

# WANDA LI

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## EDUCATION

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### **Tsinghua University**

*M.Eng in Data Science and Information Technology*

Sep 2020 - Present

### **Fudan University**

*B.S. in Computer Science (with honors)*

Sep 2016 - Jun 2020

## PUBLICATIONS

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1. Anping Zhang\*, Ke Zhang\*, **Wanda Li**, Yue Wang, Yang Li, Lin Zhang. “Optimising Self-Organised Volunteer Efforts in Response to the COVID-19 Pandemic.” *Humanities and Social Sciences Communications*, 2022.
2. **Wanda Li**, Zhiwei Xu, Yi Sun, Qingyuan Gong, Yang Chen, Aaron Yi Ding, Xin Wang, Pan Hui. “DeepPick: A Deep Learning Approach to Unveil Outstanding Users with Public Attainable Features.” *Transactions on Knowledge and Data Engineering (TKDE)*, 2021.
3. **Wanda Li**, Jianping Zeng. “Leet Usage and Its Effect on Password Security.” *IEEE Transactions on Information Forensics and Security (TIFS)*, 2021.
4. Yuxuan Xiu, **Wanda Li**, Wai Kin Victor Chan. “OD-HyperNet: A Data-Driven Hyper-Network Model for Origin-Destination Matrices Completion Using Partially Observed Data.” *Proceedings of the 10th International Conference on Logistics, Informatics and Service Sciences (LISS '20)*.

## SELECTED AWARDS AND HONORS

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**2022** Shopee Code League 2022 ranked top 4% (Top 106 among 2,393 teams)  
**2020** The First Prize of Shanghai Open Data Application (SODA) Competition (Top 3 among 198 teams)  
**2020** Outstanding Graduate of Fudan University  
**2020** Chun-Tsung Scholar (Research Program Funded by Nobel Laureate Dr. Tsung-Dao Lee)  
**2019 & 2018** Second Class Scholarship for Outstanding Students in Fudan University (Top 10%)  
**2018** National Second Prize, China Undergraduate Mathematical Contest in Modeling  
**2017** The Most Popular Team, Google Girl Hackthon Season III

## TEACHING AND SERVICE

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### **Teaching Assistant: Learning from Data**

*Instructional Aide*

Tsinghua University

Fall 2022

- Design and grade homework.
- Give recitations and hold discussions on data science topics.
- Hold office hours weekly for a 120-student course on the main information track.

## RESEARCH EXPERIENCE

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### **Stage-Adaptive Multi-Task Recommendation System**

*Advisor: Prof. Suhang Wang (Assistant Professor, Information Science)*

Penn State University

Jun. 2022 - Aug. 2022

- Initiated a user-stage adaptive recommendation system, STAN, to enhance the accuracy of the recommendation system.
- Designed a model containing a multi-task recommendation part and a stage representation part.
- Tested on a WeChat-Video public dataset and a Shopee industrial dataset.
- Achieved up to 10.85%/18.47% improvement on AUC/NDCG score, respectively.

### **Human Self-Organization Modeling**

*Advisor: Prof. Yang Li (Assistant Professor, Information Science)*

Tsinghua University

Sep. 2020 - Dec. 2020

- Designed an entropy-based measurement algorithm for people’s self-organization level.

- Proposed a data-driven framework to investigate when and how self-organisation emerged during the pandemic and how it related to the effectiveness of volunteer organisations in general.
- Conducted simulation experiments to examine our results on a user activity dataset collected from a mobile volunteer platform; analyzed user behavior data by incorporating deep learning algorithm with Hirschfeld-Gebelein-Rényi (HGR) maximal correlation methods.
- Found that volunteers' task participation and social task preferences had multiple phases of self-organisation in response to changing pandemic situations and centralised interventions.

#### **Estimation of Population Movement between Cities**

Tsinghua University

*Advisor: Prof. Wai Kin Victor Chan (Professor, Co-Associate Director)*

Dec. 2019 - Feb. 2020

- Proposed hyper-network origin-destination matrices algorithm to model population fluctuation during COVID-19.
- Collected the partially observed travelling data from the Baidu Migration dataset.
- Integrated the data with optimized methods and built an efficient and precise model.

#### **Unveil Outstanding Users with Limited Features**

Fudan University

*Advisor: Prof. Yang Yang Chen (Associate Professor, Computer Science)*

Dec. 2018 - May. 2019

- Formulated the concept of Outstanding Users.
- Proposed a framework, DeepPick, to detect outstanding users in an online social network without the complete information of network structure.
- Introduced deep neural networks to capture dynamic features of the users for generalization; leveraged the traditional descriptive features to utilize users' public information for specialization; trained the framework on two public datasets: Yelp and Foursquare.
- Achieved up to 35.3% F1-score and 22.5% AUC compared to existing approaches.

#### **Usage and Effect of Leet Words in Password**

Fudan University

*Advisor: Prof. Jianping Zeng (Associate Professor, Computer Science)*

Jan. 2018 - Jun. 2018

- Designed methods to explain the Leets in passwords by definition, detection, dictionary construction, and usage.
- Extracted the most prevalent counterpart pairs of Leet manifestations; examined the effect of Leet in passwords by incorporating Leet transformation into the probabilistic context-free grammar(PCFG) method to crack passwords.
- Constructed the first comprehensively analyzed dictionary of Leets for passwords and conducted user surveys to prove our experiment results.
- Unveiled the effect of Leet transformations in password security: common Leets can enhance password cracking performance, while low-frequency Leets could help users to strengthen their passwords.

## **INDUSTRIAL EXPERIENCE**

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### **Alibaba Group.**

Beijing, China

*Recommendation System Research Intern.*

Jul. 2021 - Dec. 2021

- Designed and implemented a multimodal representation model to enhance the item embedding by tag taxonomy in the recommendation system.
- Designed a model based on BERT structure to understand different modalities of items, including image and text; updated the model via the active learning method with Alibaba's internal dataset.
- Improved the AUC of the recommendation model from 60% to 90%.

### **Kuaishou Technology.**

Shenzhen, China

*Machine Learning Engineer Intern.*

Apr. 2021 - Jun. 2021

- Designed and implemented machine learning models using TensorFlow to detect impostors and malicious users on the Kuaishou Application.
- Exploited users' historical behaviors, social links, and video features in modeling and prediction.
- Improved detection accuracy of the multimodal model with Kuaishou's internal dataset about users' video style and other user-generated content styles.
- Improved the AUC of detection to more than 90%.

### **Microsoft.**

Shanghai, China

*Customer Service and Support(CSS) Security Intern.*

Jan. 2019 - Mar. 2019

- Built a highly reusable power BI internal analysis project and set up different test environments to accomplish lab works.

- Set up virtual environments through Docker.

## SKILLS

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**Programming:** Python(Proficient), C/C++(Proficient), Matlab(Basic), SQL(Basic), Hive(Basic), Java(Basic), NetLogo(Basic).

**Standard Language Tests:** TOEFL 105