

Timing Liu

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Education

UNIVERSITY OF CAMBRIDGE	United Kingdom
Bachelor of Medicine, Bachelor of Surgery (MB BChir/MD)	2025
Bachelor of Arts (Engineering)	2022
NATIONAL JUNIOR COLLEGE (FULL SCHOLARSHIP)	Singapore
Advanced Level	2018

Publications

- Liu, T.**, Wang, F.S., ..., Chong, S.S., 2021. Simultaneous Screening of the FRAXA and FRAXE Loci for Rapid Detection of FMR1 CGG and/or AFF2 CCG Repeat Expansions by Triplet-Primed PCR. *The Journal of Molecular Diagnostics* 23, 941–951. <https://doi.org/10.1016/j.jmoldx.2021.04.015>
- Liu T.**, ..., Keane, P., 2021. Association between retinal fractal dimension and schizophrenia (ARVO 2022)
- Liu T** and Chong SS. Peer Review Report For: The FRAXA and FRAXE allele repeat size of boys from the Avon Longitudinal Study of Parents and Children (ALSPAC) Wellcome Open Res 2020, 4:116 (<https://doi.org/10.21956/wellcomeopenres.17209.r37691>)
- Liu T.**, ..., Chong SS 2022. CHRAB – a tool for identification and visualization of chromosomal abnormalities in preimplantation embryos using next-generation sequencing data (ESHG 2022)
- Tan V, **Liu T.**, ..., Chong SS. 2022. Third-generation single-molecule sequencing for preimplantation genetic testing of aneuploidy and segmental imbalances (ASPIRE Asia Pacific Initiative on Reproduction 2022 and ESGH 2022)
- Loh B, Jiang L, **Liu T.**, Kong-Vega N, Ganesan G, Tan KB, How TS, Koh J. Charlson Comorbidity Index is a Strong Predictor of 10-Year Mortality in Surgically Treated Hip Fracture Patients. (under review)
- Adeleke, S., Brown, N., Choy, A., **Liu T.**, ... Jyothirmayi, R., 2021. 124 Could change in neoadjuvant chemotherapy regimen after 3 cycles lead to better outcomes in inoperable ovarian cancer? (publication after conference, under review)
- Adeleke, S.M., George, S., Galante, J.R., **Liu T.**, ... Clarke, A., 2021. 414P Does adjuvant chemotherapy compared to surveillance improve recurrence free and overall survival in stage 3 rectal cancer patients? (publication after conference, under review)

Selected Awards

Fitzwilliam Chinese Scholarship , Fitzwilliam College,	2022-2025
Summer Studentship , Evelyn Trust,	2022
Travel grant and selected for press release , ARVO,	2022
NHS Clinical Entrepreneur , National Health Service,	2021
Excelet Research Award , Fitzwilliam College,	2020
Summer Research Grant , British Genetics Society,	2020
Winner , Massachusetts Institute of Technology COVID-19 Challenge,	2020
First Runner-up , Poster Presentation at National University Health System Paediatrics Week,	2019
Valedictorian , Science Research Programme, National University of Singapore,	2018
Best Paper Award as the first author, International Researchers Club Conference on Science, Engineering and Technology,	2018
Gold , Singapore Science and Engineering Fair,	2018
First Runner-up , Poster Challenge, Nanyang Technological University,	2017
Best Poster Award , West Zone Centre of Excellence Science Students Symposium,	2017
Silver , Nanyang Research Programme Symposium,	2017
Academic Award (overall top student for academic performance), National Junior College,	2016 and 2015
Champion , Astronomy Competition Advanced Section, Nanyang Polytechnic,	2016

Selected Experience

CAMBRIDGE CENTRE FOR AI IN MEDICINE	United Kingdom
Data scientist	August 2021– Present
<ul style="list-style-type: none">Worked with multidisciplinary teams at Mihaela van der Schaar's lab on optimizing organ transplant and dynamic risk prediction with tabular and time series data	
MOORFIELDS EYE HOSPITAL	United Kingdom
Data scientist	August 2021– Present
<ul style="list-style-type: none">Worked with multidisciplinary teams in ophthalmology to combine genetic data with Electronic Health Record data and Imaging data for improved ophthalmic and systematic disease diagnosis using multimodal machine learning	
MEDTECH FOUNDATION	United Kingdom
National Program Director	August 2020 – Present
<ul style="list-style-type: none">Worked with national committee members to build a resource platform and community for MedTech Foundation members and everyone interested in medical technology	

