

# Wangcheng Tao

Homepage

dangmai@hust.edu.cn / wangchengtao.cs@gmail.com

---

## EDUCATION

### The Hong Kong University of Science and Technology, HKSAR

Ph.D student in Computer Science, *Department of Computer Science and Engineering*

Starting 2024 fall

Supervised by Prof. Binhang Yuan

### Huazhong University of Science and Technology, Wuhan

B.Eng. in Cyberspace Security(Qiming Experimental Class), *School of Cyber Science and Engineering*

Sept. 2020—Jun. 2024

Overall GPA: 3.98/4.0 or 93.76/100

Ranking: 1/276

National Scholarship in China, 2022, 2023

---

## RESEARCH INTERESTS

Machine Learning System; Distributed/Decentralized Machine Learning.

---

## RESEARCH EXPERIENCE

### Co-Optimizing Pipeline Parallelism and Data Parallelism for the Distributed Training of Foundation Models

Jul. 2023–

*Remote Research Assistant, Department of Computer Science and Engineering, The Hong Kong University of Science and Technology(HKUST)*

HKSAR, China

Advisor: Prof. Binhang Yuan

- Static code analysis for Pytorch distributed data parallel module.
- Conduct research about accelerating LLM training, specifically, optimizing the standard joint of data parallelism and pipeline parallelism to improve the training efficiency of LLMs.

### Exploring the Robustness of Decentralized Training for Large Language Models

May. 2023— Nov. 2023

*Research Assistant, School of Cyber Science and Engineering, Huazhong University of Science and Technology(HUST)*

Wuhan, China

Advisor: Prof. Pan Zhou and Prof. Binhang Yuan

- Explore the robustness of decentralized training frameworks utilizing pipeline parallelism for training LLMs.

### Recommendation Unlearning

Mar. 2023— May. 2023

*Remote Research Intern, Department of Computer Science, The University of Hong Kong(HKU)*

HKSAR, China

Advisor: Prof. Chao Huang

- Reproduce several top-tier papers on collaborative filtering, contrastive learning, graph unlearning, etc.
- Conduct research about [recommendation unlearning](#), namely, a recommender system is supposed to erase the impacts of the sensitive data as its owner requests to.

### Millimeter Wave-based Wireless Sensing Security

Sept. 2022— Feb. 2023

*Research Assistant, School of Cyber Science and Engineering, Huazhong University of Science and Technology(HUST)*

Wuhan, China

Advisor: Prof. Man Zhou

- Conduct research about intelligent terminal identity authentication system based on millimeter wave technology, using the 60GHz millimeter-wave radar chip BGT60TR13C produced by Infineon, which has been applied to the smartphone for gesture recognition by the Google APTP team.
- Participate in literature research and take charge of using and testing the millimeter wave radar equipment.

# Wangcheng Tao

Homepage

dangmai@hust.edu.cn / wangchengtao.cs@gmail.com

---

## Malware Source Code Detection For Open-source Platforms

Nov.2021— Aug.2022

Research Assistant, School of Cyber Science and Engineering, Huazhong University of Science and Technology(HUST) Wuhan, China  
Advisor: Prof. Cai Fu

- Awards: lead the team to win the first prize (TOP 5%) in the 15<sup>th</sup> National College Student Information Security Contest.
- Process: develop the MalGenie system; collect data from open-source platforms such as GitHub; analyze repositories through natural language processing (NLP) and machine learning (ML) to detect malware source code.
- Results: (1) possibly create the largest non-commercial malware source code archive with 33609 repositories, which is made public via the Web, with the aim of becoming the authoritative source for malware source code for the research community. (2) The research achievements have been applied to the code intelligence security detection platform of Hubei Key Laboratory of Distributed System Security as an open-source malware source code dataset.

---

## SKILLS

### Distributed Machine Learning

### Graph Neural Network and Recommendation

### Code Analysis and Mining Software Repositories

**Programming Languages** Python, C/C++(CCF CSP: 300/500,TOP 2.26%), Go, Java

**Deep Learning** Pytorch, Tensorflow

**Natural Language Processing** NLTK, Gensim

**Data Analysis** Numpy, Pandas, Matplotlib

**Frontend** Vue.js, Uni-App, Qt, Streamlit, Gradio, Slidev

**Backend** MySQL, Django, Gin

**Web Crawler** Scrapy

---

## AWARDS AND HONORS

- National Scholarship, Ministry of Education of P.R. China 2022,2023
- National Special Award(Galaxy Level)(99/10000+, TOP 1%), The 18<sup>th</sup> "Challenge Cup" Competition-Black Technology Special Competition 2023
- National First Class Prize(Team Leader, TOP 5%), The 15<sup>th</sup> National College Student Information Security Contest 2022
- National Third Class Prize, The 12<sup>th</sup> "China Software Cup" College Student Software Design Competition 2023
- National Encouragement Scholarship, Ministry of Education of P.R. China 2021
- Provincial First Class Prize, The 14<sup>th</sup> "Challenge Cup" Competition-Hubei Province Main Circuit 2023
- Provincial Third Class Prize, The 8<sup>th</sup> China International College Students' "Internet +" Innovation and Entrepreneurship Competition 2022
- Provincial Third Class Prize, The 14<sup>th</sup> Blue Bridge Cup National Software and Information Technology Professional Talent Competition 2023
- Outstanding Undergraduate, HUST 2022
- Merit Student, HUST 2021,2022,2023
- Freshman Scholarship, HUST 2021

---

## COURSES

Calculus (I)(A)(100), Calculus (I)(B)(97), Linear algebra(A)(100), Probability Theory and Mathematical Statistics(A)(97), Discrete Mathematics(I)(91), Discrete Mathematics(II)(97), Physics (I)(97), Physics (II)(91), Advanced Programming Language (C)(98), Assembly Language Programming(94), Data Structure(96), Numerical Analysis(97), Course Project of Programming(95), Principles of Cryptography(98), Introduction to Artificial Intelligence(90), Software security(96), Digital Circuit and Logic Design(90), Foundation of Information Security Mathematics(95), Compiler Principles(90), Operating System(96), Advanced Cryptography Application(92), Computer Telecommunications & Network(97), Computer Organization(97), Course Project of Cryptography(97), Course Project of Software Security(97), Database System(93), Algorithmic Design & Analysis(98), Course Project of Operating System(92), Multimedia Security(99), Security of Computer Network(98), Trusted Computing(92), Network Forensic(90), Information System Security(93)