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Research Interests: Security and Privacy, Artificial Intelligence, Data Science

EDUCATION

M.Eng., Shanghai Jiao Tong University (SJTU, Project 985), Shanghai, China

Sep 2021 - Mar 2024

- **Major:** Cyberspace Security (Exam-exempted)
- **Supervisor:** Prof. Jianhua Li, Institute of Cyber Science and Technology
- **Lab:** National Engineering Research Center for Information Content Analysis Technology (NERCICAT)
- **Dissertation:** Research on Cyber Security Threat Sensing and Intelligence Endogenization Based on Multi-source Heterogeneous Data
- **GPA:** 3.70/4.0

B.Eng., Xidian University (XDU, Project 211), Xi'an, Shaanxi, China

Sep 2017 - Jun 2021

- **Major:** Cyberspace Security (Experimental Class)
- **Supervisor:** Associate Prof. Ning Zhang and Prof. Hui Li, School of Cyber Engineering
- **Dissertation:** A Real-time Intelligent Detection System for Malicious Network Traffic Based on Deep Learning (Outstanding Thesis Award)
- **GPA:** 3.9/4.0 (Rank: 1/40)

SELECTED AWARDS

- 2021 • The First Prize Scholarship of SJTU (Top 10%)
- 2021 • Outstanding Graduate of Shaanxi (Top 1%)
- 2021 • Outstanding Graduate of XDU (Top 1%)
- 2021 • Outstanding Thesis Award of XDU (Top 1%)
- 2020 • The Second Prize Scholarship of XDU (Top 15%)
- 2019 • Special Prize of National Crypto Competition (Top 1)
- 2019 • National Scholarship, China (Top 1%)
- 2019 • Special Scholarship of XDU (Top 1%)
- 2018 • National Scholarship, China (Top 1%)
- 2018 • Special Scholarship of XDU (Top 1%)

INTERNSHIP

CIS (Cybersecurity Intelligence System) Development

Huawei Technologies Co., Ltd.

- Intern, Security Intelligence Development Department
- Addressing data consistency challenges in Big Data Platform

Jun 2019 – Aug 2019

Security Component Adaptation Based on SM Algorithm

Hikvision Digital Technology Co., Ltd.

- Intern, Cyber Security Department
- Enhancing the support for Chinese National Cryptographic Algorithms

Jun 2020 – Aug 2020

PUBLICATIONS AND INVITED TALKS

HiSec: Towards Cyber Threat Discovery and Correlation Based on Hierarchical Graph Neural Network

Liwen Xu, Xiang Lin, Jianhua Li, Min Bai, Liejun Wang

(Accepted)

The 22nd IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom-2023)

Cloud Asset Security Analysis based on Hierarchical Graph Neural Network (Accepted)

ZHANG Yilian, ZHOU Diqing, XU Liwen, YE Tianpeng, LIN Xiang

Journal of Cyber Security, China

Personalized Lightweight Distributed Network Intrusion Detection System in Fog Computing (Published)

YE Tianpeng, LIN Xiang, LI Jianhua, ZHANG Xuankai, XU Liwen

Chinese Journal of Network and Information Security

Localized Intelligence Production and Threat Discovery Based on Unknown Cyberattacks Discovery Using Endogenous Data (Talks)

Liwen Xu

The Wuhan Cybersecurity Innovation Forum, 2023, China

PATENTS

Anomaly Detection Method for Cloud Based on Graph Neural Network (App No. 202210956849.0, Under Review)

Compression Method of Deep Learning Model for Intrusion Detection (App No. 202210956842.9, Under Review)

Detection Method Based on Hierarchical Graph Neural Network (App No. 202311517251.2, Under Review)

Graph Modeling for Security Semantics of Critical Infrastructure (App No. 202311433049.1, Under Review)

RESEARCH PROJECTS

- Student Innovation Funding Joint Research Program** Sep 2022 - Oct 2023
- **Name:** Research on Localized Intelligence Production and Threat Discovery Based on Network Endogenous Data to Discover Unknown Attacks
 - **Consigner:** QI-ANXIN Technology Group Inc.
- Carrier-Class Data Security System Evaluation Research Project (Confidential)** Jul 2022 - Jun 2023
- **Consigner:** China Mobile Shanghai Company
 - **Role:** Joint Researcher
- National Natural Science Foundation of China Joint Key Project (Confidential)** Sep 2021 - Present
- **Advisor:** Prof. Jianhua Li
 - **Role:** Researcher of Correlation Analysis for Unknown Attacks
- AI & Cybersecurity Innovation Platform of Shanghai Jiao Tong University** Sep 2021 - Present
- **Goal:** Construction of FinTech Testing Range and Blockchain Security Sub-Platform
 - **Role:** Core Member
- Transverse Research Project (Confidential)** Sep 2021 - Jan 2023
- **Consigner:** State Grid Shanghai Municipal Electric Power Company, Shanghai
 - **Role:** Key Researcher of Cloud Security Threat Analysis
- Undergraduate Graduation Project (Thesis)** Sep 2020 - May 2021
- **Name:** A Real-time Intelligent Detection System for Malicious Network Traffic Based on Deep Learning
 - **Overview:** Developed an innovative real-time malicious traffic detection system, leveraging the Storm big data streaming framework combined with deep learning technology.
- The 5th Chinese National Cryptography Technology Competition** May 2019 - Nov 2019
- **Name:** RISC-V Processor Core for Chinese National Cryptographic Algorithm
 - **Overview:** Achieved top honors for designing a RISC-V processor tailored to Chinese National Cryptographic Standards, specifically focusing on the structural features of the SM3 and SM4 algorithms.

TEACHING

- (2021-2023) - IS412 Theory and Application of Content Security** Shanghai Jiao Tong University
Every Semester
- **Role:** Teaching Assistant
- (2022-2023) - BS470 Undergraduate Graduation Project (Thesis)** Shanghai Jiao Tong University
Nov 2022 – Jun 2023
- **Role:** Co-Instructor of Two Undergraduates

QUALIFICATION

IELTS (Academic) Tuesday, 3 January 2023

Listening	Reading	Writing	Speaking	Overall
8.5	9.0	6.5	6.5	7.5

OVERSEAS EXPERIENCE

- Advanced Cybersecurity Workshop** Jan 2019
- **Location:** Nanyang Technological University (NTU), Singapore
 - **Instructor:** Prof. Lam Kwok Yan

RELEVANT SERVICES

- National Middle School Student Cyber Security Competition** 2019 – 2021 (Annually)
- **Guiding Unit:** Teaching Steering Committee of Cyberspace Security in the Ministry of Education
 - **Sponsor:** Office of Shaanxi Provincial Internet Information & Xidian University
 - **Role:** Sponsor's Head of Students
- Chang'an Cup Electronic Data Forensics Competition** 2019 – 2021 (Annually)
- **Sponsor:** Xidian University
 - **Role:** Sponsor's Head of Students
- CHINACRYPT 2019** Nov 2019
- **Organizer:** Chinese Association for Cryptologic Research (CACR)
 - **Role:** Volunteer