

# Tingyou Li

22 Cornwall Street, Kowloon, Hong Kong | +852 57491321 | tingyouli2-c@my.cityu.edu.hk

## EDUCATION

### City University of Hong Kong (CityU)

Hong Kong, China

- **Bachelor of Science**, Data Science (Magna Cum Laude Award, Top 5%) Sep. 2020 - Jun. 2024
- **Honors & Awards:** Dean's List (2020 - 2023, Top 10%), CityU Tiger Program (2020 - 2024, Top 10%), CityU Scholarship (2024, Outstanding Overall Performance), XYD Scholarship (2023, Excellent Academic Performance)

### Chinese University of Hong Kong (CUHK)

- **Doctor of Philosophy in Electronic Engineering**

Since Aug. 2024

Supervised by Prof. LI Jizhou

## PUBLICATIONS

**Published** (\* denotes equal contribution)

- **T. Li\***, Z. Xu\*, Y. S. Chu, X. Huang, and J. Li, "Coordinate-based Neural Network for Fourier Phase Retrieval", *IEEE International Conference on Acoustics, Speech and Signal Processing 2024*, [doi: 10.1109/ICASSP48485.2024.10447474](https://doi.org/10.1109/ICASSP48485.2024.10447474).
- C. Sakal, **T. Li**, J. Li, and X. Li, "Associations Between Sleep Efficiency Variability and Cognition Among Older Adults: Cross-Sectional Accelerometer Study", *JMIR Aging* (Q1 in Gerontology), [doi: 10.2196/54353](https://doi.org/10.2196/54353). 2024.
- C. Sakal, **T. Li**, J. Li, and X. Li. "Identifying the most predictive risk factors for future cognitive impairment among elderly Chinese", *JMIR Aging* (Q1 in Gerontology), [doi: 10.2196/53240](https://doi.org/10.2196/53240). 2024.

### Under Review

- C. Sakal, **T. Li**, J. Li, and X. Li, "Using wearable device-based machine learning models to autonomously identify older adults with poor cognition", arXiv, <https://arxiv.org/abs/2309.07133>. 2023. (Submitted)

## RESEARCH EXPERIENCE

### Deep-Learning-Enabled Fourier Phase Retrieval, CityU

Hong Kong, China

Research Assistant, Supervised by Prof. Jizhou Li at TIDES-Lab

Dec. 2022 - Present

- Designed an unsupervised implicit neural representation (INR) based network SCAN to recover a complex-valued object given its Fourier transformed magnitude while its Fourier phase is lost, explored a novel cycle-based loss function for model training
- Literature reviewed on the state of the arts in phase retrieval under coherent diffraction imaging and ptychography settings, reproduced these existing methods, proved SCAN outperformed with both traditional iterative methods and current best deep learning-based methods in different noise conditions
- Submitted the above work as the first author to IEEE ICASSP 2024 and was just accepted, prepared to apply SCAN on real data in ptychography experiments, where the results would be further summarized into a journal paper

### Predicting Future Dementia using Data-driven Methods, CityU

Hong Kong, China

Research Assistant, Supervised by Prof. Xinyue Li

Aug. 2022 - Present

- Helped implement statistical models with wearable device data to predict cognitive behaviors, identified the most predictive risk factors for cognition diseases and conducted a cross sectional study on cognition diseases
- Proved our model outperformed largely with current benchmark models on predicting cognition under three different tests, clarified the associations between sleeping efficiency variability and cognition among older adults
- Listed as second authors in two papers which were respectively accepted by *International Conference on Aging and Gerontology* and *JMIR Aging*, a journal listed in 1<sup>st</sup> quantile in Gerontology, submitted one journal paper as the second author about identifying poor cognition to Scientific Reports with good feedback received

## SELECTED PROJECTS

### **Towards Spatial-temporal Personalized Point of Interest (POI) Recommendation** Feb. 2023 - April. 2023

- Led team of three to build a system to predict POI based on basic information of users and POIs, users' tips and reviews (time, stars, text), social relationships between users and locations of the POIs with Graph Convolutional Neuralnetworks and GraphSAGE
- Retained the Yelp dataset under categories "Restaurants" or "Food" and located around Santa Barbara using BERT and Fine tuning to extract features of users from user tips
- Integrated multiple feature categories (including user personalization data, social connections, geographic indicators, and textual analysis) into a sophisticated recommendation algorithm by leveraging GraphSAGE, leading to a substantial improvement in system efficacy, achieving a 0.0364 score in Recall@20, a significant enhancement over baseline models (Singular Value Decomposition at 0.0090, Matrix Factorization at 0.0079, and GlobalAvg at 0.0195)

### **A Social Study on the Itaewon Halloween Tragedy by Twitter** Sept. 2022 - Dec. 2022

- Led team of three to crawl 203 tweets on the topic of Itaewon Halloween Tragedy along with 16230 replies sent by 13174 users between Oct. 29, 2022, and Nov. 07, 2022, on Twitter using Python Library SNSCRAPE
- Classified the tweets into four types, "Factual", "Critical", "Supportive" and "Irrelevant". Visualized the propagation pattern of various tweet types with NetworkX in different time (1 day, 3 days, 10 days after). Analyzed the popularity ( $0.2 * \text{like} + 0.3 * \text{retweet} + 0.5 * \text{reply}$ ) of different tweets.
- Analyzed and plotted the trends of different types of tweets. Found that the tweets had the fastest speed of propagation between 1 day after and 3 days after where the tweets that show support to the victims have the highest popularity while criticizing tweets have second highest.

## WORK EXPERIENCE

### **Sino-Rich Securities & Futures Limited** Hong Kong, China Accounting Data Analyst Intern Jun. 2022 - Aug. 2022

- Performed data cleaning, transformation and integration of daily transactions and sales of financial derivatives
- Spearheaded the design and execution of an advanced data mining strategy, successfully identifying and clustering key customer segments, delivering insightful financial trend reports, driving informed decision-making for the accounting department and senior leadership
- Produced data visualization with Python, Tableau, Excel Interactive Dashboard

### **School of Data Science, CityU** Hong Kong, China Office Assistant Dec. 2021 - Apr. 2022

- Used Excel to perform data cleaning and processed the data of the school program
- Organized ad-hoc functions, hosted a seminar and provided clerical support to other officers at the school

### **The Census and Statistics Department of Hong Kong Government** Hong Kong, China Data Analyst Intern July. 2020 - Aug. 2020

- Automated the task of collecting and analyzing enterprise human resources data for the past 3 years using SQL and R.
- Performed data screening, cleaning, and descriptive statistics with R, helped build database system
- Analyzed and visualized data using Tableau to illustrate the distributions of HK company human resources

## SKILLS

Programming Languages: Python, C++, R, SQL, MATLAB, Octave, JAVA, Scala, HTML, C#, Ruby, SPSS, VBA

Frameworks & Tools: PyTorch, TensorFlow, MXNet, Caffe, Tableau

Databases: Hadoop, Spark, Apache Hive, Apache Pig, Amazon EC2, Amazon RDS

Packages: OpenGL, OpenCV, Statsmodels, Scipy.Stats, Snsrape, PySpark, NLTK

Operating Systems: Windows, Linux