Curriculum Vitae

Jingzhan Lu

Tel: +44 7436281693 / Email: jl1426@exeter.ac.uk

EDUCATION BACKGROUND

University of Exeter (Medical School) **10/2023-Now**

PhD Genetics and Genomics

Supervisor: Dr Harry Green; Prof. Michael Weedon; Prof. Anna Murray

Genetics of Complex Traits Research Group (GOCT)

Research Areas: Computational Genetics; Bioinformatics; AI for Health; Drug Discovery

University College London (Master's degree with Merit) **09/2021-12/2022**

MSc Health Data Science (UCL Institute of Health Informatics)

Core Courses:

- Machine Learning in Healthcare and Biomedicine
- Computational Genetics of Healthcare
- Advanced Statistical Analysis
- Software Development with Python

Taiwan Tzu Chi University （College of Medicine） **09/2017-07/2021**

Bachelor of Engineering in Medical Informatics

Total Average Score: 86.30/100 GPA: 3.82/4.0 Rank: 4/46 (8.7 %)

Core Courses:

- Data Science and Machine Learning
- Biostatistics and Genetics
- Programming Design （Python/C/Java）
- Biological System Simulation

UoE PART-TIME EXPERIENCE

Introduction to R workshop, Postgraduate Teaching Assistants (PTAs), Coding for Reproducible Research Team Jan, 2024

eClaims registered (payroll number:911777), Learning and Teaching in Higher Education (LTHE) Certificate

ACADEMIC CONFERENCE

1. 2024 European Human Genetics Conference (ESHG) Berlin, Germany 01-04 June, 2024
2. 9th Meeting of the Study Group on Genetics of Diabetes (SGGD) Exeter, UK 17-19 April, 2024

RESEARCH EXPERIENCE

1. UCL Human Genetics Molecular Psychiatry Lab **12/2021-09/2022**

Dissertation: ***Impact of control selection on genetic case-control studies – a UK Biobank study of the genetics of Schizophrenia and Bipolar Disorder***

Supervisor: Johan Hilge Thygesen, Institute of Health Informatics, UCL

Description: **Control selection** is complicated in large population samples with longitudinal healthcare data available. This study aims to explore different control selection strategies (**random selection and matching on covariates**) in GWAS; This extensive study used the **UK Biobank (N=500,000)** and identified **1,988 cases** of SCZ and BD by **ICD-10 code**.

- UKB phenotype data processing, genotype quality control and demographic covariates are based on **Python** and QCTOOL. The MatchIt package in **R** was used for the matching strategy. And run GWAS with PLINK and REGENIE.
- PGC, which has the largest GWAS meta-analysis, was used for validation; it was found that matching was the strongest, as it produced the smallest mean difference with PGC.

2. TCU Biophysics and Structural Bioinformatics Lab **12/2020-08/2021**

Supervisor： *Hao-Jen Hsu, Department of Life Sciences, Tzu Chi University* *Research Assistant*

Screening and classifying microscopic images of Gram bacteria through the Convolutional Neural Network (Se_Resnet)

- Mainly responsible for image-cutting processing, model evaluation and optimisation, the preliminary microscope image is divided into over 10,000 crops. Use the ***SE-ResNet*** model to classify **five Gram bacteria types:** GNB, GPB, GPC, GPC-in-chain and Yeast. After cross-validation, we achieved **98% average accuracy** for each classification.
- Manuscript writing and presentation of experimental results, Supporting the lab PI in collecting biomedical data, collating and reporting research results, and assisting in the funding declaration with partner hospitals.

3. TCU Computational Biology and Biological Data Mining Lab **12/2019-12/2020**

Supervisor: *Liang-Tsung Huang, Department of Medical Informatics, Tzu Chi University*

Graduate Project: An interactive website of visualisation applications for COVID-19 data

*Team-leader (*Rank: 3/11 *in the department)*

Essay: *Molecular docking analysis of Ritonavir, Lopinavir, Atazanavir, Darunavir and TMC-31091 as SARS-CoV-2 3CL^{pro} inhibitors* *08/2020*

- Developed a biomedical information website by D3.js to make the users acquire the multi-faceted integrated information;
- Protein-drug binding sites associated with the SARS-CoV-2 virus were analysed using PyMOL and AutoDock. Predicted and showed the 3CL^{pro} (3C-like) main protease and potential HIV drug docking bind sites and dynamic simulation;

WORK EXPERIENCE

Yidu Tech Inc. **07/2021-08/2021**

Data Mining Intern, Healthcare Information Solution Center

- Yidu Cloud is a leading medical AI technology company based on a self-developed "Medical Data Intelligence Platform", which helps medical research and innovative new drug development by building real-world disease domain models;
- Using Presto SQL and Python to query, collect and process data on the cloud platform and mine eligible patients based on the inclusion criteria communicated to the project manager, specifically participating in projects such as AstraZeneca Toripalimab pre-sales survey, patient trial entry probe, and Roche Diagnostics early abnormality detection challenge.

Humanwell Healthcare (Group) Co., Ltd. **07/2020-09/2020**

Pharmaceutical Information Research Intern, Innovative Drug Research and Development Center

- Took part in the investigation and research of drugs, completed the ALK target spot and HIV integrase inhibitors INSTIS medical reports, and made the commercial report in the HIV field;
- Learned the literature research in the medical industry and the drug development process.

HONORS AND AWARDS

Tzu Chi University Award of Excellence, Tzu Chi University	09/2019 & 05/2021
Excellent Graduation Project of publication team competition, Department of Medical Informatics	12/2020
Outstanding Student Leader, Association of Hubei Students in Taiwan	01/2020

Extra-Curricular Activities

1. 'Deep Learning for Language Analysis' Summer School	University of Cologne	Germany	09/2022
Track: Text Analysis with Deep Learning	*Prof. Joachim Saur*		
2. AI-DLDA Summer School (*Full Student Scholarship*)	University of Udine	Italy	07/2022
Artificial Intelligence from Deep Learning to Data Analytics	*Prof. Gianluca Foresti*		
3. Taiwan 2020 Medical Information Standards and HL7 FHIR Standard Co-Testing Seminar		Taipei	06/2020

INTERESTS AND SKILLS

Hobbies: Biology; Scientific Research; Education; Painting; Swimming.

Language: Mandarin (Native Speaker); English (Advanced); Cantonese (Basic).

Certificate: IELTS CEFR B2; Applied Biomedical Informatics Program; Institutional Review Board.