HUANG Zhirui

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Education

South China Agricultural University — *Guangzhou, Guangdong province, China*

Bachelor Degree in Science — *Sep. 2014 - Jun. 2018*

- Major in Information and Computing Science.
- Belong to Department of Mathematics, College of Mathematics and Informatics.
- GPA:4.12/5.00(91.2/100). Academic Ranking: 3/86.

Honors & Awards

International

Apr. 2018	**Meritorious Winner**, U.S. The Mathematical/Interdisciplinary Contest in Modeling **Top 10% around the world.** Built multiple decision trees model to classify national vulnerabilities and present a modification based on Agent-Based Modeling and Complex networks.
Apr. 2017	**Honorable Mention**, U.S. The Mathematical/Interdisciplinary Contest in Modeling Built the cellular automaton model(CA) to simulate group effects under different policies.
Apr. 2016	**Honorable Mention**, U.S. The Mathematical/Interdisciplinary Contest in Modeling Built the PPC model based on RAGE, in order to reduce the dimensions of high-dimensional data and a time series model to predict the water resources supply capacity.
Dec. 2015	**(China Regional) National Second Prize**, Global Management Challenge **Team leader.** Built a model based on the relationship between 69 variables. Analyzed other competitors in a comprehensive way, including their financing and sales strategies. Analyzed the relation between supply and demand of the entire market and predicted the change of supply and demand using mathematical models.
Dec. 2016	**(China Regional) National Third Prize**, Global Management Challenge

Domestic

Aug. 2016	**National Second Prize**, CSEE Cup 2016 National University Students Electrical Math Modeling Competition Analyzed the existing data of the electricity load by probability statistics. Construct time series models and artificial neural network to predict short-term load of power system.
Oct. 2016	**The Second Prize**, China Undergraduate Mathematical Contest in Modeling Established road load model through differential equations. Built the cellular automaton model(CA) to simulate the changes in traffic pressure under different conditions.
Dec.2017	**Candidate**, China National Scholarship Rank 5 in candidates.
Mar.2018	**The First Class Scholarship** , Scholarship of South China Agricultural University Rank 1/949 in the College.
Dec.2017	**The First Class Scholarship** , Scholarship of South China Agricultural University Rank 7/968 in the College.
Dec.2016	**The Second Class Scholarship** , Scholarship of South China Agricultural University
Dec.2015	**The Second Class Scholarship** , Scholarship of South China Agricultural University
Dec.2018	**The Third Class Scholarship**, Information Technology Scholarship of WENS FOODSTUFF GROUP Top 2% in the College.

Publications

WU Si-mian, WEI Fu-yi and **HUANG Zhi-rui** et al., "**Friend Recommendation Method of Weighted Networks Based on Value and Match**," in 3rd Annual International Conference on Information System and Artificial Intelligence (ISAI 2018), published in (IOP

Conference Series) Journal of Physics: Conference Series (JPCS), indexed by EI Compendex and CPCI.
Zhirui Huang, Pengfei Liu and Xiaxu He et al., "**Mobile Data Mining System based-on Cloud Computing**," in 2018 IEEE 3rd International Conference on Signal and Image Processing (ICSIP 2018), published into conference proceedings by IEEE, indexed by IEEE Xplore, Ei Compendex and Scopus..
Pengfei Liu, Duxian Nie, Xiaxu He, Weifeng Zhang and **Zhirui Huang** et al., "**Sentiment Analysis of Chinese Tourism Review based on Boosting and LSTM**," in 2019 International Conference on Communications, Information System and Computer Engineering (CISCE 2019), published in the IEEE CS CPS (Conference Publishing Services), indexed by IEEE Xplore, Ei Compendex and Scopus..

Experience

Friend Recommendation Method of Weighted Directed Graphs Based on Value and Match

Guangzhou, China

Core Member *May.2016 - Dec.2017*

- Supported by **National Collegiate Innovation and Entrepreneurship Project, China.**
- **Data Preparation:** Automatically acquired users' data from a China's large Q&A platform, ZHIHU, by using Web Crawlers technique under the SCRAPY Framework of Python.
- **Directed Graph Model:** In the aspect of value, the directed graph model of the value was established by "the number of answers" and "point of praise", so as to calculate the users' value scores. In order to modify the value score of zero in the model, the material diffusion principle was used.
- **Undirected Graph Model:** In the aspect of matching, the undirected graph model was established to calculated the users' similarity through "topic of concern" and "industry", simulated the similarity of user pairs by using probability distribution and established likelihood function. Using the "EM" algorithm to estimate the function parameters, in order to calculate the users' matching scores.
- **Friend Recommendation Algorithm:** The friend recommendation algorithm was obtained by combining the directed graph model and the undirected graph model.
- The relevant paper of this project has been hired by an academic conference (ISAI 2018).

Mobile Data Mining System based-on Cloud Computing

Guangzhou, China

Core Member *Jan.2018 - Mar.2018*

- Based on the traditional mobile data mining project, we combined cloud computing and proposed and implemented the MobileWeka2 model based on cloud computing.
- We use the Java programming language to implement the MobileWeka2 model on the Android platform and conducted different data mining experiments on multiple data sets to prove its feasibility.
- Supported by 2015 annual discipline construction project in Philosophy Social Sciences "12th Five-Year" planning of Guangdong Province; Natural Science Foundation of Guangdong Province, China and **National Natural Science Foundation of China**.
- The relevant paper of this project has been hired by an academic conference (ICSIP 2018).

