Claire Hsieh

Davis CA, 95616 | (626) 554-7228 | chsieh018@gmail.com
LinkedIn | Github | Website

EDUCATION

Bachelor of Science in **Genetics and Genomics** at University of California, Davis Expected June 2024
Minor: **Quantitative Biology and Bioinformatics**, **Statistics**
GPA: 3.75
Relevant coursework:

- Numerical Analysis
- Regression Analysis
- Probability
- Linear Algebra
- Mathematical Statistics
- Machine Learning in Genomics
- Comparative Genomics
- Functional Genomics
- Human Genetics and Genomics
- Cancer Biology
- Bioinformatics
- Computational Biology

TECHNICAL SKILLS

Programming Languages: Python (NumPy, pandas, matplotlib), R, Perl, MATLAB
Software: YASARA, Pymol, BLAST
Operating System / Scripting Language: Windows, Linux, Unix, Bash
Version Control: Git

RESEARCH SKILLS

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

RESEARCH INTERESTS

- Statistical Genomics
- Machine learning with clinical applications
- Markov Models
- Alzheimer's and aging related diseases
- Metabolomics

AWARDS

- 2023 College of Biological Sciences Summer Undergraduate Research Award for $7000 (declined)

RESEARCH EXPERIENCE

Research Assistant | Topological Molecular Biology Lab | Apr 2021 – Apr 2024

- Created a structural phylogenetic tree based on predicted structural similarities of the connector protein found in bacteriophages
- Used profile HMMs to predict SARS COV-2 mutation probabilities weighted by country
- Aligned genomic sequences using MAFFT and Clustal Omega
- Grew and collected microbial cultures
- Extracted DNA using miniprep or chloroform
- Set up and performed gel electrophoresis
- Prepared frozen protein samples using GP2 and easi-Glow then imaged using Cryo-EM
- Designed primers and performed qPCR to quantify DNA

Research Assistant | Korf Lab | Dec 2022 – Apr 2024

- Implemented a Stochastic Viterbi and forward-backwards algorithm in Python to generate random, probable isoforms
- Developed Python programs to predict gene enhancement using intron position
- Examined orthologous genes to identify introns with potential to enhance gene expression
- Created algorithms to identify motifs using discretized position weight matrices, regular expressions, and k-mers

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

- Learned fundamentals of statistics: probability, Monte Carlo methods, linear models, generalized linear models, causal inference, and Bayesian statistics
- Used R and machine learning models to predict presence of colorectal cancer using metabolomics

WORK EXPERIENCE

Accounting Assistant | Quicklinks Advisor 365 | Aug 2020 – Dec 2022

- Created and updated financial statements
- Reconciled transactions and identified discrepancies

CLUBS

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

- Design and distribute posters to promote club meetings and events

COMMUNITY SERVICE

Priceless Pets | Jan. 2019 – Feb. 2020

- Walked dogs
- Trained new volunteers
- Cleaned kennels
- Fed and medicated animals

LANGUAGES

English: Native Language
Mandarin: Intermediate Listener, Intermediate Speaker, Beginner reading and writing

PROFESSIONAL TRAINING

US Cyber Challenge | Jul 2022

- Coursework: Memory Forensics, Network Forensics, Linux

Scientific Computing with Python | freeCodeCamp |Mar 2022

- https://www.freecodecamp.org/certification/Claire_Hsieh/scientific-computing-with-python-v7

Data Analysis with Python | freeCodeCamp |Jan 2023

- https://www.freecodecamp.org/certification/Claire_Hsieh/data-analysis-with-python-v7

OTHER

Hobbies: Reading, Playing guitar, Running