Haomin Zhuang

(+86)13609052346 | 201930400391@mail.scut.edu.cn | https://zhmzm.github.io/

RESEARCH INTERESTS

Security & Privacy of Machine Learning, Distributed Machine Learning and Deep Learning Algorithm

EDUCATION

South China University of Technology   **Guangzhou, China**
Bachelor of Science, major in Software Engineering | **GPA:** 3.78/4.0   **Sep 2019 - Jun 2023**
Related Courseworks: Calculus, Probability Theory (4.0), Machine Learning (4.0), Data Structure & Algorithm (4.0)

SKILLS

- Programming Skills: Java, C++, Python, MySQL, Pytorch
- Language: Mandarin (Native), English (IELTS 6.5)

RESEARCH EXPERIENCE

Research on Backdoor Attack in Federated Learning   **Online**
Research Intern Guided by Prof. Wang in LSU   **Mar 2022 - Aug 2022**

- Independently accomplished groundbreaking scientific work under the guidance of Prof. Wang
- Proposed a new analysis method to find out the backdoor key layers and became the first worker to discover that backdoor attacks are related to specific neural network layers
- Discovered and verified the specific layer (key layer) related to the backdoor task through a large amount of experimental data
- Proposed a new attack strategy based on the backdoor critical layer to bypass the defense strategy of distinguishing malicious models by computing distance
- Wrote and submitted a paper as the first author to the AAAI conference, which is now under review.
- Acquired a large amount of cutting-edge statistical knowledge, understood the deep architecture of algorithmic models, and further provided empirical support for the discovery of innovative ideas
- As an external reviewer, assisted to point out the drawbacks of papers under submission in top conference like NeurIPS and provided suggestions, which developed my critical thinking and logical mind.

Research on Decentralized Oracle in Blockchain   **Guangzhou, China**
Research Assistant Guided by Dr. Feng   **Nov 2021 - May 2022**

- Proposed innovatively using reputation and associated reputation and incentives to encourage oracles to keep working.
- Participated in the writing of the paper "Decentralized Oracle with Mechanism for Reputation and Incentive", which was accepted by ICEEIE2022, and implemented our mechanism on the FISCO BCOS platform to obtain software copyright.
- Read a large number of professional articles, including more than 20 related papers on decentralized oracles
- Experienced the whole process of scientific research, from the investigation of the previous work, the proposal of the concept, the conduct of the experiment, and the support of the theoretical derivation, and improved the innovative and critical thinking

WORK EXPERIENCE

Kinthtech   **Guangdong, China**
Software Developer Intern   **Aug 2021 - Sep 2021**

- Developed the program to control the use of Hikvision cameras by calling the SDK on the Linux side
- Developed bridge location and calibration software in Python to help manual workers pinpoint the location of bridges across the country on a web map on the web and record it to the company database.
- Connected the software to a MySQL database, making it possible to display all bridges on the map and allowing workers to collaboratively change location data to complete database updates

PROJECTS

E-Commerce Web Development | Team Leader   **Oct. 2021 - Dec. 2021**

- Led a team to design a preliminary e-commerce platform for selling school cultural products using Spring and Spring MVC framework technologies, MyBatis persistence layer technology.
- Utilized a pure Java database driver loaded to connect to a MySQL database, allowing users to complete all functions, including buying products, viewing shopping carts, collecting products, viewing my orders, user information, and payment functions.
- Independently wrote code for back-end processing of product data and user data, and made my API publicly available on the Internet by deploying it to a Linux cloud server.

Intelligent Customer Service | Team Leader   **Jun 2022 - Jul 2022**

- Crawled 80,000 sentences from the Car Information website in China and trained a Chinese-Bert-based multi-classifier
- Incorporated the Chinese character morphology and pinyin information into the Chinese corpus for pre-training to capture the keywords in Chinese Q&A and complete the correct classification
- Used data augmentation techniques to solve domain-specific data sparsity problems based on the Chinese-BERT model

PROFILE

- Skilled coding and hands-on skills, with excellent performance in practical courses, e.g., 97 in C++, 92 in database
- A well-rounded academic background, excellent and rapid learning ability, strong logical thinking, strong mathematical foundation, and reasoning skills; Strong data processing, analysis, and modeling skills, highly sensitive to data
- Passionate about research in the underlying architecture of machine learning/deep learning models
- Excellent leadership, interpersonal and communication skills, Courageous, decisive, good at driving others forward