Claire Hsieh

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Education

Bachelor of Science | University of California, Davis | Expected Graduation: Jun 2024

- Major: Genetics and Genomics
- Minor: Quantitative Biology and Bioinformatics, Statistics
- Coursework: Linear Algebra, Probability, Regression Analysis, Bioinformatics, Data Structures, Data Science, Comparative Genomics, Functional Genomics, Human Genetics
- GPA: 3.7

Skills & Abilities

Programming:

- Programming Language: Python (NumPy, Pandas), R, MATLAB, Bash, Perl
- Operating System: Windows, Linux,
- Software: Git, Microsoft Office, BLAST

Laboratory

- General Laboratory
- Bacteriology
- Gel Electrophoresis
- Miniprep (DNA extraction)
- qPCR
- Plaque Assay
- Grid Preparation (Electron Microscopy)

Language:

- Intermediate Chinese (spoken)

Experience

Research Assistant | Topological Molecular Biology Lab | Apr 2022 - Present

- Utilized profile HMMs in predicting SARS COV-2 mutation probabilities weighted by country
- Cleaned and aligned genomic datasets using MAFFT and Clustal Omega
- Analyzed viral datasets to extract and annotate proteins using sequence and structural similarity
- Grew and collected microbial cultures
- Set up and performed gel electrophoresis
- Prepared frozen samples using GP2 and imaged using Cryo-EM
- Designed primers and performed qPCR to determine the concentration of DNA in viral phage samples
- Extracted DNA using miniprep or chloroform

Research Assistant | Korf Lab | Dec 2022 – Present

- Developed Python programs that use intron position to predict gene enhancement
- Created algorithms to identify motifs using discretized position weight matrices, regular expressions, and k-mers
- Implemented a Stochastic Viterbi algorithm in Python to generate random, probable isoforms

Irvine Summer Institute in Biostatistics and Undergraduate Data Science | UC Irvine | Jul 2023 – Aug 2023

- Coursework on basics of probability, Monte Carlo methods, linear models, covariates, and Bayesian statistics.
- Machine learning project on predicting colorectal cancer using metabolomics

Clubs

Social Media Officer | Davis Data Science Club | Sep 2022 – Present

- Design posters and flyers to advertise meetings and events