Dr Nuur Alifah Roslan

Lecturer in Multimedia Computing, Universiti Putra Malaysia

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A highly motivated academic and educator with teaching experience in higher education, committed to delivering engaging learning experiences and supporting student success across diverse subject areas. Specializing in steganography and human-centric security, with a strong track record in scholarly publications. Possesses approximately 1.5 years of experience as a Postdoctoral Researcher within the Information Security Research Group at University College London (UCL), United Kingdom. Actively engaged in interdisciplinary research aligned with emerging challenges in multimedia security, with a focus on producing high-impact publications and contributing to global academic discourse.

EDUCATION

Universiti Putra Malaysia, Serdang, Malaysia

Ph.D. in Computer Security | Cybersecurity Research Group UPM *2014 –2020*

Universiti Putra Malaysia, Serdang, Malaysia

M.Sc. in Computer Security | Cybersecurity Research Group UPM *2008 – 2011*

WORK EXPERIENCE

Universiti Putra Malaysia, Serdang, Malaysia

Lecturer | Computer Science *Mei 2021 – Present*

Supervised undergraduate and postgraduate taught students across a range of project topics and served as secondary supervisor to three PhD students. Actively engaged in independent research in steganography, multimedia security, information security, and online safety, with a developing interest in human-centric security.

University College London, London, UK

Postdoctoral Researcher | Computer and Information Sciences *Dec 2024 – Present*

Contributed to advanced research in cybersecurity and human-centric security. Her work involved designing and conducting research studies, developing analytical frameworks, and supporting publications in high-impact academic venues. She collaborated with multidisciplinary researchers to explore emerging challenges in digital security, with a particular focus on usable security and privacy-related issues.

Professional & Industry Experience

Website Specialist at Bomstart Digital Agency, Malaysia *March 2019 – Dec 2020*

Experienced as a Website Specialist in a digital agency, where she designed and developed efficient, conversion-focused websites to enhance clients' sales and online presence. She built user-friendly, responsive web solutions aligned with business and digital marketing goals

Professional Consultant for Advanced Informatics Lab *Jan 2015 – Dec 2018*
Information Communication Technologies
Division at MIMOS Berhad, Malaysia

Acted as a programmer and researcher within a development team delivering the MIMOS License Plate Recognition Platform (Mi-LPR), where she was responsible for a key video analytics component focusing on parameter detection using C# programming. Her role involved fine-tuning detection algorithms to improve accuracy and managing large-scale datasets (1,000 to 10,000 data points) for machine learning-based performance evaluation and testing. In addition, her contributed to an industrial collaborative project, the SMART Video Surveillance System for PDRM Lockup, where she served as a research assistant performing system administration and system testing tasks. This included system setup, performance validation, and reporting results following iterative updates from the development team.

AWARDS

2023	Outstanding Researcher Award & Excellent Research Grant Award (Faculty level)
2022	Putra Teaching and Learning Innovation, Silver Medal (University level)
2021	Excellent Teaching Award (Faculty Level)
2013	Malaysia Innovation Expo, Silver Medal (National level)

AWARDED FUNDING

2022 – 2024: GP-IPM – Putra Young Initiative Grant (PI, RM 36K)
QR Code Image Manipulation using Bilinear Zooming Steganography for Ownership Protection and Product Authenticity
Technology is rapidly evolving, and smartphones have made QR codes widely used for sharing and accessing information such as tickets, discounts, and product authentication. However, transmitting sensitive data through QR codes raises security and privacy concerns. To address this, our work proposes a secure QR code technique that embeds ownership information into QR code images using a bilinear zooming method. Since QR codes are module-based, the approach allows data to be hidden by manipulating image structures without affecting functionality. The proposed algorithm will be implemented in a mobile application and evaluated through a proof-of-concept to ensure effectiveness in protecting data and verifying ownership.