Sentiment Analysis of Chinese Tourism Review based on Boosting and LSTM

Guangzhou, China

Principle Member *Jan.2018 – Mar.2018*

- **Data Preprocessing:** Cleaning of text data. Segmentation (using jieba or nltk) and vectorization (using word2vec) of text data in Python.
- **The Class-imbalance Problem:** Compared many different methods in Machine Learning and Deep Learning.
- **Machine Learning:** Trained multiple machine learning models including Support vector machine (SVM), Stochastic gradient descent (SGD), Random forest (RF) and Multilayer Perceptron (MLP) as the baselines.
- **Deep Learning:** Trained Long Short-Term Memory (LSTM) model for the text sentiment analysis.
- Supported by Science and Technology Planning Project of Guangdong Province, China; Guangdong Provincial Natural Science Foundation, China; the Pearl River Science and Technology Star Project;the Special Support Program of Guangdong Province; Natural Science Foundation of Guangdong Province, China; the Outstanding Young College Teacher Program of Guangdong Province and **National Natural Science Foundation of China**.
- The relevant paper of this project has been hired by an academic conference (CISCE 2019).

Shenzhen Feisikai Technology Company Limited

Shenzhen, China

Intern *Jul. 2017 - Sep. 2017*

- Take Responsibility for the business data maintenance by using MySQL.
- Participate the development of the marketing management platform.

Research in The Chinese University of Hong Kong (Shenzhen)

Shenzhen, China

Research Assistant *Sep. 2018 - Aug. 2019*

- Laboratory: Network Coding Lab. Supervisor: **Prof. Shenghao Yang**.

Teaching in The Chinese University of Hong Kong (Shenzhen)

Shenzhen, China

Teaching Assistant

Sep.2018 - Present

- Course: Elementary Real Analysis. Instructor: **Prof. Wei-Ming Ni**.
- Course: Optimization II. Instructor: **Prof. ZHANG Shuzhong**.
- Course: Elementary Real Analysis. Instructor: **Prof. Li Yutian**.
- Course: Numerical Analysis. Instructor: **Prof. He Dongdong**.

Presentation

2018 IEEE 3rd International Conference on Signal and Image Processing

Shenzhen, China

Oral Presenter

Jul. 2018

- Hosted by Shenzhen Research Institute, Southeast University, China. Sponsored by IEEE. Supported by Chaoyang University of Technology (Taiwan, China) and North China University of Technology (Beijing, China).
- Introduced the Mobile Data Mining System based-on Cloud Computing.

Extracurricular Activity

The Visiting Student Programme of CUHKSZ

Chinese University of Hong Kong, Shenzhen, China

Visiting Student

Mar. 2018 - Present

the International Workshop on Recent Progress in Data, Models and Decisions

Chinese University of Hong Kong, Shenzhen, China

Listener

Jul. 2018

Computing Conference 2017 (Yun Qi Conference, Alibaba)

Guangzhou, China

Listener

Nov. 2017

The PIA Academic Group

South China Agricultural University, Guangzhou, China

President

Jan. 2017 - Jan. 2018

- An academic research group of students in SCAU, whose members were selected by examination and knock-out system and achieved national or international awards over 30 times in Computer Science, Mathematics, Statistics and EE area.

The Financial Association

South China Agricultural University, Guangzhou, China

President

Sep. 2016 - Sep. 2017

- An academic association of students in SCAU, which regularly plans and organizes financial school-wide competitions.

The National Outstanding Summer Camp of the School of Mathematics

Sun Yat-Sen University, Guangzhou, China

Participant

Jul. 2017

The Winter Vacation Admissions Volunteer Service Activities

South China Agricultural University, Guangzhou, China

Volunteer

Jan. 2017

The Volunteer Activities for the Country People in Summer Holiday

South China Agricultural University, Guangzhou, China

Volunteer

Jul. 2016

Projects

The Game of Crossing the Maze based on Java

Used Java programming language and backtracking algorithm to implement the maze game.

The Room Management System based on Java and SQL Service

Used Java programming language and SQL Service to implement the room management system.

The Comprehensive Evaluation Management System based on Web

Used Web technology including front-end and back-end to implement the comprehensive evaluation management system.

The Gobang Battle Platform

The main work was the AI algorithm research and programming. Finally, a simple Gobang AI robot was finished by using the Minimax algorithm and the Alpha–beta pruning in Java.

The Web Crawlers based on Python and Scrapy

Used Python programming language and Scrapy framework to implement multiple web crawlers to get some websites including Zhihu, Douban, Lagou etc.

Image Generation based on Generative Adversarial Nets (Undergraduate Thesis)

Using Python programming language and tensorflow framework to implement the four different GANs for image generation on the classic datasets including MNIST and CIFAR-10.

Convolutional Neural Networks for Sentence Classification

Using Python programming language and tensorflow framework to implement the CNN for sentence classification in the classic paper of Yoon Kim.

Skills

Languages	Chinese (Mandarin and Cantonese), English.
Programming	Python, R Language, MATLAB, C, Java, SQL, LaTeX.
Software	SPSS, Microsoft Office Software, MySQL, Microsoft SQL Server.
Framework & Library	TensorFlow, Scikit-Learn, Scrapy, ggplot2.
Web	HTML, CSS, JavaScript, Java EE.
Self-learning Knowledge	Machine Learning, Deep Learning, Web Crawler.