CV

Anjie Le

Education

University of Cambridge **BA Mathematics Tripos** **2018-2022**

· Courses done include:
- **Data science:** Statistical Modelling, Mathematics of Machine Learning, Linear Algebra
- **Stochastic process:** Applied Probability, Mathematical Biology
- **Measure theory:** Probability and Measure
- **Mathematical modelling and analysis:** Numerical Analysis, Optimisation, Methods
- **Information and computer science:** Graph Theory, Quantum Information and Computation, Logic and Set Theory, Groups Rings and Modules, Numbers and Sets

Work & Research

Assistant **E-Sonic Imaging** **2022.10-12**

Assistant for Academician Jacques Souquet

· Investigate the entire process of medical ultrasound product development, communicate between different parties regarding their progress and technological difficulties

· Initiated a project for an AI-based breast cancer diagnosis platform on ultrasound images, produced a prototype to illustrate the effect; designed and an end-to-end AI research tool to embed in the ultrasound platform, which would allow doctors to train personalised DL models locally and can act as a node for federated learning

Research Internship **VetCT** **2022.7-10**

AI-based radiology body-part detection in veterinary CT scans

· Utilised YOLOv5 to train an ML model to perform the detection of 8 body areas and produced a report to conclude the purpose, procedure and significance of the project

· Performed data pre-processing on raw CT scans, involving dealing with DICOM files and using classical computer vision techniques for data cleaning

· Presented the results at the Cambridge Mathematics Placements annual open day

Algorithm Designer **E-Sonic Imaging** **2021.8-10**

Automation of a configuration in ultrasound imaging

· Realized B-mode ultrasound plane-wave imaging from radio-frequency data

· Explored the development of Automatic Time Gain Compensation (ATGC), conducted a parallel comparison on in vivo carotid ultrasound images between different approaches of ATGC and produced a report, in which I proposed a classification and grading system

· Discussed the possibility of implementing machine learning methods on ultrasound machines

AI-based Research Project **Prof Mark Vogelsberger** **2021.6-8**

Development of a cancer diagnosis application utilising ML

· Researched into four different popular models of neural networks; provided an implementation for each one; presented in seminars; trained the models for each implementation to an average accuracy of 97%, while a typical accuracy level is ~70%

· Published a paper based on the application invented to diagnose breast cancer by examining the Whole Slide Images of lymph nodes utilising the CNN model trained, which achieved a 95% accuracy on the testing dataset; developed a chatbot for the application using LSTM

Publication & Patent

Anjie Le, Zhenghao Li, Haoyun Tang, Haobo Yang, “A new breast cancer diagnosis application based on ResNet50,” Proc. SPIE 12079, Second IYSF Academic Symposium on Artificial Intelligence and Computer Engineering, 120792K (1 December 2021)

Baodi Bi, **Anjie Le**, Jacques Souquet, “ Artificial Intelligence Integrated Diagnostic Platform Device in Ultrasound Modality,” CARP202211241158, filed 15 December 2022, patent pending

Research-Based Competition

Competition	Project	Achievement
International Blockchain Olympiad	· Proposed a theoretical model for applying **blockchain** technology to the tracking of imported food and conducted the feasibility analysis	One of the two representative projects that were presented at the closing ceremony
Beijing Applied Maths Essay Competition	· Proposed a more general model for the Blotto game, which is a model in **game theory**	Second Prize
Beijing Jinpeng Technology Forum	· Explored the effects of toothpaste with or without fluoride on isolated **human teeth**	Second Prize
China Adolescents Science & Technology Innovation Contest	· Explored the effects of different light qualities on the **growth of stonecrops**	Third Prize

Other Experiences

Quantum Computing Summer Camp	· Presented at the closing ceremony as an outstanding-student representative; got invited to join the research group; contributed to the Huawei HiQ quantum computing open-source database	University of Science and Technology of China
Computer-Aided Teaching of All **Mathematics**	· Utilised Python or MATLAB to simulate random statistical samples, diffusion equations, quantum eigenstates, and practiced non-linear minimisation and computational graph theory	University of Cambridge

Skills

- **Programming:** MATLAB, Python, RStudio
- **Software development:** Git (version control), AWS, Jira and Confluence
- **Professional skills:** Operate medical **ultrasound** machine; **public speaking** and marketing
- **Languages:** English-Chinese **translation** and **simultaneous interpretation**