2021 – 2023: GP-IPS – Putra Graduate Initiative Grant (Co-I, RM18.2K)
A Security Model to Detect Intrusions in Internet of Things using Machine Learning
This research proposes an anomaly-based intrusion detection system using deep reinforcement learning to improve IoT security. The model focuses on identifying normal and abnormal behaviour to detect unknown attacks through feature selection, classification, and training processes. Machine learning and deep learning techniques are used to enhance detection capability and system intelligence. The proposed system will be evaluated based on accuracy, detection speed, and error rates. The aim is to improve early and reliable attack detection in IoT systems.

2022 – 2024: Knowledge Transfer Grant Scheme (Co-I, RM14K)
Entrepreneurial and Digital Skills Development for Youth at Rumah Pakats to Enhance Economic Empowerment and Well-being (SDG 8)
Many young people, particularly in community-based homes such as Rumah Pakats, face limited exposure to these essential skills, which can affect their future economic opportunities. This initiative focuses on developing entrepreneurial mindset and digital competencies among youth to enhance their employability and income-generating potential. Through structured training and practical activities, participants will be equipped with foundational business knowledge and digital skills. The programme aims to support long-term economic empowerment and improve overall well-being, aligned with Sustainable Development Goal 8 on decent work and economic growth.

Supervision Postgraduate and Undergraduate

- Served as second supervisor to four PhD students. Two graduated in 2026. A second-year student is making strong progress and has actively participated in several conferences to present his research. The third student, currently in her final year, is finalizing her dissertation and preparing for thesis submission.
- Supervised eight undergraduate students for their Final Year Projects, with a focus on real-world problem-solving applications. The projects were designed to address practical challenges and were primarily developed as web and mobile applications. This approach enhanced students' technical and analytical skills through hands-on experience in developing industry-relevant solutions. The supervision also supported their preparation for future careers by exposing them to applied development processes, project management, and user-focused system design.

Supervisory Summary

Programme	Status	Chairperson	Member
PhD	Graduated	None	2
	Current	None	2
Master's (Research / Thesis)	Graduated	None	None
	Current	None	None
Master's (Coursework with Thesis)	Graduated	None	None
	Current	1	None

ACADEMIC SERVICE

2026 – 2028 Multimedia Department Head of Student Advisor, FCSIT UPM

2026 – 2026: Technical Program Committee, International Conference on Cybersecurity, Data Science, and Machine Learning (ICDM-2026), Universiti Putra Malaysia

2026 – 2026: Technical Program Committee, 18th International Conference on Computer Modeling and Simulation (ICCMS 2026), Beihang University, China

2025–2025: Participate in Microsoft Code Without Barrier Mentorship, Microsoft & ITrain Asean

2024 – 2024: Committee for International Symposium and Community Service Computer Science for Smart Agriculture 2024, Universitas Panca Budi, Indonesia

2024 – 2024: Committee Member, International Symposium on Artificial Intelligence and Internet of Things in Perspective, Universitas Sumatera Utara, Indonesia

2024 – 2024: Steering Committee, The National Symposium on Human-Computer Interaction 2024, Association of Human-Computer Interaction Malaysia

2024 – 2024: Liaison Officer-Distinguished Lecture Series in conjuction with Bulan Pendidik UPM 2024

2024 – 2024: Judge for the Innovation Showcase Competition held in conjunction with the National Seminar of the Malaysian Public Universities Council of Deans of Education (MDAEC) 2024 and STEMadani Workshop.

2023 – 2023: Technical Program Committee International Conference on Mathematics, Computation and Modeling (CMCM 2023), International Society for Applied Computing, China

2023 – 2023: Committee Member, Faculty of Computer Science and Information Technology (FSKTM) Appreciation Day Program 2023.

2023 – 2023: ITrain Android Certified Associate Trainer

2022 – 2023: Steganography Technology Consultation UPM-SIRIM, Standards and Industrial Research Institute of Malaysia Berhad, Malaysia

2022 – 2023: Committee member for the development of a new undergraduate program, Bachelor of Computer Security, FSKTM Universiti Putra Malaysia (UPM)

2022 – 2023: Expert advisor in the development of the Rural Internet Centre website, Ministry of Communications and Multimedia (KKMM), Malaysia

2022 – 2022: Committee Member, FSKTM Quality Day and Service Innovation Celebration Program

2021 – 2022: Committee Member, Alumni Relations Committee, Department of Multimedia.

