

Wenjie Qu

Email: wen_jie-qu@outlook.com

Website: <https://quwenjie.github.io/>

EDUCATION

Huazhong University of Science and Technology, Wuhan, China

2019.9-2023.6(Expected)

B.E. in Automation(ECE), Honor Class

GPA: 3.88/4.0

Recipient of Chinese National Scholarship 2020

PUBLICATIONS

- [1] **EncoderMI: Membership Inference against Contrastive Learning**
Hongbin Liu*, Jinyuan Jia*, **Wenjie Qu**, Neil Gong
ACM Conference on Computer and Communications Security (CCS) 2021
- [2] **jTrans: Jump-Aware Transformer for Binary Code Similarity Detection**
Hao Wang*, **Wenjie Qu***, Gilad Katz, Wenyu Zhu, Zeyu Gao, Han Qiu, Jianwei Zhuge, Chao Zhang
International Symposium on Software Testing and Analysis (ISSTA) 2022
- [3] **MultiGuard: Provably Robust Multi-label Classification against Adversarial Examples**
Jinyuan Jia*, **Wenjie Qu***, Neil Gong
Advances in Neural Information Processing Systems (NeurIPS) 2022
- [4] **A Certified Radius-Guided Attack Framework to Image Segmentation Models**
Wenjie Qu*, Youqi Li*, Binghui Wang
Submitted to NDSS 2023
- [5] **REaaS: Enabling Adversarially Robust Downstream Classifiers via Robust Encoder as a Service**
Wenjie Qu, Jinyuan Jia, Neil Gong
Submitted to NDSS 2023

RESEARCH EXPERIENCE

CoLink: A Programming Framework for Decentralized Data Science

Research Intern at University of California, Berkeley

April 2022-Present

Advisor: **Prof. Dawn Song**

- Core contributor to open source project CoLink, a programming framework that can greatly simplify the deployment of decentralized data science solutions.
- Designed and implemented CoLink SDK python interface, based on gRPC services.
- Designed and implemented the CoLink-MPC framework which contains protocols and backends to enable users to perform general privacy-preserving machine learning tasks supporting various data collaboration scenarios without writing code, based on several MPC libraries and python SDK.

jTrans: Jump-Aware Transformer for Binary Code Similarity Detection^[2]

Research Intern at Tsinghua University

July 2021-January 2022

Advisor: **Prof. Chao Zhang**

- Proposed a novel neural network architecture for binary function similarity detection, encoding control flow information into the transformer.
- Proved through attention weights how our mechanism delivered the jump target information.
- Released the currently largest binary dataset to the community as a benchmark.
- Outperformed state-of-the-art binary similarity detection methods by 30.5%.

REaaS: Enabling Adversarially Robust Downstream Classifiers via Robust Encoder as a Service??

Research Intern at Duke University

June 2021-November 2022

Advisor: **Prof. Neil Gong**

- Proposed a novel method for encoder cloud service which enables a client to build a provably robust downstream classifier and derive certified radius while reducing the number of queries.
- Proposed a novel pre-training method to enhance the robustness of the encoder based on a spectral-norm regularization term.
- Achieved much better certified robustness for the clients' downstream classifiers when the cloud server pre-trains the encoder via our spectral-norm regularized training method.

MultiGuard: Provably Robust Multi-label Classification against Adversarial Examples[\[3\]](#)

Research Intern at Duke University

February 2021-May 2021

Advisor: **Prof. Neil Gong**

- Proposed the first provable defense algorithm against adversarial examples on the task of multi-label classification.
- Derived a lower bound of intersection size between the set of labels predicted by our MultiGuard and ground truth labels, by a variant of Neyman-Pearson Lemma.
- Outperformed previous work by 7% on top-k precision, 15% on top-k recall.

A Certified Radius-Guided Attack Framework to Image Segmentation Models[\[5\]](#)

Research Intern at Illinois Institute of Technology

August 2020-January 2021

Advisor: **Prof. Binghui Wang**

- Designed an attack framework for image segmentation models leveraging the properties of certified radius.
- Proposed the first blackbox attack to image segmentation models via gradient estimation based on bandits.
- Outperformed state-of-the-art PGD attack by 13% relatively.

ACADEMIC SERVICE

External Reviewer

- International Conference on Machine Learning (ICML), 2022

HONORS & AWARDS

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|--|------|
| • Autodriving CTF, DEFCON 29, 4th/89 | 2021 |
| • China National Scholarship(Highest honor awarded by Ministry of Education, 6/350) | 2020 |
| • Outstanding Undergraduate(Highest honor awarded to HUST undergraduates, top 1%) | 2020 |
| • Merit Student (1/30) | 2020 |
| • Bronze Medal, National Olympiad in Informatics Winter Camp | 2018 |
| • First Prize, National Olympiad in Informatics in Provinces | 2017 |