Computer Security is crucial in almost any technology-driven industry which operates on computer systems, as enormous volumes of critical information is created, transmitted, and archived by computers worldwide every day – ensuring the security of this information is a challenge. Some of this information can be confidential ones belonging to governments, military, financial institutions, hospitals, and private businesses. Protecting confidential information is crucial indeed – it is undoubtedly a business requirement, and in many cases also an ethical and legal requirement.

Now, with the emergence of Industrial Revolution 4.0 (IR4.0) among industry players had pushed further the importance of computer security and the demand for highly skilled manpower to support the establishment of infrastructure and platform in providing IR4.0 based services such as for the cloud computing platform and Internet-of-things (IoT).

Information Security involves protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction. With the ever-growing technology, today’s computer professionals need a comprehensive understanding of all aspects of security in computing.

Why study in UPM?

We at UPM offer/provide:

- well trained experts in the information security systems area to guide ambitious research students to conduct research.
- well established programmes that have produced a number of successful PhD and Master graduates.
- well equipped with good and latest IT facilities that provide comfortable environment for ambitious research students to conduct research.
- most of the experts in the information security group are awarded with research grants.

Research Area

The group explores research areas for computer and system security, including:

- Cryptography and protocols
- Access control
- Quantum key distribution
- Steganography and information hiding
- Network and Communication Security
- Intrusion detection systems
- Digital Forensics
- Software security
- Malware Analysis
- Information Security Management

Collaborators

- MIMOS Bhd.
- CyberSecurity Malaysia
- MediaCrypt Resources Sdn. Bhd.
- EC-Council Academy
- Information Security Professionals of Malaysia (ISPA.my)

Contact Information

Dr. Sharifah Md. Yasin (Leader)
☎ 603-9769 1757  ✉ ifah@upm.edu.my

(see inside for other group members)
## Research Group Members

**Dr. Sharifah Md. Yasin (Leader)**  
B.Sc. (Hons.) (UK), M.Sc. (UKM), PhD (UPM)  
Expertise: Elliptic Curve Cryptography, Block Cipher, DNA Block Cipher, 3D-Cellular Automata Block Cipher, Secret Sharing Scheme, Cyber Security, Blockchain, and Authenticated Encryption.  
☎ 603-9769 1757  
Email: ifah@upm.edu.my

**Assoc. Prof. Dr. Mohd Tauﬁk Abdullah**  
Dip. Comp. Sc., B. Comp. Sc., M.Sc., Ph.D (UPM)  
Expertise: Computer Forensics, Computer Security  
☎ 603-9769 1724  
Email: tauﬁk@upm.edu.my

**Assoc. Prof. Dr. Nur Izura Udzir**  
B. Comp. Sc. (UPM), M.Sc. (UPM), Ph.D (York)  
Expertise: Access Control, Intrusion Detection Systems, Computer Security, Coordination in Distributed Systems  
☎ 603-9769 1708  
Email: izura@upm.edu.my

**Assoc. Prof. Dr. Azmi Jaafar**  
B.Sc., M.Sc. (Indiana State), Ph.D (UPM)  
Expertise: Mathematical Programming  
☎ 603-9769 1722  
Email: azmi@upm.edu.my

**Assoc. Prof. Dr. Nor Fazlida Mohd Sani**  
B. Comp. Sc. (UPM), M.Sc. (UPM), Ph.D (UKM)  
Expertise: Software/Web and Database Security, Program Understanding and Debugging, Modeling  
☎ 603-9769 1731  
Email: fazlida@upm.edu.my

**Assoc. Prof. Dr. Azizol Bin Abdullah**  
B. Comp. Sc. (UPM), M.Sc. (Sheffield), Ph.D. (UPM)  
☎ 603-9769 1728  
Email: azizol@upm.edu.my

**Assoc. Prof. Dr. Zuriazi Ahmad Zukarnain**  
B.Sc. Ed. (Hons.), M.Sc. (UPM), Ph.D (Bradford)  
Expertise: Quantum Computation, Distributed Computing, Computer Networks  
☎ 603-9769 1777  
Email: zuriati@upm.edu.my

**Assoc. Prof. Dr. Aziah Asmawi**  
B. Comp. Sc. (UPM), M.Sc. (UTM)  
Expertise: Intrusion Detection System, Intrusion Prevention System, Cyber Security, Digital Forensics, Blockchain  
☎ 012-541578.  
Email: noorafiza@upm.edu.my

**Mrs. Raja Azlina Raja Mahmood**  
B.Sc. (Comp) (Michigan), M.Sc. (UTM)  
Expertise: Network Security, Malware Analysis  
☎ 603-9769 1768  
Email: raja_azlina@upm.edu.my

**Dr. Mohd Yunus Sharum**  
Dip. Comp. Sc., B. Comp. Sc. (UPM) M.Sc. (UTM), Ph.D (UPM)  
Expertise: System Security, Trusted Computing, Intelligent System  
☎ 017-6554895  
Email: m_yunus@upm.edu.my

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## Patent

“Enable Non-Trust Application to Utilize TPM using Trusted Application (TAS)”, Ramlan Mahmood, 2010


“A Construction of Key-Dependent MDS Matrices”, Ramlan Mahmood, 2010


“Apparatus and Method to Manage Inter-Communication between Computations using Trusted Hypervisor/Visualization Tunnel Controller”, Ramlan Mahmood, 2010

“System and Method to Transform Text into Image for Information Hiding”, Ramlan Mahmood, 2010


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## Grant / Project

**Digital Forensic Investigation Reduction Model (Difrem) For Windows 10 Os** - Aziah Asmawi, Putra IPM Grant, RM30,000. (1 Mei 2019- 30 April 2021)

**A New Secret Sharing Scheme for Enhancement Key Management of 2D Cellular Automata Cryptosystem.** - Sharifah Md Yasin, Nor Fazlida Mohd Sani, FRGS, RM79,000. (2 Nov 2015 - 1 June 2019)


**Intrusion Detection with Hybrid Learning Algorithm** - Nur Izura Udzir, Zaiton Muda, Md Nasir Sulaiman, Warusia Mohamed; RUGS, RM39,000. (Nov 2012 – Oct 2014)


