YIHENG (SAM) SU

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GitHub Account: https://github.com/SamSoup

EDUCATION

The University of Texas at Austin   Bachelor of Science in Computer Science   May 2021
• Applied Statistical Modeling Certificate (18 hours of coursework)   GPA 4.0

Honors: University Honors (Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 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 Implementations, Objected Oriented Programming (OOP), Competitive Programming, Biostatistics, Artificial Intelligence, Algorithms and Complexity, Statistical Learning/Inference, Computational Biology & Informatics, Computer Programming: C++ and Python.

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
• Authored 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 Rebecca Young from Hofmann Lab at UT Austin (youngrl@utexas.edu)
• Examined how we can integrate EVE model (phylogenetic ANOVA) output with other traditional comparative analysis approaches to explore the effects of relatedness on associations between expression and phenotypes using TAG-Seq data on six Wrasse species.
• Administered Weighted Gene Co-Expression Network Analysis (WGCNA) as well as differential expression analysis using LIMMA underlying an overall data analysis pipeline including EVE

- Generated a myriad of data visualizations such as overlapping histograms, color-coordinated Volcano and scatter plots, heatmaps, cluster dendrograms (with support values per cluster), UpSetR plots using baseR and packages such as pheatmap, UpSetR, pvclust, reshape, ggplot2

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 explore inter and intra species variation accounting for phylogeny using TAG-Seq data

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. Scholarship   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

Skills

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