2021 – 2022: Committee Member, FSKTM Strategic Plan 2021–2022 Committee.

2021 – 2022: Course Developer and Coordinator for Putra Massive Open Online Courses PUTRAMOOC): Multimedia Application Essentials

2021-2022: Panel evaluator for the Professional Practice subject, International College Subang Computer Science Subject Expert for the A-Level Program, Intec Education College, Malaysia

2021 – 2022: Computer and Information Processing Subject Expert for the American Degree Transfer Program (ADTP), Intec Education College, Malaysia

2021 – 2021: Website Specialist Ministry of Communications and Multimedia (KKMM) Malaysia

2021 – present: Member of the ACM and Human-Computer Interaction Malaysia Association, (MyHCI-UX)
2021 – present: Paper reviewer for IEEE Access, Journal of Engineering and Applied Science, Conferences: ICCMS 2026, CMCM 2023

NATIONAL & INTERNATIONAL COMMUNITY SERVICE

2026: Director of 8th National Symposium of Human Computer Interaction, FUSION 2026
2026: Co-Director of Akal Budi Ai Conference 2027
2024: "3D Spectrogram" Program in collaboration with Yayasan Panti Bani Adam, Medan, Indonesia.
2024: Community Program between Universitas Pembangunan Panca Budi Indonesia and Universiti Putra Malaysia (UPM)
2024: Treasurer, International Community Service Programme SERUMPUN, Faculty of Computer Science and Information Technology
2024: Sub-committee Member of Technical Innovate Carlo Rino-UPM Ui/Ux Competition 2024, UPM
2023: Entrepreneurial and digital skills development for marginalised youth at Rumah PAKAT.
2021: Program Director for the collaboration with King George V High School – Workshop on Developing a website using WordPress.

NON-ACADEMIC SERVICE

2022– present: Member of Female in Tech Malaysia
2022 – present: Member of WordCamp Malaysia Chapter
2021 – present: Member of Welfare and Social Club, Faculty of Computer Science and Information Technology (FSKTM), Universiti Putra Malaysia
2022 – 2024: Secretary Welfare and Social Club, Faculty of Computer Science and Information Technology (FSKTM), Universiti Putra Malaysia

TALK/SPEAKER

- Speaker, International Symposium on Artificial Intelligence and Internet of Things in Perspective from Indonesia and Malaysia, Universitas Utara Sumatera, 2024
- Speaker, WordCamp Malaysia, Wordpress Malaysia Chapter, 2023

TEACHING AND LEARNING

Alifah has developed experience applying pedagogical theory across both undergraduate and postgraduate teaching environments within computer science and information security disciplines. She has contributed to teaching delivery in areas aligned with her specialization, particularly Multimedia Technology at undergraduate level and Steganography and Digital Watermarking at postgraduate level. Her teaching approach emphasizes integrating theoretical foundations with practical, real-world applications to enhance student understanding and engagement.

She has been involved in designing and delivering learning activities that support problem-solving, technical skill development, and applied security concepts. In Multimedia Technology, she supports students in understanding core multimedia principles, system design, and digital content development. At postgraduate level, she guides students in advanced topics related to information hiding, steganography techniques, and digital watermarking applications. Across her teaching experience, Alifah focuses on improving student engagement through structured learning activities, hands-on exercises, and research-informed teaching practices. Her contributions support students in developing both technical competencies and analytical thinking relevant to industry and research environments.

TEACHING SPECIALIZATION

- Operating System
- Computer Security
- Artificial Intelligence
- Database System
- Problem Solving and Programming Concept
- Computer Organization and Architecture
- Multimedia Technology
- Introduction to Multimedia

ACADEMIC PUBLICATIONS

h-index: 8 (Source: https://scholar.google.co.uk/citations?user=D2HjjOYAAAAJ) Total citations: 153 (since 2021)

O'Brien, C., Zytko, D., Abu-Salma, R., Tanczer, L., **Roslan, N. A.,** Murdoch, S., & Warner, M. (2027, January). Harassing Harms: A Platform Grounded Framework for Understanding How Online Social Platforms Characterise Harassment. ACM (Association for Computing Machinery).

