

Larry Huynh

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 LarryHH |  LarryHH |  Scholar

Research Interests

Quantum-inspired machine learning, cybersecurity, intrusion detection, anomaly detection, natural language processing, rumour detection.

Education

Doctor of Philosophy (PhD), Computer Science

University of Western Australia

Mar 2023 – Present

Perth, Australia

Thesis: Quantum-Inspired Machine Learning for Improved Cybersecurity

Principal & Coordinating Supervisor: Dr Jin Hong

Co-supervisor: Prof Ajmal Mian

Principal CSIRO Supervisor: Dr Hajime Suzuki

Master of Software Engineering

University of Western Australia

2019 – 2020

Perth, Australia

Bachelor of Software Engineering

University of Western Australia

2017 – 2018

Perth, Australia

Bachelor of Commerce

University of Western Australia

2014 – 2016

Perth, Australia

Publications

- [1] L. HUYNH, J. Hesford, D. Cheng, A. Wan, S. Kim, H. Kim, and J.B. Hong. “Expectations Versus Reality: Evaluating Intrusion Detection Systems in Practice.” In *Proc. IEEE/IFIP International Conference on Dependable Systems and Networks – Supplemental Volume (DSN-S)*, pp. 56–62, 2025.
- [2] L. HUYNH, Y. Zhang, D. Jayasundera, W. Jeon, H. Kim, T. Bi, and J.B. Hong. “Detecting Code Vulnerabilities using LLMs.” In *Proc. IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, pp. 401–414, 2025.
- [3] L. HUYNH, J.B. Hong, A. Mian, H. Suzuki, and S. Camtepe. “Intrusion Detection Systems Using Quantum-Inspired Density Matrix Encodings.” In *Proc. IEEE/IFIP International Conference on Dependable Systems and Networks – Workshops (DSN-W)*, pp. 32–38, 2024.
- [4] L. HUYNH, A. Gansemer, H. Kim, and J.B. Hong. “Improving the Robustness of Rumor Detection Models with Metadata-Augmented Evasive Rumor Datasets.” In *Proc. International Conference on Web Information Systems Engineering (WISE)*, pp. 336–351, 2024.
- [5] L. HUYNH, J. Kilcullen, and J.B. Hong. “Rumor Alteration for Improving Rumor Generation.” In *Proc. International Conference on Web Information Systems Engineering (WISE)*, pp. 352–362, 2024.
- [6] L. HUYNH, J.B. Hong, A. Mian, H. Suzuki, Y. Wu, and S. Camtepe. “Quantum-Inspired Machine Learning: a Survey.” *arXiv preprint arXiv:2308.11269*, 2023.
- [7] L. HUYNH, T. Nguyen, J. Goh, H. Kim, and J.B. Hong. “ARGH!: Automated Rumor Generation Hub.” In *Proc. 30th ACM International Conference on Information and Knowledge Management (CIKM)*, pp. 3847–3856, 2021.

Research Experience

PhD Researcher

Mar 2023 – Present

University of Western Australia / CSIRO Data61

Perth, Australia

- Researching quantum-inspired machine learning approaches for improved cybersecurity, with a focus on intrusion detection systems.
- Developed density matrix encoding methods for intrusion detection, published at DSN-W 2024.
- Investigated LLM-based code vulnerability detection, with results published at DSN 2025.
- Evaluated intrusion detection systems in practical deployment settings (DSN-S 2025).
- Advanced rumour detection robustness through metadata-augmented evasive datasets and rumour alteration techniques (WISE 2024).
- Authored a survey on quantum-inspired machine learning with 60+ citations as of 2026 (arXiv, 2023).

Research Engineer

Nov 2020 – Feb 2023

University of Western Australia

Perth, Australia

- Developed machine learning solutions for maritime anomaly detection in collaboration with the Defence Science and Technology Group (DSTG), using historical AIS data under constrained data and contextual conditions.
- Built a novel ML-based rumour generation framework (ARGH!) that outperformed both human evaluators and state-of-the-art machine detectors. Nominated for best applied paper (CIKM '21).
- Conducted statistical modelling of WA crash incidence and eye health data to identify causal relationships and correlations.

Junior Business Consultant (Internship)

Nov 2019 – Mar 2020

Philight Pty. Ltd.

Perth, Australia

- Developed geospatial visualisation tools, database migration pipelines, and reporting data models for local and international business clients.

Teaching Experience

Associate Lecturer / Senior Lab Facilitator

Nov 2020 – Present

University of Western Australia

Perth, Australia

Lecturer (delivered lectures, designed and set assessments):

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| • CITS1003 Introduction to Cybersecurity | 2021–2025 |
| • CITS2006 Defensive Cybersecurity | 2021–2025 |
| • CITS3006 Penetration Testing | 2021–2025 |
| • CITS5503 Cloud Computing | 2021–2025 |

Senior Lab Facilitator (delivered lab sessions, supported student learning):

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| • CITS4012 Natural Language Processing | 2023–2024 |
| • CITS2002 Systems Programming | 2023–2024 |
| • CITS3002 Computer Networks | 2023–2025 |
| • CITS2401 Computer Analysis and Visualisation | 2021–2025 |

Awards and Scholarships

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| • CSIRO Data61 PhD Scholarship (Quantum Technologies Future Science Platform) | 2023 |
| • Best Applied Paper Nomination, ACM CIKM '21 | 2021 |

Technical Skills

Languages: Python, C, C#, Java, MATLAB, R, SQL (MySQL, MSSQL)

ML/AI: TensorFlow, PyTorch, HuggingFace Transformers, Keras, scikit-learn

Quantum: PennyLane, Qiskit

Cloud & Infrastructure: AWS (CLI, IAM, S3, EC2), Google Cloud (SQL, Compute), Docker

Web: HTML, CSS, JavaScript

Other: Git, $\LaTeX$

Service and Leadership

Web Chair, 31st Australasian Conference on Information Security and Privacy (ACISP 2026)

Peer Reviewer

Future Generation Computer Systems (Elsevier), *Information Sciences* (Elsevier)

Research Co-supervision

Co-supervised more than 10 students at undergraduate, Honours, and Masters levels on thesis and independent research projects, several leading to peer-reviewed publications.

President, UWA Badminton Club

Nov 2019 – Nov 2020

Managed club operations during COVID-19, organised social events, and designed loyalty and membership programs that increased member engagement.

References

Available upon request.