Shihui Song

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EDUCATION BACKGROUND

Huazhong University of Science and Technology (HUST), Wuhan, China Sept. 2018-Jun. 2021

- **Master of Engineering in Cyberspace Security,** School of Cyber Science and Engineering
- **Overall GPA:** *3.3/4.0*

Jilin University (JLU), Jilin, China Sept. 2014-Jun. 2018

- **Bachelor of Engineering in Software Engineering,** College of Software
- **Overall GPA:** *3.3/4.0*

Professional Skills: Python, C/C++, Java, SQL, LATEX, Markdown, draw.io
Pytorch, Numpy, Calculus, Probability Theory & Stochastic Process, Matrix Theory

PUBLICATIONS

Yafan Huang, Feng Zhao†, **Shihui Song**. "Path-enhanced Explainable Recommendation with Knowledge Graphs", in submission

Zhiying Xu, **Shihui Song**, Zhanshan li†. "lmaxRPCls: An Algorithm Utilizing Light Symmetry for Approximating maxRPC in Constraint Programming", Conference: 2017 2nd International Conference on Control, Automation and Artificial Intelligence (**CAAI** 2017)

RESEARCH EXPERIENCE

***Leader,* Research on Inductive Rumor Detection in Large Graphs via Centrality Measures,**
Supervised by Prof. Hongwei Lu Jul. 2020-Present

- **Propose:** Aimed to study **early rumor detection** on social media based on graph structured model using semi-supervised learning methods
- **Results:**
  - ✓ Applied semi-supervised learning on rumor detection by selecting Opinion Leaders through Katz measures and labeling those leaders, realizing early rumor detection
  - ✓ Trained all labeled and unlabeled data via Graph Convolutional Network models to improve explainability and rationality
  - ✓ Plan to use three real world datasets for training and finish a paper in September

***Core member,* Research on Path-enhanced Explainable Recommendation with Knowledge Graphs,**
Supervised by Prof. Feng Zhao Mar. 2019-Apr. 2020

- **Propose:** Aimed to solve cold-start issues of **recommendation system** based on knowledge graphs using Bi-LSTM model and information entropy
- **Results:**
  - ✓ Introduced meta path to general path-based methods and proposed a novel end-to-end recurrent neural network model to enhance explainability and reduce cold-start costs of KG recommendation
  - ✓ Improved the path extraction method with a bidirectional strategy to efficiently extract path data from KG
  - ✓ Conducted extensive experiments on real-world datasets to highlight the importance of integrating KG into recommendation and verify our proposed method

***Core Member,* Research on Optimization of Maximum Restricted Path Consistency Algorithm in Constraint Satisfaction Problem (CSP),**
Supervised by Prof. Zhanshan Li Feb. 2016 -Feb. 2018

- **Propose:** Aimed to improve the Maximum Restricted Path Consistency Algorithm in constraint satisfaction problem (CSP) by reducing useless checks in the process of searching for a PC-support

- **Results:**
  - ✓ Strengthened the residual technique and weakened the symmetry in some places to narrow the search range then reduce useless checks
  - ✓ Conducted experiments on benchmarks which proved lmaxRPCls was much faster in most test cases, and could effectively reduce redundant checks with the highest performance increase by 35%.
  - ✓ Had a paper published on CAAI2017

PRACTICAL EXPERIENCE

***Leader,* Design of Data Stream Tracking Software for Mobile Applications,**
Supervised by Prof. Hongwei Lu Feb. -Jul. 2019

- Obtained various parameters, such as output, and memory stack through the Xposed framework
- Realized the dynamic tracking and analyzing for Android system functions and applications
- Used Java swing to develop UI that met the demand of displaying the real-time data

***Intern Developer*, Neusoft, Shenyang** Jul. -Aug. 2015

- Participated in the game development of Snake
- Responsible for C++ language development
- Realized the automatic path finding function and solved bugs via C++

TEACHING ASSISTANT EXPERIENCE

The experiment course of *C language* Instructor: Lecturer Hong Huang Spring 2019

- Responsible for checking the performance of code wrote by students, and helping students find out and solve bugs

The experiment course of *Internet of Things* Instructor: Prof.Hongwei Lu Spring 2019

- Responsible for checking students' experimental procedure and results, answering the questions in experiments, evaluating and scoring students' experimental reports

The course of *Internet of Things* Instructor: Prof.Hongwei Lu Autumn 2018

- Responsible for taking notes in class and answering students' questions after class, correcting students' assignments and explaining the error-prone problems, answering students' questions before the final exam and marking the final examination papers

EXTRACURRICULAR ACTIVITIES

***Vice President,* Sunshine Volunteer Association, JLU** Sept. 2015-Jun. 2017

- Took in charge of daily administration, activity planning and arrangement
- Organized many influential activities, such as a large-scale Campus Earth Hour which involved 500-600 participants, to publicize environmental protection, dedication, and social responsibility

***Monitor,* Class in Undergraduate and Postgraduate Stage, JLU&HUST** Oct. 2014-Present

- Took in charge of class management and activities organization, bridged the communication between students and teachers
- Assisted teachers in daily affairs, paid attention to students' study status and campus life,
- Enriched students' campus life with various activities, such as Outdoor Reasoning, involving 30 participants

AWARDS & HONORS

First-class Scholarship, *Three Times*, University Level, HUST Sept.2020, 2019, 2018
Honorable Mention for Mathematical Contest in Modeling (MCM) Feb. 2016
Excellent Student Leader, School Level, JLU Sept. 2016
Individual Scholarship, University Level, JLU Sept. 2016
Third-class Scholarship, University Level, JLU Sept. 2015

STANDARD TESTS

TOEFL (10/19/2019) Overall: 85 L: 17; R: 25; W: 20; S:23 (*intend to take another test on Oct. 31, 2020*)
GRE (*intend to take the test on Oct. 12, 2020*)