SHIYU HAN

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EDUCATION

Dalian University of Technology (world-class universities) | Dalian, China
M.Sc. in Software Engineering *September 2019 - Present*

Relevant subjects: Matrix and Numerical Analysis, Network Science, Algorithm Analysis and Design, Artificial Intelligence, Advanced Computer Networks, Theory and Application of Cloud Computing and Big Data
Award: Postgraduate Scholarship
Overall GPA: 3.52/4.0

Dalian University of Technology (world-class universities) | Dalian, China
B.S. in Software Engineering *September 2015 - June 2019*

Relevant subjects: Fundamentals of Mathematical Analysis in Engineering, Discrete Mathematics, C/C++ Programming, Data Structures and Algorithms, Computer Organization and Architecture
Overall GPA: 3.2/4.0

RESEARCH EXPERIENCE

Recurrent Attention Network Completion with an Auto-regressive Graph Generative Model
First Author *April 2020 - August 2021*

· Investigated generative models of graphs and network completion which are meaningful for real-world and synthetic networks. Proposed a novel concept of using generative models of graphs to address the network completion problem.

· Finished the design and implementation of the overall experiment of the paper based on PyTorch framework. Completed the writing and modification of the overall paper.

· Learned the distribution over edges of the training graphs through an auto-regressive graph generative model to improve the inference accuracy. Found the most likely network among all generated networks which maximized the learned distribution based on the maximum-likelihood method.

· Exploited the topology of the already recovered portion of the network by using GNN and the attention mechanism to efficiently model complicated dependencies between the recovered portion and the newly inferred part.

· Outperformed state-of-the-art methods up to 80.60% in terms of the performance metric.

· WI-IAT 2021 Accepted

Mining Implicit Relationships via Structure-Enhanced Graph Convolutional Networks
Participant *May 2021 - August 2021*

· Researched related models as well as methods of relation mining and representation learning in heterogeneous graphs.

· Proposed a novel research topic to identify implicit relationships across heterogeneous networks. Realized 30% experiments of the paper based on PyTorch framework.

· Put forward a clear and generic definition of the implicit relationship in heterogeneous networks.

· Formalized the problem and proposed a graph convolutional network (GCN) model to infer implicit ties under explicit connections. Captured rich information in learning node-level representations by incorporating attributes from heterogeneous neighbors.

· Evaluated the scholars' impact more accurately by identifying implicit relationships among scholars and removing relational citations. Recommended reviewers to avoid fake or relational peer reviews.

· TKDD 2021 Submitted

Predicting Mental Health Problems with Personality, Behavior, and Social Networks
Participant *March 2021 - August 2021*

· Investigated the combined effects of multiple types of factors on mental health, including personality, behaviors, and social networks.

· Proposed a neural network-based model to integrate behavioral, psychological, and social network factors to predict various mental health problems.

· Inspired the exploration of multiple dimensions of mental health mechanisms and other complex factors by using computer science approaches that assist in the early detection and treatment of mental illness.

· Created a unique dataset, which will be released publicly while maintaining confidentiality.

· IEEE Big Data Workshop MMBD 2021 Accepted

Type-Adaptive Graph Convolutional Network
Participant *August 2019 - June 2020*

· Developed a novel type-adaptive GCN framework to model relational data in knowledge graphs. Implemented the whole experiment of the paper based on TensorFlow framework.

· Modeled complicated information in knowledge graphs with parameter sharing and multiple normalized sums of features.

· Surpassed the traditional methods up to 11.06% in terms of the metric.

· In improvement

PROJECT EXPERIENCE

Defect Inspection of Precise Parts
Major Developer *April 2019 - June 2019*

· Proposed algorithms to detect defects in specific parts with Python and OpenCV.

· Promoted the efficiency of detecting defects of precise parts in the factory.

· Improved the accuracy of defect inspection for specific parts by 10%.

Solid Mechanics Simulation Experimental Software Based On Regular Grid
lead Developer *January 2019 - June 2019*

- Simulated the deformation experiments of specific solids under external forces and obtained the accurate experimental data.
- Realized complex mathematical calculation of solid mechanics simulation experiment through MATLAB.
- Visualized the simulation experiment results with regular quadrilateral grids via C++.

ELOS Credit System
Database Developer *January 2019 - June 2019*

- Included all the functions required for the daily operation and management of the credit company.
- Completed the design and implementation of the overall database with MySQL.
- Created 50 base tables with a total of 120 attributes. Coded all interfaces of calling the database.
- Demonstrated the validity of the system by large amounts of actual user information.

Message Board System
Web Designer & Developer *June 2018 - April 2019*

- Constructed the front end of the system via JSP and the Struts2 framework.
- Provided a real-time update message board system.
- Achieved some essential functions of message board including basic CRUD (create retrieve, update, and delete) as well as user management.

Hotel Management System
Major Designer & Developer *January 2018 - January 2019*

- Designed the overall framework of the system.
- Undertook 60% of the code writing of the project based on Java.
- Realized the functions required by hotel daily management and operation.

Bank Queuing System
Web Designer & Developer *June 2017 - March 2018*

- Finished whole client designs and optimizations with C++ and QT creator.
- Devised and Coded the front and back end interface through C++.
- Satisfied daily queue reception requirements of the bank. Promoted the efficiency of bank reception work.

SKILLS & INTERESTS

Computer Languages	C/C++, Java, Python
Databases	MySQL, PostgreSQL, Microsoft SQL
Deep Learning Framework	TensorFlow, PyTorch
Tools	Visual Studio, PyCharm, MATLAB, Texstudio, Origin
Interets	Traveling, Reading(50 books a year), Basketball