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- Worked with local branch leaders to develop training programs in medical technologies for professionals, undergraduate and postgraduate students
- Doubled the previous network of 7 branches to 14 branches over 5000 members within the first year in office

WELLCOME SANGER INSTITUTE

United Kingdom

Computational Biologist

June 2020 – Present

- Worked on association testing between genomic and metabolic data in a highly consanguineous population with full funding from the British Genetics Society
- Identified gene mutations in the 5' UTR region of two genes that could lead to increased diagnosis in the Deciphering Developmental Disorders project
- Estimated the prevalence of Type 1 and Type 2 diabetes in British South Asian cohort of 44k individuals using genetic risk score and characterized the genetic and clinical features of a potentially misdiagnosed group of ~1k individuals.
- Acquired proficiency in high-performance computing, pipeline analysis, machine-learning, and kernel machine methods
- Discovered novel associations that can be useful for future drug targets and improving healthcare equality

CAMBRIDGE CLINICAL TRIAL UNIT

United Kingdom

Full Stack Mobile Application Developer

Mar 2020 – Present

- Developed Xamarin Form mobile applications on iOS and Android for three clinical trials on COVID-19
- Engaged with ongoing trial report and analysis

NATIONAL UNIVERSITY OF SINGAPORE

Singapore

Computational Biologist and Genetic Diagnostic Developer

May 2017 – Present

- Undertook three projects on preimplantation testing for chromosomal and monogenic disorders with Oxford Nanopore and Illumina sequencing and provided remote bioinformatics support
- Designed R package for aneuploidy detection at the precise of 5 megabases and deployed it via R shiny web app
- As a high-school graduate, I mentored undergraduate final-year students and prepared high school students for Singapore Science and Engineering Fair 2019 where they were awarded Gold
- Developed a molecular diagnostic assay for Fragile XE Syndrome and transformed the assay into a duplex assay that also diagnoses Fragile X Syndrome
- Investigated the local allele frequency of repeats at the Fragile XE Site and the site's association with cognitive disorders

CLINICIANWIKI.COM

United Kingdom

Founder, Full Stack Web Developer

May 2020 – May 2021

- Led a team to build a non-profit website (<https://ClinicianWiki.com>) as a platform to make medical knowledge-sharing more collaborative, open, and accurate
- Built website with customized MediaWiki, Azure DevOps, and cloud computing resources
- Developed and executed business, marketing, and human resources strategies

Selected Extracurricular Courses

CANCER RESEARCH UK

Image Analysis with Fiji

HARVARD UNIVERSITY

Data Analysis for Genomics, Statistical Genetics

JOHNS HOPKINS UNIVERSITY

Genomic Data Science

UNIVERSITY OF CALIFORNIA SAN DIEGO

Bioinformatics

UNIVERSITY OF CAMBRIDGE

Introduction to Machine Learning, Data Science in Python, Image Processing with MATLAB, Research Data Management, Introduction to Metagenomics, Introduction to Biological Networks, Experimental Design, DNA Methylation Analysis, Ensembl REST API and Genome Browser, Snakemake, JMP Software Tools, Open Targets, InterMine

EMBL EBI

Network Analysis

Introduction to the Ensembl Genome Browser

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Molecular Biology

JOHNS HOPKINS UNIVERSITY

Mastering Software Development in R

UNIVERSITY OF MICHIGAN

Web Applications for Everybody

SINGAPORE MANAGEMENT UNIVERSITY

Problem Solving with Programming Language Ruby

STANFORD UNIVERSITY

Machine Learning

Writing in the Science

Computational Skills

Advanced: R, Python, SQL, C#, MATLAB, Shell, *Xamarin*, *Flutter*, machine learning

Intermediate: Ruby, PHP, JavaScript, Azure, *XAML*, *HTML*, *CSS*, deep learning, time series, signal processing

