

Qichen Fu

International Campus, Zhejiang University, No.718 East Haizhou Road, Haining, China

+86 15168358126 | s2009712@ed.ac.uk | github.com/QichenFU | linkedin.com/in/qichen-fu-4762961a5

Education

Zhejiang University-University of Edinburgh (ZJU-UoE) Institute

Haining, China

BSc in Bioinformatics (dual degree from both ZJU and UoE)

Sept 2019 - Expected Jun 2023

- GPA: 3.96/4.00; Average Overall Mark: 90.12/100; Major course GPA ranking: 1/28
- Selected courses:** Genomics and Proteomics 2, Applied Data Science 2 (statistics and machine learning), Database and Software Technology 2 (Java basic + OOP, database and Java Web), Biomedical Informatics 3 (bioinformatics algorithms), Computational Biology and Systems Biology 3 (computational modelling)

Research Experience

Department of Genetics, Cambridge University

Remote

Research Assistant at Dr. Julie Ahringer's (FRS, FMedSci) Lab

Jun 2022 - Sept 2022

- Project:** Test the efficiency of OmniC - a new genome conformation and regulation capture method
- Processed OmniC data using NGS analysis software, made contact maps, called significant interactions, performed aggregate peak analysis, benchmarked OmniC with the previous technique (ARC-C)
- Investigated rRNA gene contacts and nucleolus interactions in *C. elegans*

ZJU-UoE institute, Zhejiang University

Haining, China

Student Research Training Program at Dr. Wei Guo's Lab

Feb 2021 - May 2022

- Project:** Investigating special subpopulation-partial EMT cells in cancer stem cells of lung adenocarcinoma
- Analyzed eight public single-cell RNA-seq datasets of patients' lung adenocarcinoma tissue
- Identified 16 candidate surface markers for cancer stem cells that co-expressed epithelial and mesenchymal markers

Systems Biology program, Centre for Genomic Regulation

Barcelona, Spain

Summer Research Intern at Dr. Ben Lehner's Lab

July 2021 - August 2021

- Project:** Understanding genetic encoding of p53 multimodal interactions using deep mutational scanning
- Searched protein databases for binding interfaces, made constructs and tested the binding affinity by double-deep protein complementation assay
- Identified appropriate binding interfaces for deep mutational scanning, learned conceptual knowledge of deep mutational scanning

ZJU-UoE institute, Zhejiang University

Haining, China

Research Assistant at Dr. Xin Xie's Lab

Jun 2020 - Jan 2021, July 2022

- Project 1:** Nuclear receptor COUP-TFII's role in colorectal carcinogenesis
- Made COUP-TFII-GFP construct, learned basic wet-lab experiments, wrote five standard protocols for the lab
- Project 2:** Building Functional Exosome@MicroRNA ossification factors and its application in bone tissue regeneration
- Revealed exosome@miRNA's role in promoting bone regeneration via RNA-seq analysis

Bioinformatics Course Projects

Chest x-ray image segmentation and tuberculosis classification

Haining, China

Biomedical Image Analysis 4

Oct 2022 - Present

- Segmentation of chest X-ray images using traditional and machine-learning based (U-Net) methods
- Classification of tuberculosis positive or control using convolutional neural network

Modelling mutational effects on protein structure

Haining, China

Computational Biology and Systems Biology 3

Feb 2022 - Apr 2022

- Analyzed how mutations affect Tet repressor stability, dimerization, and DNA binding using in silico deep mutagenesis (FoldX)
- R code and report:** https://github.com/QichenFU/CBSB3_miniproject

Implementation of UMAP algorithm (miniumap)

Haining, China

Biomedical Informatics 3

Nov 2021-Dec 2021

- Implemented UMAP algorithm for dimensionality reduction, benchmarked the algorithm performance
- Selected as one of the top projects: BMI3 Miniprojects Gallery (labw.org)
- Python code and documentation:** <https://github.com/QichenFU/miniumap>

RNA-seq data analysis

Haining, China

Genomics and Proteomics 2

May 2021

- Analyzed RNA-seq data of K562 cells to understand the transcriptional response to electron acceptors AKB and pyruvate
- R code and report:** https://github.com/QichenFU/GP2_Data_Analysis_ICA

Precision Medicine Matching System

Database and Software Technology 2

- Identified and annotated the variants of the Hep3B2.1-7 cell line from its RNA-seq data
- **Bash scripts and report:** https://github.com/QichenFU/DST_group_project_4

Haining, China

Feb 2021-Jun 2021

A COVID-19 query tool

Database and Software Technology 2

- Built a database query software/app for COVID-19 cases statistics using Python and SQL
- **Python code and documentation:** <https://github.com/QichenFU/pyCOVID>

Haining, China

Jan 2021

An R Cheatsheet for data science

Applied Data Science 2

- A self-made R cheatsheet for Applied Data Science 2 course revision
- **RMarkdown:** https://github.com/QichenFU/R_Cheatsheet_for_Applied_Data_Science_2

Haining, China

Nov 2020-May 2021

Skills

Programming

Python (Pandas, NumPy, Matplotlib, Scikit-learn), R (ggplot2, Seurat, DESeq2, RMarkdown), SQL, Java (Object-Oriented Programming, JavaWeb), Shell (Bash), \LaTeX , Git

Dry lab

RNA-seq analysis (gene expression analysis, variant calling), single-cell RNA-seq analysis (filtering, normalization, clustering, differentially expressed gene analysis), 3D genome data analysis

Wet lab

Molecular biology (PCR, RT-qPCR, molecular cloning), western blot, cell culture and transfection, basic C. elegans, E. Coli and drosophila experiments, yeast transformation, double-deep protein complementation assay

Achievements

- 2022 **Verbal-152 (52%), Quantitative-169 (93%), Analytical-3.5 (37%)**, Graduate Record Examinations
- 2022 **Reading-28, Listening-26, Speaking-23, Writing-27**, TOEFL
- 2022 **One-star volunteer (> 50 volunteer hours)**, Zhejiang University
- 2021 **Academic Scholarship First Prize (Top 5%)**, ZJU-UoE institute
- 2020 **Academic Scholarship Second Prize (Top 10%)**, ZJU-UoE institute

Extracurricular and Volunteer Experience

ZJU-UoE institute

Academic family leader

- Organized student orientation and provided guidance to 12 first-year students in academic and daily life

Haining, China

Sept 2020 - Jun 2021

ZJU-UoE institute

Student Representative

- Collected and analyzed feedback from students and presented them to the course team
- Attended four Staff-Student meetings to make suggestions to the course team

Haining, China

Sept 2020 - Jun 2021

Campus new media center, International Campus ZJU

Member of News Editing Department

- Wrote and edited the tweets for the WeChat public account of the international campus ZJU

Haining, China

Oct 2019 - Jun 2020

Languages

Chinese Native proficiency

English Professional proficiency