YIHENG (SAM) SU

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EDUCATION

The University of Texas at Austin Bachelor of Science in Computer Science May 2022
• Applied Statistical Modeling Certificate (18 hours of coursework) GPA 4.0

Honors: University Honors (Fall 2018, Spring 2019, Fall 2019, Spring 2020);

RELEVANT COURSEWORK

Data Structures, Discrete Math, Multivariable Calculus, Computer Organization and Architecture, Intro to Probability and Statistics, Big Data in Biology (FRI stream), Principles of Computer System, Matrices/Matrix Calculations, HDF Research Practicum, Cyber-physical Systems, Multicore OS, Objected Oriented Programming (OOP), Competitive Programming, Biostatistics, Computational Bioinformatics, Artificial Intelligence, Algorithms and Complexity, Statistical Learning and Inference, Computer Programming in C++ and PythoP

ACADEMIC PROJECTS

Project LFG (Mobile App) Fall 2017 - Spring 2018
- Developed an Apple mobile application that helps gaming users locate other users in real-time for in game query via feed-styled posts that's color coordinated based on console and game Type.
- Specialized in coordinating online user data storage and encryption using Firebase

Analyzing Differentially Expressed Genes of COPD Fall 2018 - Spring 2019
- Found differentially expressed genes and enriched pathways of Chronic Obstructive Pulmonary Diseases using RNA-Seq data from three different brain regions
- Specialized in data visualization and interpretation using PCA plots, clustermaps, venn diagrams, and K-Neighbors machine learning algorithm in Python

Life History Transitions of Salmonids Spring 2019 – Fall 2019
- Investigated whether genes highly responsive to life history transitions are also plastic across other contexts (age, sex, size, etc.) and thus exhibit fewer regulatory interactions as well as higher rates of molecular evolution
- Created BLAST scripts to map microarray data to salmonid genome using TACC
- Conducted Principal Component Analysis using R package prcomp as well as utilized other R data analytics package such as LIMMA to generate differentially expressed genes and pheatmap/upSetR for data visualization and interpretation

Applying the Expression Variance and Evolution (EVE) Model on Wrasse cleaners Spring 2020 – Current
- Mentored project under Dr. Rebecca Young from Hofmann Lab (youngrl@utexas.edu)
- Examined how we can integrate output from the EVE model, which consists of a series of Likelihood Ratio Test statistics and beta values per genes (the proportion of within species variation to amongst species variation based on phylogenetic distances) into comparative differential expression using TAG-Seq data
- Generated a myriad of data visualizations such as overlapping histograms, Volcano and scatter plots, Heatmaps, Cluster Dendrograms (with support values per cluster), UpSetR plots using packages such as pheatmap, UpSetR, pvclust, reshape, ggplot2, tidyverse

- Administered Weighted Gene Co-Expression Network Analysis (WGCNA) including module preservation
- Conducted differential gene expression analysis using LIMMA

RESEARCH EXPERIENCE

Office Research Assistant for Project SEED Summer 2019 – Spring 2020

- Schedules and coordinates home visits with Spanish-speaking families using REDCAP (UT database)

Research Assistant for Hofmann Lab Spring 2020 - Current

- Utilizing the EVE model (C based package) that seeks to expand the concept of inter and intra species variation of a traditional ANOVA

LEADERSHIP EXPERIENCE AND ACTIVITIES

Unmanned Aerial Vehicle Austin (UAVA) – *Active Member* Fall 2018 – Spring 2019

- Engaged in weekly coding sessions that explores how to use MakeFiles, Node JavaScript, and Docker
- Visualized data from InfluxDB using Grafana API interface

Competitive Computer Science Team – *Team Captain* Fall 2017 – Spring 2018

- Prepared weekly coding practices and tutoring in preparation for high school programming competitions hosted by UTD and HP (Codewars) as well as UIL competitions.

HONORS

- UT Retired Faculty/Staff Scholarship Fall 2020
- Tracor/Frank McBee, Jr. Schoalrship Fall 2020
- UT Distinguished College Scholar honoree Spring 2020
- UT College of Natural Sciences Second Year Excellence Award Spring 2020
- Angus G. and Erna H. Pearson Undergraduate Scholarship in CS Fall 2019
- Coolest Strategy Award at SpaceCraft SXSW Spring 2019
- Best Use of HERE API at HackTX 2018 Fall 2018
- National AP Scholar 2017-2018
- UIL District Individual 3rd place, Team 2ndplace Spring 2018
- UIL Regionals Team 3rd place Spring 2018

Skills

Computer Skills: Comfortable in Java, C++, R, and Python; Proficient in C; Learning x86 Assembly.
Languages: Fluent in Mandarin, Basic Spanish.