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Other Awards

Fitzwilliam Chinese Undergraduate Bursary Fund , Fitzwilliam College,	2021, 2020
Chris Xie Undergraduate Bursary Fund , Fitzwilliam College,	2020
Louis Wang Undergraduate Bursary Fund , Fitzwilliam College,	2020
Bell, Abbott, and Barnes Fund , University of Cambridge,	2020
Distinction , Chemistry, Physics, Mathematics, Economics and Project Work in SEAB-GCE Advanced Level,	2018
Merit , Pharmaceutical Chemistry, General Paper in SEAB-GCE Advanced Level,	2018
Merit , Anatomy Challenge, Nanyang Technological University,	2018
Second Runner-up , Circuit-Chem Chemistry Practical Challenge, National University of Singapore,	2017
Distinction , Higher Chinese in SEAB-GCE O Level Certificate,	2016
Silver , Singapore Junior Chemistry Olympiad,	2016
Champion , Mandarin Speaking Award, Young Men's Christian Association,	2015

Other Research Experience

CANCER SCIENCE INSTITUTE OF SINGAPORE Singapore
Invited Reviewer Oct 2020 – Present

- Invited to write a systematic review for liquid biopsy

SYNTHETIC BIOLOGY SOCIETY, UNIVERSITY OF CAMBRIDGE United Kingdom
Member Oct 2019 – Present

- Attended research workshops to learn how to better integrate biological and computational interfaces

NATIONAL HEART CENTRE SINGAPORE Singapore
Student Research Team Leader April 2017 – November 2017

- Led a group of five students to conduct a literature review on the technological development in the treatment of aortic stenosis

SINGAPORE GENERAL HOSPITAL Singapore
Research Associate November 2016 – December 2016

- Collected and analyzed data for a Singapore Health Services funded project to develop a risk score for predicting in-hospital mortality after hip fracture in the elderly patients
- Built pipeline for disease data extraction

NANYANG TECHNOLOGICAL UNIVERSITY AND NATIONAL JUNIOR COLLEGE Singapore
Student Research Team Leader January 2015 – April 2017

- Led groups students to investigate the parameters that affect the filtration efficiency of membrane bioreactor and efficiency of heavy metal adsorption using agricultural side products (watermelon peels processed with powdered activated carbon)

Other MedTech/Programming Experience

MANSFIELD ADVISORS United Kingdom
Junior Analyst Dec 2020 – Present

- Commercial due diligence on major veterinary chains (in China, Spain, German, Britain)
- Commercial due diligence on private hospital groups (in Britain)
- UK government vaccination strategy analysis and recommendations
- Applied text mining, web-scraping, and modeling skills
- Acquired a strong foundation in corporate finance and market analysis of the pharmaceutical and healthcare service industries
- Sharpened skills in project planning, client meeting, and result presentation

ARETE MEDTECH United Kingdom
Software Engineer June 2020 – August 2020

- Worked with UX/UI designer and hardware engineers to design an app for COPD and Asthma monitoring with Xamarin and Flutter on iOS and Android
- Return offer for continuing development with a stronger focus on data analysis from December 2020 onwards

COVMD.ORG United Kingdom
Co-Founder and Front-End Developer April 2020 – June 2020

- Led a team to build a non-profit multilingual website (<https://covmd.org>) as a platform for doctors to provide COVID-19 educational resources and mentorship to doctors in other countries

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- Built website on WordPress with various libraries and google analytics tools
- Developed and executed business, marketing, and human resources strategies
- Transitioned project to <https://ClinicianWiki.com>

STOP THE SPREAD

United Kingdom

Front-end Web Developer

Mar 2020 – May 2020

- Developed website (<https://stopthespread.info>) to disseminate accurate information and provide support to the public during the COVID-19 epidemic

MEDTECH FOUNDATION

United Kingdom

Deputy Team Lead and Software Engineer

October 2019 – Apr 2020

- Coordinated a team of engineers, biological scientists, and medical students to develop innovative neurosurgical tools to minimize brain tissue damage

Clinical Experience

ADDENBROOKE'S HOSPITAL

United Kingdom

Medical Student

September 2020

- Took history from patients remotely as a part of Preparing for Patients course

NUFFIELD MEDICAL CENTRE

United Kingdom

Medical Student

November 2019 – February 2020

- Took history from patients in the clinic and conducted home visits as a part of the Preparing for Patients course

LIANYUNGANG TRADITIONAL CHINESE MEDICINE HOSPITAL

China

Attachment Student in Cardiology

December 2016 – January 2017

- Attended ward rounds, outpatient clinics and observed interventional cardiology, dental and Traditional Chinese Medicine acupuncture procedures

SINGAPORE GENERAL HOSPITAL

Singapore

Research Associate

November 2016 – December 2016

- Attended ward rounds, outpatient clinic sessions, bedside teaching, and observed at cadaveric dissection classes with the medical students
- Attended teaching sessions with the physio and occupational therapist

