

# Yuwei Zhang

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## EDUCATION

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**School of Computer Science, Fudan University**

**Shanghai, China**

*Bachelor of Computer Science, Jul. 2022(expected)*

- Cumulative GPA: 3.84/4.0 (In-Major: **3.93/4.0**), School Rank:**2/153**

## PUBLICATION

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(# denotes Co-First author)

- Structural Hole Theory in Social Network Analysis: A Review.  
Zihang Lin#, **Yuwei Zhang**#, Qingyuan Gong, Yang Chen, Atte Oksanen, Aaron Yi Ding.  
To appear: IEEE Transactions on Computational Social Systems (TCSS).
- A Human Mobility Dataset Collected via LBSLab.  
**Yuwei Zhang**, Qingyuan Gong, Yang Chen, Yu Xiao, Xin Wang, Pan Hui, and Xiaoming Fu.  
Submitted to: *Scientific Data* (Nature Publishing Group). (Under review)

## RESEARCH EXPERIENCE

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**Mining Mobility Patterns using Shanghai Smart Card Data**

**University of Göttingen**

*Advisor: Prof. Xiaoming Fu*

*Jun. 2021 – Present*

- Using mobility data (over 5 million records per day in Apr. 2015 and Mar. 2016) to cluster metro stations into 3 groups and analyzing their features such as POIs
- Analyzing different mobility patterns in Shanghai Metro (weekday v.s. weekend, commuter v.s. tourist, etc), detecting and explaining anomalies to monitor special events
- Adopting network analysis methods to examine mobility network between metro stations, aiming to provide insights for urban planning of Shanghai

**Data Analysis of LBSLab, a Mobile-centric Data Collection Platform**

**Fudan University**

*Advisor: Prof. Yang Chen*

*Jan. 2021 – Present*

- Performed analysis on the mobile check-in data of 467 students collected by LBSLab, a WeChat mini-program that has attracted more than 2,000 users and gathers users' heterogeneous activity data
- Analyzed the spatial and temporal patterns of the user behaviors and their influence on users' mood, with visualizations using MATLAB
- Constructed a paper submitted to *Scientific Data* (Nature Publishing Group)

**Reviewing Structural Hole Theory in Social Network Analysis**

**Fudan University**

*Advisor: Prof. Yang Chen*

*Jan. 2020 – Mar.2021*

- Provided a comprehensive review on the development of structural hole (SH) theory, SH spanner detection algorithms and SH-related applications in diverse fields
- Identified potential research trends in the area, with insights for facilitating researchers and service providers to better apply the theory
- Contributed to a paper accepted by **IEEE TCSS** (Co-First author)

## Mobile Application Usage Analysis and Prediction

Advisor: Prof. Yang Chen

Fudan University

Mar. 2020 – Present

- Constructed an app usage graph to understand the co-occurrence of apps in users' app usage records, considering time and location
- Trained an LSTM-based personalized model for app prediction problem and increased F1-score from 0.85 to 0.94
- Applied GCN to generate embeddings for the mobile apps and incorporated the app embedding as a global pattern into the prediction model to resolve data sparsity and cold-start problems

## PROJECT EXPERIENCE

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### Food Recipes Classifier and Random Generator, NLP Course Project Oct. 2020 - Jan. 2021

- Performed data preprocessing using Python and regular expressions to extract ingredients, conducted data distribution analysis and visualized using Python
- Built LR classifiers to predict cuisine and courses of a recipe, using features ranging from Bag of Words, TF-IDF and word2vec embeddings, achieving a 0.735 F1-score for a multi-class classification task with 22 classes
- Fine-tuned a GPT-2 model to train a random food recipes generator

### Music Genre Converter, Google Software Product Sprint Jul. 2020 - Aug. 2020

- Collaborated with a team of peers to design and implement a web application using JavaScript, HTML, and CSS
- Understood and implemented state-of-the-art GAN-based ML models in Python and deployed it at the back-end serving to the web application on which visitors can smoothly convert a music piece into a selected new genre

## INDUSTRIAL EXPERIENCE

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### Unity

Shanghai, China

Software Engineer Intern

Mar. 2021 – Sep. 2021

- Wrote code for PlasticHub in Go language, collaborated with a large team, and familiar with industry developing tools like Git, Docker, and postman
- Improved user experience by identifying inconsistency and flaws of the product and proposing solutions to improve the workflow
- Designed test cases to comprehensively evaluate our program and wrote product description pages to introduce and promote our product

## SELECTED AWARDS

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| ○ Shanghai Scholarship ( <b>Top 1%</b> )  | 2021 |
| ○ Chinese National Scholarship ( <b>Top 1%</b> )  | 2020 |
| ○ Chinese National Scholarship ( <b>Top 1%</b> )  | 2019 |
| ○ Freshman Admission Scholarship of Tengfei College, Fudan University ( <b>Top 2%</b> ) | 2018 |

## SKILLS

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- **Programming languages:** Python, Java, MATLAB, C/C++, Go, JavaScript, HTML, CSS
- **Spoken languages:** Chinese-Native, English-Fluent (**TOEFL iBT:** 111, **GRE:** 332)
- **Other skills:** photography, Final Cut Pro, Photoshop, Axure, Office