

ZHU Jiayin

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EDUCATION

Beijing Institute of Technology (BIT)

09/2017-06/2021

- **Bachelor of Management in Information Management and Information System**
- **GPA:90.50/100.00** **Ranked: Top 4/35 in class & Top 1 /35(Professional) in Junior Year**
- **Dean's Academic Scholarship** (10/2020), **First-class Scholarship** (03/2020); **Second-class Scholarship** (03/2018,09/2018,03/2019)

PUBLICATION

Yi Sun, Xingzhi Wang **Jiayin Zhu**(*co-second author*), Yuhang Jia, Liangjian Chen, Xiaohui Xie, Jun Wu. **Using Machine Learning to Examine Street Green Space and Their Associations with Socioeconomic and Environmental Factors in Los Angeles County**. *Environmental Health Perspective* (Under Review)

Xiong Dehui, **Zhu Jiayin** (*co-first author*), Li Jiami, Cui Lixin. **Comprehensive Evaluation of the College Students' Back-to-school Safety Degree Under the Background of the COVID-19 Epidemic**. *IEEE Access* (Under Review)

Lin Jia, with Siyuan Li, Sijia Zhang, **Jiayin Zhu**, Jiami Li. **Peer Influence in Q&A platforms- Empirical Evidence from Zhihu**. *Inform*s (Conference Poster, Accepted)

Jiawei Liu, Yinghui Gao, Lixin Cui, **Jiayin Zhu**, Yixuan Wu. **Research on Evaluation Indicator System of Customer-perceived Service Quality on WeChat Social Network**. *Journal of Information and Management*, 2019(Z2)

RESEARCH

Research Student, UCInspire Program, Dept. of Computer Science, UC,Irvine

Prof. XIE Xiaohui

Using Machine Learning to Examine Street Green Space and Their Associations with Socioeconomic and Environmental Factors in Los Angeles County

06-09/2020

- Developed a novel machine learning model for the classification of three types of green spaces based on street view images of high reliability and efficiency, to examine the green space that might help understand the association of green space and peoples' mental health
- Developed high-resolution networks (HRNets) + Object-Contextual Representations (OCR) model for three types of green spaces classification, i.e. tree, low-lying vegetation, and grass
- Used the focal loss to improve its performance, inferred on 3 million real street view images, achieved a high accuracy with 92.5% mean IoU (Intersection over Union) with 10-fold cross validation
- Generated GIS map to show the spatial patterning of street green space across census tracts
- Applied Pearson' s correlation to examine the correlations of vegetation types of street green space
- Finished a paper as the co-second author submitted to *Environmental Health Perspective*

Researcher, Prof. Li's Research Group, School of Computer Science, BIT

Prof. LI Ronghua

Establishment of Knowledge Graph in Computer Network

05-09/2020

- Created a knowledge graph in computer network field from scratch, built a website with Neo4j graph database, achieved entity extraction from text, word cloud generation, entity and relationship query
- Wrote a web crawler using Python Scrapy to gather data relevant to computer network
- Applied k-nearest neighbors (KNN) to classify all the entities to achieve entity recognition, and built word vectors with fastText to generate word cloud
- Used Piecewise Convolutional Neural Networks (PCNN) for relation extraction based on the relationship triples crawled from Wikipedia corpus after alignment

Researcher, Dr. Jia's Lab, BIT

Advisor: Dr. JIA Lin

Peer Influence in Q&A platforms- Empirical Evidence from Zhihu

01/2019-07/2020

- Studied the varying influences of different categories of followees over focal user behaviors, and further investigated the difference of the influence between professional topics and non-professional ones based on data of focal users from Zhihu, China's Q&A social platform
- Built a Scrapy-Redis distributed crawler in Python to collect data of focal users mainly interested in professional topic: Stomatology and Internal Medicine, and non-professional topic: Health Preservation and Living Habits, obtained over 4600 samples relating to over 2 billion users
- Proposed a new taxonomy of followees regarding Q&A patterns, defined the model for answer counts and the ratio of answer to question
- Analyzed and compared the statistical results of the influence in professional and non-professional topics, verified the rationality of the proposed user category, and concluded that more contents from the followees of focal users would facilitate contribution behaviors
- Contributed to the poster published in *Inform*s Conference

