Tingyou Li

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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

The Chinese University of Hong Kong (CUHK)   Hong Kong, China
- Doctor of Philosophy in Electronic Engineering   Since Aug. 2024

                                                                 Supervised by Prof. LI Jizhou

Awards & Honors

- 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)

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.
- 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, 7:e54353, 2024, doi: 10.2196/54353. (JCR Q1 in Gerontology)
- C. Sakal, **T. Li**, J. Li, and X. Li. "Identifying the most predictive risk factors for future cognitive impairment among elderly Chinese", JMIR Aging, 7:e53240, 2024, doi: 10.2196/53240. (JCR Q1 in Gerontology)

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 TIS-Lab   Dec. 2022 – June. 2024

- 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 – June. 2023

- 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

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 $(0.2* like + 0.3* retweet + 0.5 * reply)$ 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, Snscrape, PySpark, NLTK
Operating Systems: Windows, Linux