

دانشگاه آزاد اسلامی واحد تبریز



نام درس: سیستم مدیریت امنیت اطلاعات

بخش: موضوعات تحقیقاتی امنیت

نام استاد: دکتر مسعود کارگر

Cyber Security research topics:

1. Secure quantum communications

- quantum key distribution
- error correction protocols
- quantum alphabets
- security in higher-dimensional quantum systems
- post-quantum cryptography.

Cyber Security research topics:

2- Secure communications for space

next-generation resilient, secure communication protocols and systems suitable for space deployments.

Cyber Security research topics:

3- Cyber autonomy and automation

application of artificial intelligence (machine learning and AI planning) techniques, and automated cyber security tools and incident response workflows.

Cyber Security research topics:

4- Internet of things (IoT) and cyber physical security

cyber security risks and challenges, and proposing new solutions and resilient communication protocols across the energy, industrial control systems, industrial internet of things (IIoT), internet of things (IoT), drones, and wireless sensor networks.

Cyber Security research topics:

5- Data privacy and user data control

the technical, ethical, and policy challenges around data control and privacy. Researchers are working with international partners on data accountability, data provenance tracking, cyberattack attribution, privacy-preserving algorithms, homomorphic encryption, encrypted search, and a data 'kill switch' for online and cloud computing users.

Cyber Security research topics:

6. Cyber law and ethics

domestic and international laws and ethical norms addressing cyber security, cybercrime, data privacy, mandatory data breach disclosures, encryption, social media, bots, and the application of artificial intelligence.

Researchers analyze and evaluate the effectiveness of legislative frameworks and identify gaps in the domestic and international settings.

Cyber Security research topics:

7. Secure software engineering

formal methods and secure software engineering

the detection and reduction of security vulnerabilities arising in complex, interconnected software systems and developing interactive and automated tools to assist with identifying and analyzing such vulnerabilities

Cyber Security research topics:

8. National security and cyber policies

the impact and effectiveness of policies addressing national security, foreign affairs, cyber security, regional and international coordination, and the global cyber security skills shortage.

Cyber Security research topics:

9. Cyber criminology

crime prevention and intervention techniques, policies, and building crime-fighting tools (e.g. visualization, cybercrime attribution) which can be applied to cyber and cyber-enabled crime.

the skills gaps faced by frontline officers, and researching into the understanding and deanonymizing criminal activities on social media platforms and the Dark Web.

Cyber Security research topics:

10. Critical Infrastructure – Industrial Control Systems (ICS) Security

cyber resilience, security automation, and secure systems for critical infrastructure scenarios and case studies.

Cyber Security research topics:

11. Next-Generation Encryption (NGE) for Secure Connectivity

- Elliptic curve cryptography (ECC) to replace RSA and DH
- Galois/Counter Mode (GCM) of the Advanced Encryption Standard (AES) block cipher for high-speed authenticated encryption
- SHA-2 for Hashing operations to replace MD5 and SHA-1

Cyber Security research topics:

12. Investigation of social media security

- online social networks (OSN)
- Classic privacy threats
- Modern privacy threats

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Cyber Security research topics:

13. cybersecurity standards

- DFARS (Defense Federal Acquisition Regulation Supplement) ...
- Federal Information Security Management Act (FISMA) ...
- Health Insurance Portability and Accountability Act (HIPAA) ...
- ISO 22301, ISO/IEC 27001, ISO/IEC 27002, ISO/IEC 27031
- ISO/IEC 27032.

Cyber Security research topics:

14. Network Security Monitoring Tools

- Argus. One of the best free and open source tools available for network traffic analysis. ...
- P0f. P0f remains popular in spite of a lack of updates. ...
- Nagios. Nagios monitors hosts, systems, and networks, delivering alerts in real-time. ...
- Splunk, OSSEC, Tor, KeePass, TrueCrypt.