Volunteering Experience

TAN TOCK SENG HOSPITAL

Singapore

Volunteer

January 2017 – March 2019

- Visited hospitalized patients biweekly and engaging them with cognitive activities that reduce their risk of delirium
- Coordinated between volunteers to encourage attendance and guiding new volunteers to interact with the elderly
- Organized a String Orchestra performance to bring joy to patients before Christmas
- Learned to speak dialects to communicate with elderly patients

NATIONAL JUNIOR COLLEGE

Singapore

First-Aid Instructor

January 2017 – Dec 2018

- Conducted Cardiopulmonary Resuscitation & Automated External Defibrillators courses to students and community members

NATIONAL YOUTH ENVIROLYMPICS CHALLENGE

Singapore

Logistics Committee Member

March 2016 – August 2016

- Organized an environmental forum with the Minister of Environment and Water Resources as the guest of honor
- Organized collections for electronic wastes from the neighborhood to prepare for an En-mazing race with participants from various schools in Singapore

I ART SG

Singapore

Publicity Committee Member

November 2015 – November 2016

- Publicized blind artists' art exhibitions in Singapore, Hong Kong, and Malaysia

SAGE COUNSELLING CENTRE

Head of Helpdesk

Singapore
November 2015 – November 2015

- Took charge of answering clients who are caregivers for the elderly

Leadership Experience

YOUTH HEALTH AMBASSADOR, NATIONAL JUNIOR COLLEGE

Head of Committee

Singapore
Mar 2017 – Mar 2018

- Decorated the school library with updated information on mental health and motivational quotes
- Organized events to distribute de-stress balls to students taking examinations

SINGAPORE INTERNATIONAL SCIENCE CHALLENGE

Head of Poster Challenge

Singapore
June 2017 – July 2017

- Organized poster exhibition and quizzing for overseas high school students
- Initiated activities that encourage participants to understand more about Singapore culture
- Performed as a String Orchestra member at the opening ceremony

MATHEMATICS SOCIETY, NATIONAL JUNIOR COLLEGE

Vice President

Singapore
July 2016 – July 2017

Member

January 2015 – December 2018

- Conceived and implemented an outreach event that incorporates mathematical questions into Minecraft, a sandbox game, to the new cohort of College members
- Designed questions and acted as an emcee for the Singapore Mathematical Challenge, a mathematical modeling competition organized for all secondary schools across Singapore
- Conducted and coordinated the weekly training sessions in the Society

Music Experience

FITZWILLIAM COLLEGE CHOIR

First Tenor

United Kingdom
October 2019

- Sang at evening services at College Chapel

ASIAN CULTURAL SYMPHONY ORCHESTRA

Assistant Sectional Leader, Viola

Singapore
Jan 2017 – Mar 2017

Violist

June 2016 – September 2019

- Organized and performed at various concerts to promote Asian music through classical instruments

STRING ORCHESTRA, NATIONAL JUNIOR COLLEGE

Head of Welfare

Singapore
July 2016 – July 2017

Quartermaster

July 2015 – July 2016

Assistant Sectional Leader, Viola

July 2016 – July 2018

Violist

May 2016 – December 2018

First Violinist

January 2015 – June 2017

- Organized a group trip to Hong Kong for cultural and musical exchange
- Initiated an instrument loaning system that significantly improved the transparency and efficiency of instrument loaning
- Initiated a room management system to provide a conducive environment to members
- Organized Talent-time, an intra-college event that provided a platform for students to showcase their talent
- Organized various activities and outings to promote bonding between orchestra members
- Trained and guided junior members of the Viola section
- Learned to play the viola in one month when the orchestra needs violists

Other Extracurricular Courses

WESLEYAN UNIVERSITY

Social Psychology

UNIVERSITY OF PENNSYLVANIA

Entrepreneurship

MCMASTER UNIVERSITY & UNIVERSITY OF CALIFORNIA SAN DIEGO

Learning how to Learn

YALE UNIVERSITY

Introduction to Classical Music

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Editorial Positions

Review Editor, Frontiers in Digital Health

Peer Reviewer

Wellcome Open Research, BMC Genetics

Language Skills

Native proficiency: English, Mandarin Chinese

Professional working proficiency: Cantonese

References

Referees' contact details will be provided upon request.