Chengyi Ju (Jaden)

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Educational Background

University of Birmingham, MSc (Artificial Intelligence and Machine Learning), 2020.09~2021.09

South China University of Technology, BSc (Applied Mathematics), 2016.09~2020.07

University of Birmingham, BSc (Applied Mathematics), 2019.09~2020.07

Skills and Specialties

- English language qualifications: **IELTS** 8.0, **CET-6** ; Fluent **Mandarin** and **Cantonese**.
- **Python, C#, C++ and JavaScript** languages; **VS, MATLAB** and other software for programming.
- **RStudio** and **SAS** as statistical methods.
- **MySQL, SQL** Server and other mainstream database management system.

Research and Working Experience

Engineer, Hong Kong Applied Science and Technology Research Institute, Trust AI and Technology, Computational Linguistic and Intelligence (2023.11~present)

- Assist in R&D project. Algorithm research and software development on speech recognition, speech synthesize, speaker verification, and natural language processing.
- Research on Virtual Avatar generation, synchronization of video and audio generation. Deliver innovative technology.

Research Assistant, the Internet and Mobile Computing Laboratory (IMCL) with the Department of Computing, PolyU, under the supervision of Prof. Cao Jiannong (2021.09~2023.10)

- Research work on implementing algorithms for students' learning strategies recommendation and talent students' prediction. One paper "Heterogeneity-aware Cross-school Electives Recommendation: a Hybrid Federated Approach" accepted by the International Conference of Data Mining (ICDM 2023 Workshop).
- Involved in the Jockey Club "Diversity at Schools" project designing a web platform consisting of a three-part function to mine students' diversity across different schools in Hong Kong.

Part-time Research Assistant, Vision and Computing Lab with Department of Computer Science, SCUT, under the supervision of Prof. Xu Yong (2018.08 to 2019.07)

- Research on image processing, recognition and denoising.
- Research on different binary evaluation measures. Jointly capturing image-level statistics and local pixel matching information in MATLAB. Comparing of proposed measure method to other traditional measures.

Internship, Guangzhou Weidu Technology Company, the project of intelligent evaluation system of Chinese calligraphy (2019.08)

● Database building for different types of Chinese calligraphy work, including the mathematical properties of each work (including the shapes, center of gravity, outline).

● CNN network training by TensorFlow and the construction of a reasonable evaluation system.

BSc Project (2020.02~05)

My graduation thesis "Research on the Housing Price under the Metro Network from the Angle of Discrete Geometry" was awarded as the outstanding graduation thesis of the school.

● Pyspider to crawl data of house prices along the Canton Metro for the past decade from websites.

● Modeling the changes of house prices on metro network as a temperature variation caused by heat transfer on spectral graph and designing a model to predict the house prices .

MSc Project (2021.07~09)

MSc project dissertation "A graph embedding model for drug-drug interaction and side-effect prediction".

● Online data sources including *Offsides, Twosides* and *Siders* are used to construct a knowledge graph.

● Knowledge graph embedding model based on tensor decomposition is designed to predict pharmacological side effects between drug combinations.

Self-Assessment

With a solid foundation in Mathematics and Computer Science, I've been able to master advanced machine learning techniques and delve into complex data analysis. My academic journey is highlighted by strong performances in challenging courses and an innovative undergraduate thesis on the relationship between housing prices and metro networks.

Building on this, my time as a part-time research assistant at South China University of Technology and an AI intern greatly enhanced my research capabilities. I carried this experience into my Master's project at the University of Birmingham, where I developed a graph embedding model to predict drug interactions, deepening my passion for AI and Machine Learning.

At the Hong Kong Polytechnic University, I was deeply involved in the Jockey Club's "Diversity at Schools" project. Here, I had the opportunity to apply artificial intelligence techniques to analyze and comprehend student diversity, with the overarching goal of shaping future educational policies for the better. My work in this area led to the development of a paper on a hybrid recommender system designed within a federated learning framework. The acceptance of this paper by the ICDM 2023 workshop has been a significant milestone and a profound source of motivation for my ongoing research endeavors.

Currently, I'm an engineer at ASTRI, where I'm involved in pioneering projects in computational linguistics, speech recognition, and the development of virtual avatars. My work contributes to Hong Kong's goal to become a leading tech hub.

As I look to the future, I aim to pursue a part-time PhD program through a joint initiative, which will complement my commitment to ASTRI and allow me to push the boundaries of AI research. This path is one I believe will not only foster personal growth but also significantly enhance Hong Kong's dynamic economy and societal well-being.