Tianyi Wu

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Education

Univeristy of Zurich **Oct 2023 – Present**
Research Assistant *Zurich, Switzerland*

- Supervised by Prof. Dr. Markus Leippold
- Research Theme: Retrieval Augmented Generation (RAG), Hallucination of Large Language Models

Imperial College London **Oct 2022 – Sept 2023**
MSc Artificial Intelligence *London, UK*

- Distinction Graduate
- Course Enrolled:
  - Reinforcement Learning
  - Natural Language Processing
  - Computer Vision
  - Deep Learning
  - Robot Learning

University College London (UCL) **Aug 2018 – Sept 2021**
BSc Statistics, Economics and Finance *London, UK*

- First Class Honour Graduate

Shrewsbury School (The Origin 9) **Aug 2016 – Sept 2018**
A Level *Shrewsbury, UK*

- A*A*A*A in Maths, Further Maths, Chemistry and Chinese, respectively.
- Academic Scholarship; Science Society President

Research Experience

Critic Model for the Quality of Retrieval Augmented Generations **Ongoing Research**
University of Zurich *Zurich, Switzerland*

- Aims to develop a critic model to evaluate the quality and automatically provide critique on plausible improvement, given a retrieval augmented generated text.
- Supervised by Prof. Dr. Markus Leippold

Active Learning to Fine-tune Multi-modal Models for Clinical Report Generation **Master Thesis**
Imperial College London *London, UK*

- **Plan to submit to MICCAI 2025:**
  https://drive.google.com/file/d/19aAbHvj_e_O7u8ddiQpVvDfd__6Y-sFR/view?usp=sharing
- Studies the effect of different active learning strategies on actively tuning multimodal models into clinical domain specialised models.
- Proposed and developed a novel active learning framework that can achieve the above goal.
- Co-supervised by Dr. Sun Kai and Dr. Jingqing Zhang.

Simplify the 3D Asset Creation Process by using AI to Generate Textures
Imperial College London *London, UK*

- Group Collaboration project with Loci.ai (https://www.loci.ai/)
- Proposed a pipeline that utilized methods from traditional computer vision and deep learning to generate texture maps from any given image or prompt
- Developed an end-to-end Python library called "From Image to Texture (FIT)" that creates colour, normal, height, ambient occlusion, and Roughness Maps from any given prompt or image.
- Goal set by the start-up company is largely achieved and deliverable has exceeded expected performance.

Project Experience

Discover Economically Meaningful Stock Factors through LLM Reasoning **Ongoing Project**

University of Zurich *Zurich, Switzerland*

- Aims to leverage LLM's strong reasoning ability to automatically discover useful and economically meaningful stock factors
- Supervised by Prof. Dr. Markus Leippold and PhD student Qian Wang

SemEval-2022 Task 4: Patronizing and Condescending Language Detection.

Imperial College London *London, UK*

- Develop a Roberta-based model that detects patronizing and condescending language (PCL) and reached an F1 score of 0.6163 on the test set and came 1st within the school.
- Used Augmentation by Checklist Invariance Testing (CIT) and Weight Sampler to address the class imbalance.
- Layer-wise learning rate decay to consider different layers store different knowledge in language models.

Estimate VaR of a two-stock portfolio using MC Simulation based on Copula theory

University College London *London, UK*

- Use of ARMA and GARCH to model the time series effect of the portfolio, and through models' autocorrelation function graph, partial autocorrelation function graph and its AIC as main selection standards. (via R)
- Comparing the above approach with the Historical Simulation, the Parametric approach, established a thorough discussion on their pros and cons and pointed out each of their limitations under the context.
- The final report and the model-building process of the model have received a high compliment from Dr Alex Donov that it is one of the most rigorous model-building coursework he has seen in recent years.

Internship

AI Bootcamp **Aug 2021 – Dec 2021**

Provided by Shanghai Jiaotong University collaborating with Deep Blue Technology Company *Shanghai, China*

- Studied basic operations and programming with Python (Scraping, Word-Cutting, Numpy, Pandas, Pytorch, etc.) and basic programming in C++.
- Learnt the basic theory of machine learning and deep learning networks (NN, CNN, RNN) and their practical coding with Python.

Tencent **Jun 2019 – Aug 2019**

Customer Research & User Experience Design Center *Shenzhen, China*

- Took part in Tencent's internal marketing data website's renovation. Responsible for providing data analysis of the user data and proposing the restricting of tab content.
- Self-taught and use hierarchical clustering to analyze the user data of the website.
- Proposed a grouping method of the tab contents which is implemented on the new version of the website in the end.

Hong Kong Exchange (HKEx) **Apr 2019 – Jun 2019**

Mainland Client Development *Shanghai, China*

- Took part in the market research of Freight futures, by comparing the contract liquidity between different Exchanges, and concluded the market share of Exchanges in Freight futures.
- Responsible for the comparative analysis of HKEx's new Mini LME future contract to the non-ferrous metal contract in other Exchanges, produced Excel Chart and PPT for internal training.

Haitong International Capital Limited **Jun 2017 – Jul 2017**

Corporate Finance *Hong Kong, China*

- Assisted in the roadshow preparation for Baota Petrochemical (a leading petrochemical group from China with a market cap of US $4 billion), including the roadshow slides, calculation, and presentation of key financial performance indicators.
- Gained a first-hand understanding of the trends and key topics in the Hong Kong capital markets, including the trends in the investment banking business and how capital markets transactions are conducted.

Technical Skills

- **Computing Languages:** Python, R, SQL, C++(Basics)
- **Languages:** English (Native; IELTS 8, TOEFL 104, GRE 324), Mandarin (Native), Japanese (Fluent / JPLT N1 certificate holder) Cantonese (Native), Shanghainese (Native)
- **Certifications:** Japanese JLPT N1 | IELTS 8.0 | TOEFL 104 | GRE 324