HE Jiaxin

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EDUCATION

City University of Hong Kong (CityU), *Hong Kong, China*　　　　08/2022 – 08/2023
Master of Science in Biomedical Engineering

Shanghai Jiao Tong University (SJTU), *Shanghai, China*　　　　09/2017 – 06/2021
Bachelor of Agriculture in Plant Science & Technology

EXPERIENCE

Research Assistant　　　　08/2023 – now
School of Life Science, Peking University (PKU), Beijing, China.
Advisor: Dr. CHEN Yuezhou

- Engaged in immunology bioinformatics analysis, especially in B lymphocytes (B cell) of SARS-CoV-2 patients and vaccinators.
- Constructed high-quality B cell receptor (BCR) repertoire from raw Next Generation Sequencing platform illumine sequencing files. Analyzed the BCR repertoire by clonal relationship, somatic hypermutations, gene usage frequency etc. to study the antibody differences from different populations in response to SARS-CoV-2.
- Analyzed single cell multimodal data of cellular transcriptome (scRNA-seq), cell-surface proteins (CITE-seq and cell Hashtag) and antibody sequence (BCR repertoire) from 10X and BD single cell sequencing platform. Analyzed differences in antibody repertoire composition and gene expression across populations.

Research Assistant (part-time)　　　　10/2023 – now
Institute of Geo-Environment Monitoring, China Geological Survey (CGS), Beijing, China
Advisor: Dr. MA Junyong

- Trained Maximum entropy model, random forest model and logistic regression model with data from 19 climatic environmental factors and species occurrences, to predict *Ungulate* species distribution (SDMs) in Tibet region.

RESEARCH

3D Genomics Single Cell Hi-C Data Analysis with Multi-layer Networks
Master Dissertation　　　　02/2023 – 08/2023
Advisor: Prof. LI Shuaicheng (Department of Biomedical Engineering, CityU)

- Applied Spectral clustering algorithm on multilayer graphs to successfully identify the topological associated domain (TAD) region, the basic 3D structure unit of chromosomes, on simulated Hi-C data.
- Calculated the network properties of Hi-C data by constructing Hi-C data into the form of multilayer network to find potential biological significance.

Salt Tolerance Research on Transgenic Plants with Expression of Bacterial *Why* Genes
Bachelor Thesis　　　　09/2020 – 06/2021
Advisor: Prof. ZUO Kaijin (School of Agriculture and Biology, SJTU)

- Expressed the bacterial *why* gene in model plant *Arabidopsis* successfully. Studied the salt tolerance of transgenic plants under different salt concentrations.

ABILITIES

Language: English (IELTS 6), Mandarin (Native)
Computer Skills: Python, R, Linux (Proficient in data analysis & bioinformatics), Java, html, css, sql (Familiar with web development), Adobe PS, AI, MS office (intermediate)