Roslan, N. A., Gutub, A., Rahmat, R. W., Khalid, F., & Udzir, N. I. (2026). Secure Bilinear Zooming Steganography for Enhancing QR Code Image Quality and Information Security. *International Arab Journal of Information Technology (IAJIT)*, *23*(4), 625.

O'Brien, C. R. K., **Roslan, N. A**., Murdoch, S. J., Abu-Salma, R., Zytko, D., & Warner, M. (2025). Online dating platform safeguards and self-protection: How dating platforms characterise, respond to, and safeguard against harms. In Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (pp. 1–8)

Sun, C., Abdullah, A., Samian, N., & **Roslan, N. A**. (2025). Steganalysis of adaptive multi-rate speech with unknown embedding rates using multi-scale transformer and multi-task learning mechanism. Journal of Cybersecurity and Privacy, 5(2), 29.

Khamis, H., Jantan, A. H., **Roslan, N. A**., & Abdullah, L. N. (2025). Immersive learning factors using virtual reality in higher education: A systematic literature review (SLR). Environment-Behaviour Proceedings Journal, 10(SI32), 53–62.

Sun, C., Abdullah, A., Samian, N., & **Roslan, N. A.** (2025). Frame-wise steganalysis based on mask-gating attention and deep residual bilinear interaction mechanisms for low-bit-rate speech streams. Journal of Cybersecurity and Privacy, 5(3), 54.

Roslan, N. A., Lydia, M. S., & Gutub, A. (2025). Enhancing secure QR code steganography through artificial intelligence: A conceptual framework. Journal of Advanced Research in Applied Sciences and Engineering Technology, 62(4), 224–231.

Roslan, N. A., Norowi, N. M., Zabidi, N., Mahmod, R., & Asfarian, A. (2025). Enhancing image-emoji graphical password multi-factor authentication by utilizing single touch and multi-touch gesture. Journal of Advanced Research, 62(1), 48–57.

Khamis, H., Khairudin, M., Jantan, A. H., **Roslan, N. A**., & Abdullah, L. N. (2024). Systematic review of adapting immersive technology in enhancing teaching and learning for students in higher education. Journal of Advanced Research in Applied Sciences and Engineering Technology, 61(3), 130–145.

Roslan, N. A., Udzir, N. I., Mahmod, R., Zukarnain, Z. A., Ninggal, M. I. H., & Thabit, R. (2020). Character property method for Arabic text steganography with biometric multifactor authentication using liveness detection. Journal of Theoretical and Applied Information Technology, 98(24), 4140–4157. DOI not available.

Roslan, N. A., Udzir, N. I., Mahmod, R., & Gutub, A. (2022). Systematic literature review and analysis for Arabic text steganography method practically. Egyptian Informatics Journal, 23(4), 177–191.

Thabit, R., Udzir, N. I., Yasin, S. M., Asmawi, A., **Roslan, N. A**., & Din, R. (2021). A comparative analysis of Arabic text steganography. Applied Sciences, 11(15), 6851.

Roslan, N. A., Mahmod, R., Udzir, N. I., & Zurkarnain, Z. A. (2014). Primitive structural method for high capacity text steganography. Journal of Theoretical & Applied Information Technology, 67(2). DOI not available.

OTHERS PUBLICATION

Book Chapter (under publication process)

- I, Rekik. (2026). "AI: The Good, The Bad, and the Game-Changer". Imperial College London

Books

- **Roslan, N. A**. (2023). *Smart watch: A secret communication by hiding in Arabic text*. UPM Press. eISBN 978-629-7590-46-2
- **Roslan, N. A.,** Mahmod, R., & Udzir, N. I. (2012). *Sharp-edges steganography in Arabic characters for information hiding*. LAP LAMBERT Academic Publishing. ISBN 978-3659115608