I-SHU WANG

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EDUCATION

Carnegie Mellon University Pittsburgh, PA
Master of Science in Quantitative Biology And Bioinformatics - Advanced Study Dec 2023
Relevant Courses: Programming for Scientists, Data Analysis for Biological Sciences, Machine Learning, Algorithms & Advanced Data Structures, *Deep Learning (*Fall Semester)

National Taiwan University Taipei, Taiwan
Master of Science in Biochemical Science & Technology Jun 2020

National Chung Cheng University Chiayi, Taiwan
Bachelor of Science in Biomedical Science; Certificate in Functional Genomics Program Jun 2018

EXPERIENCE

Carnegie Mellon University Pittsburgh, PA
Graduate Researcher Present

- Built a pipeline using Snakemake and parallel programming for analyzing alternative splicing on RNA-seq data
- Conduct comprehensive data analysis to draw conclusive insights on expression levels from sequencing data
- Developed an interactive web application to display the isoform categories for each gene

NGS High Throughput Genomics Core, Academia Sinica Taipei, Taiwan
Research Assistant Aug 2021

- Operated and maintained Illumina sequencers to get high quality sequencing data
- Demultiplexed sequencing data and used Fastqc to examine quality of sequencing data
- Proficiently prepared Next Generation Sequencing libraries employing diverse assays for both DNA and RNA samples

Department of Biochemical Science & Technology, National Taiwan University Taipei, Taiwan
Graduate Researcher Jun 2020

- Earned **Excellence Award** from 2020 Agricultural Chemical Society of Taiwan Annual Poster Competition Sessions
- Researched Basic Local Alignment Search Tool (BLAST) and NCBI to build plasmid for gene knockout system

National Taiwan University Taipei, Taiwan
Teaching Assistant Jan 2019

- Collaborated with a team of 4 to teach and train over 30 students to learn experiments
- Designed project outline and moderated discussion for students' final projects

SKILLS

Computational skills: Python, Go Language, SQL, R, Linux, High Performance Computing, git
Bioinformatics Tools: NCBI, BLAST, TCGA, Snakemake, Bioconductor, BioPython, alignment tools, annotation tools
Data Analysis: Numpy, Pandas, SciPy, Seaborn, Statsmodels, plotly, ggplot, Matplotlib, Scikit-Learn, dash, RShiny

ACADEMIC PROJECTS

Carnegie Mellon University Pittsburgh, PA

A python script for bacterial genome analysis Oct 2022

- Created a Python script that perform a series of processes from examining whole genomics for bacteria, translating DNA sequences to protein sequences, to using BLAST to compare the protein sequences with database

Data analysis and visualization Dec 2022

- Performed statistical analysis on cancer research using Python and presented the results through effective visualization

Simulation of intercellular viral infection via cell-to-cell transmission Dec 2022

- Built a model for users to input parameters based on biological data to simulate viral spread in cells using Go language
- Developed multiple unit test cases in Go language to ensure model accuracy and functionality

Construction of a Transcriptome Assembly and Annotation Pipeline Apr 2023

- Used high-performance computer in cloud environment to analyze whole genome sequences of mammals
- Integrated RNA data from related specie to annotate unannotated specie, enhancing accuracy of gene annotation

Analysis of differential gene expression and pathway enrichment in multiple cancers Apr 2023

- Conducted analysis of differential gene expression to identify common gene signatures in multiple cancers using R programming language and TCGA database
- Performed gene clustering for each cancer using Python to elucidate relationship between cancer and pathways