Researcher, Prof. Cui's Lab, BIT

Advisor: Prof. CUI Lixin

- Comprehensive Evaluation of the Safety of College Reopening During COVID-19** 05-07/2020
- Employed Analytic Hierarchy Process(AHP) to build a safety index for returning college students during the pandemic; modeled a hierarchy by considering the local COVID-19 information, medical resources for safety, population and epidemic response level, and school-specific information and detailed schedules
 - Analyzed through a series of pairwise comparisons, measured consistency for evaluation, determined the weight of criteria
 - Pre-processed relevant data, calculated safety index of multiple colleges, suggested school-reopening plans
 - Finished a paper as co-first author submitted to *IEEE Access*

The Influence of Transactive Memory System on Customer Involved Service Innovation-A Case Study of MIUI.Com 06/2019-06/2020

- Studied the dynamic relationship between transactive memory system (TMS) and customer-involved service innovation by analyzing the real data from MIUI BBS
- Built a web crawler with Python to collect and cleanse data from the website MIUI BBS in support of quantitative analysis with Pajek
- Provided assistance in empirical research using SPSS Amos, including performing reliability and validity analysis, applying Structural Equation Modeling(SEM), Bootstrap, and hierarchical regression analysis for validation and verification of the proposed model

Evaluation of Customer-perceived Service Quality on WeChat 06/2019-02/2020

- Studied WeChat social network for customer-perceived service quality evaluation
- Collected data of 6300 comments on WeChat via a self-built web crawler in Python
- Assisted in building customer perceived service quality evaluation index system for WeChat, and proposed suggestions for improving service quality based on analysis results

Research Intern, LI Zhenhua's Lab, Tsinghua University Advisor: Prof. LI Zhenhua

Study on Solution for Maintaining the Whole Filesystem in Object Storage 07/2019-Now

- Investigate the existing object cloud storage products, assist in completing a survey on Quality of Service (QoS) gap and fixes, induce the relaxed consistency gap and conclude mainstream techniques for maintaining strong consistency
- Provide assistance in developing a prototype system based on Hierarchical Hash and performed experiments for validation and efficiency evaluation

Arduino Rubiks Cube Solving Robot Based on Machine Learning and OpenCV 10-12/2019

- Developed a Rubik's cube robot which automatically solved the Rubik's cube using image processing and recognition methods and turned it via stepper motor control using Arduino within 6 seconds
- Applied the CNN-based UNet model for Rubik's cube faces' image segmentation, and used OpenCV to analyze color of the blocks by dividing HSV color spaces
- Adopted Two-Phase Algorithm to solve the cube; built a GUI with Tkinter
- Designed the control circuit with Arduino to drive six 4-phase stepper motors to control the center block

COMPETITION

Core Member, Finalist(1%) in 2020 Interdisciplinary Contest in Modeling(ICM), COMAP
Topic: A Model for Projected Plastic Waste Using Multiple Regression Analysis 02/2020

PROJECT

Design of E-learning System 05-07/2020

- Designed an online education system, EELS (Excellent E-Learning System), which facilitates students taking online courses, completing assignments and exams, communicating with classmates and contacting tutors
- Finished requirement analysis, drew UML and ERD, designed subsystems for course material uploading, live classes, homework assignments, discussions, examinations, and learning management for instructors

Wechat Mini-program for Eco-point System in Home Appliance recycling 03/2019-03/2020

College Students' Innovation and Entrepreneurship Training Program

- Designed a Wechat mini-program which offers users with eco-points after they purchase energy-efficiency appliances, offered functions of points redemmmation for relevant products; the mini program consisted of 4 functional modules: eco-point accumulation, friends interaction, community and point mall, released to public

SKILLS/OTHERS

Proficient in Python, R, C, Java, Matlab, HTML/CSS/JavaScript, SQL; SPSS, Stata; Pytorch, Scrapy

Self-learnt: Machine Learning by Andrew Ng (Stanford online Course on Coursera)

3rd Prize(Team Leader), Global Management Challenge(GMC), national-level(11/2017, 11/2018)