zebrafish hearts, and of the role *tcf21* plays in heart regeneration
- Created a pipeline for transforming large, raw ChIP-seq fastq datasets with GalaxyHub, bowtie 2, samtools, R and Python scripts, and MEME-ChIP with statistical programming practices
- Experienced with Gel Electrophoresis, PCR, Zebrafish Maintenance/Rearing, Survival Surgeries (*Danio rerio*), Conditional Mutagenesis, Cre-loxP, CRISPR/Cas9, Fluorescent Microscopy
- Poster: Conditional Mutagenesis of Zebrafish *tcf21* at 2019 Undergraduate Research Symposium
- Presented at weekly lab meetings with in-depth analysis and discussion of obtained data, as well as peer-reviewed journal presentations
- Accepted to Research Experiences for Undergraduates REU, CSUSM: Cancelled, COVID-19 Pandemic

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Chemical Biology Lab Intern, Wang Group Lab, Temple University, PA

May 2018-December 2018

- Contributed to the development of a homogeneous Drug-Antibody Conjugate linker
 - Gained skills in NMR, Mass Spectrometry, HPLC, Ultra-Violet Spectroscopy, Thin-Layer Chromatography, Column Chromatography, and Solid Phase Peptide Synthesis
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RELEVANT COURSEWORK

Mathematics/CS:	Coding in <u>C</u> ; Biological Models in <u>Python</u> ; Program Design/Abstraction (Java); Data Structures (<u>Java</u>); Calculus I, II, Honors III; Machine Learning ; Biostatistics
Physical Sciences:	Honors Organic Chemistry I, II; Physical Chemistry of Biomolecules; Physics I, II
Biological Sciences:	Genomics (<u>R</u> , <u>Python</u>); Genetics; Cell Structure and Function; Biochemistry I, II; Fundamentals of Genomic Evolutionary Medicine; Ethics in Biotechnology

CODING PROJECTS

Imputation Analysis with High Dimensional Data: Using many techniques described in literature, including HoloClean in PostgreSQL, I analyzed different imputation methods for highly dimensional data.

Using Machine Learning for Species Recognition: Developed Python scripts to retrieve over 300,000 images of PA moths from the iNaturalist API, then a TensorFlow deep learning model for species recognition.

Using Machine Learning for Chest X-Ray Abnormality Detection: Created a machine learning model with Python scripts for CXR preprocessing with scikit-image and object detection with YOLOv5 in PyTorch.

LEADERSHIP AND ACTIVITIES

Volunteer Belay , Reach Climbing & Fitness	2022
Principle 2nd Violinist , Lower Merion Symphony	2021-2022
1st Flute/Piccolo Player , Temple University Diamond Marching Band/Collegiate Band	2017- 2018