

BOHENG LI

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EDUCATION

Wuhan University, Wuhan, Hubei, China

2020 - Present

B.E. in Information Security

GPA: 3.91/4.0, Average Score (Credit Weighted): 92.81/100.

Overall Rank: 1/157, China National Scholarship 2022 (Top 0.2% nationwide)

A⁺ Courses: Mathematical Basis of Information Security (100), Probability Theory and Mathematical Statistics (97), Linear Algebra (92), Discrete Mathematics (98), Programming Practice (94), Data Structure Practice (96), Algorithms (95), Artificial Intelligence Practice (93), Social Computing (98), Big Data Analysis (100), Database System (98), Compiler Theory (95), Digital Logic and EDA (95), and 36 more.

Chengdu Foreign Languages School, Chengdu, China

2014 - 2020

Middle and High School, Honor Class in Olympic in Informatics (OI)

PAPERS UNDER REVIEW (SELECTED)

†: equal contribution, co-first author ☒: corresponding author

Ziheng Huang[†], **Boheng Li**[†], Yan Cai, Run Wang[☒], and Shangwei Guo. “What can Discriminator do? Towards Box-free Ownership Verification of Generative Adversarial Networks” Submitted to the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023

Lingzhou Mu[†], **Boheng Li**[†], and Run Wang[☒]. “Defending Watermark Removal Attack on DNN Models via Utility Disruption” Submitted to the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023

Dongyu Yao, **Boheng Li**[☒], and Run Wang. “DIDA: Dual-level Interaction for Domain Adaptive Semantic Segmentation” Submitted to the IEEE International Conference on Multimedia and Expo (**ICME**), 2023

Run Wang[☒], Jixing Ren, **Boheng Li**, Tianyi She, Chenhao Lin, Liming Fang, Jing Chen, Chao Shen, and Lina Wang. “Free Fine-tuning: A Plug-and-Play Watermarking Scheme for Deep Neural Networks” Submitted to the International Joint Conference on Artificial Intelligence (**IJCAI**), 2023

RESEARCH EXPERIENCES

AntiE: Exploring Remote Sensing-Empowered Emergency Monitoring Technology Jan 2021 - Oct 2022
College Students’ Innovative Entrepreneurial Training Plan Program. Wuhan University *Wuhan, China*
Advisors: Prof. Qingxiang Meng, Prof. Xiaoliang Meng, and Prof. Linqing Liu.

- Served as the co-founder of the team AntiE, which aims at developing emergency monitoring technologies such as emergency transit satellite inquiry, multi-UAV planning, and disaster chain coupling derivation via remote sensing techniques. Our goal is to provide accurate, timely, and comprehensive decision-making references for emergency management departments.
- Implemented project website and project’s core algorithms in multi-UAV planning & satellite constellation configuration based on a real-time hexagonal coverage evaluation. We did a comprehensive evaluation of emergency shelters in Wuhan City and our suggestions were accepted by the government. We also got 2 papers published at the 29th International Conference on Geoinformatics and have applied for 4 patents, all are currently in their substantive examination phase.
- We have won many prizes and honors, including the **Gold Reward** of the 8th China International College Students ‘Internet+’ Innovation and Entrepreneurship Competition, the highest and most valuable competition award for Chinese college students (national-wide). Our technology has been adopted by the Ministry of Emergency Management of Foshan, Chengdu, and Wuhan. We have signed cooperation intentions with dozens of known enterprises in China Mainland.

- I explore the weakness of Deep Learning models in their lifecycles (e.g., adversarial attacks, backdoor attacks, model extraction attacks) and their countermeasure defenses. I also made efforts on turning these weaknesses into good use, applying on privacy protection and Intellectual Property (IP) protection of deep learning models.
- For attacks, we proposed a flexible and stealthy physical-world conditional backdoor attack via lighting, which can launch threatful backdoor attacks in a single blink. For defenses, we explore naturalness-aware perturbations to efficiently defend against backdoor threats while preserving their normal functions.
- We also made efforts in practical manners for DNN IP protection. We developed a plug-and-play watermarking scheme for DNNs, which can be easily cooperated with multiple models without tedious fine-tuning. We also ingeniously explored the potential of the Discriminator in a well-trained GAN to apply for a practical box-free ownership verification scheme. Furthermore, to defend against powerful watermark removal attacks, we treat this problem from another viewpoint. Rather than developing a more robust watermark, we proposed a simple yet effective technique that can totally destroy the model's utility when under removal attacks, which also achieved the goal of IP protection.

COMPETITION AWARDS (SELECTED)

- **Gold Reward.** The 8th China International College Students “Internet+” Innovation and Entrepreneurship Competition. *2022.11*
- **First Prize.** The 2022 China Mobile Creator Marathon “OnePoint” Special Competition on Spatio-temporal Information. *2022.11*
- **First Prize.** The 15th Chinese Collegiate Computing Competition National Finals. *2022.09*
- **Second Prize.** The Lanqiao Cup Competition National Finals. *2022.08*
- **First Place in Second Prize.** The 2018 National Olympic in Informatics, Sichuan Provincial Competition. *2018.11*

SCHOLARSHIPS AND HONORS (SELECTED)

- **Huawei Scholarship** (54 candidates per year in WHU), Wuhan University & Huawei Technologies Co., Ltd. *2023.02*
- **Pacemaker to Merit Student** (Award Rate: 60/59774=0.1%, 60 candidates per year in WHU), Wuhan University *2022.11*
- **China National Scholarship** (Award Rate: 0.2% national-wide), Ministry of Education, China *2022.10*
- **First Class Scholarship of WHU** (Award Rate: 5% department-wide), Wuhan University *2022.10*
- **Merit Student** (Award Rate: 10% department-wide), Wuhan University *2021.10*
- **HUANG Zhangren Scholarship** (Award Rate: 60/59774=0.1%, 60 candidates per year in WHU), Wuhan University *2021.10*
- **First Class Scholarship of WHU** (Award Rate: 5% school-wide), Wuhan University *2021.10*
- **Excellent Student Cadre** (Award Rate: 924/59774=1.5%) Wuhan University *2021.06*

ACADEMIC SERVICES

- Sub-Reviewer, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023
- Sub-Reviewer, Safe and Robust AI (SRAI) Track, AAAI Conference on Artificial Intelligence (AAAI), 2023
- Teaching Assistant, Artificial Intelligence (AI), Undergraduate Students, Fall 2022.

SKILLS

- Programming Languages: C/C++, Python, JavaScript
- Libraries: Numpy, Pandas, PyTorch, OpenCV, Vue, React
- Developer Tools: Git, L^AT_EX, VS Code, PyCharm, Jupyter Notebook
- Languages: Mandarin & Sichuan Dialect (Native), English (Fluent)

MISCELLANEOUS

- I love playing sports in my spare time (usually 3 times a week). Basketball, table tennis and badminton are my favorites. I am also an expert in Go, Gobang, and Doudizhu. I also play some video games, *Detroit: Become Human* is my favorite.
- I enjoy volunteer services. I have volunteered for more than 100 hours in psychological centers, academic venues and other occasions. At the same time, I have also served as a volunteer teacher in a remote mountainous areas for many times.
- I am quite interested in teaching knowledge to others. I've taught about 300 classmates in our department for artificial intelligence, data structure, C language programming, algorithms, and other hard courses.
- I have earned nearly 150,000 RMB through scholarship and competition bonus during my study in WHU.
- I was the first to achieve a full score (100/100) in Practice and Innovation Ability (F3) in the Annual Comprehensive Assessment of School of Cyber Science and Engineering, Wuhan University since the foundation of the department. My total score surpasses the second place by 11%.
- I was the first place of second prize in the 2018 National Olympic in Informatics, Sichuan Provincial Competition. Due to first prize threshold are not aligned in different provinces (the borderline of Sichuan province ranked No.5 national-wide), my score (307) actually exceeded the first prize borderline of many provinces, including Beijing, Shanghai, and 20 others.