SAKUNA HARINDA JAYASUNDARA

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sakuna-harinda | sakunaharinda

Auckland, New Zealand

SUMMARY

Ph.D.-qualified Engineer and Researcher with 5+ years of industry and research experience building scalable, production-grade systems across backend development, machine learning, and automation. Brings 8+ years of experience in Python, Java, and C/C++, along with extensive work across modern ML frameworks, containerization, orchestration, CI/CD pipelines, and end-to-end test automation. Ph.D. from the University of Auckland, with research spanning deep learning, natural language processing, cybersecurity, and HCI. Focused on applying data-driven and research-informed approaches to solve real-world engineering problems.

EXPERIENCE

- **Software Engineer** *June 2022 - October 2022*
  H2O.ai [🌐] Remote
  - Built and maintained scalable Wave applications to support internal and external ML workflows, enhancing reliability and developer productivity through automation.
  - Designed and implemented robust end-to-end test automation pipelines using Python, Jenkins, and Groovy, reducing manual testing effort and increasing release velocity.
  - Led the architecture and development of a best-in-class test automation framework, including guiding implementation, defining coding standards, and shaping the automation roadmap for cross-team use.
  - Collaborated with engineering teams to integrate automation into CI/CD workflows, improving code quality and shortening time-to-deployment for key features.

- **DevOps Engineer** *June 2021 - June 2022*
  Axiata Digital Labs [🌐] Colombo, Sri Lanka
  - Designed, developed, and maintained backend RESTful and SOAP APIs using Java and Spring Boot to support customer-facing services for clients associated with Celcom Malaysia, ensuring high reliability and seamless integration with existing telecommunications systems.
  - Built an anomaly detection system leveraging OpenTelemetry data and machine learning models to identify performance and reliability issues in production services, enabling proactive issue detection and improved system observability.
  - Developed an NLP-based repository classifier to automatically identify public GitHub projects with potential relevance to internal initiatives, streamlining competitive analysis and reducing manual review workload.

- **Intern Electronics Engineer** *June 2019 - December 2019*
  Paraqum Technologies [🌐] Colombo, Sri Lanka
  - Developed a GTP (GPRS Tunneling Protocol) packet analysis tool along with a test environment, enabling detailed inspection and debugging of mobile core network traffic for protocol validation and performance analysis.
  - Designed and implemented a load-balancing software module to monitor network interfaces and manage data traffic efficiently, improving throughput handling in simulated network scenarios.
  - Enhanced performance and extended functionality of the company's AD client software, optimizing existing C++ modules for responsiveness and reliability under real-world conditions.

EDUCATION

- **Ph.D. in Computer Science** *October 2022 - January 2026*
  University of Auckland Auckland, New Zealand
  - Introduced a human-centric approach to automated access control policy generation, addressing fundamental limitations of both manual and fully automated methods by reducing human error and AI-induced inaccuracies.
  - Developed language model-driven techniques to translate natural-language access requirements into enforceable access control policies, enabling accurate handling of complex, ambiguous, real-world specifications.
  - Designed ML-based mechanisms that support automatic error detection and recovery, enabling safe deployment of AI-generated security policies in high-risk environments.

- Conducted empirical user studies with professional policy implementers, demonstrating improved accuracy, efficiency, trust, and adoption potential compared to existing approaches.
- Produced comprehensive analyses and datasets that address long-standing research gaps in access control policy generation.

- **B.Sc. (Hons.) in Electronics and Telecommunication Engineering** *November 2016 - July 2021*
  University of Moratuwa Colombo, Sri Lanka
  - Attained a GPA of 3.92/4.2, obtaining a First Class.
  - Dean's List Honoree, recognized in all four academic years of the B.Sc. program.
  - Developed a deep learning-based maritime surveillance software for the Sri Lanka Navy to detect suspicious activities in the sea using PyTorch and PyQt. The project won the 2nd runner-up in the National ICT Awards for the best university project.

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION, T=THESIS

[J.1] **Jayasundara, S. H.**, Gamagedara Arachchilage, N. A., & Russello, G. (2024). SoK: Access control policy generation from high-level natural language requirements. ACM Computing Surveys (Q1 journal - Impact factor: 28.0).

[C.1] **Jayasundara, S. H.**, Arachchilage, N. A. G., & Russello, G. (2024). "AccessFormer": Feedback-driven access control policy generation framework. NDSS Symposium on Usable Security and Privacy (USEC) (A* conference in cybersecurity).

[J.2] **Jayasundara, S. H.**, Gamagedara Arachchilage, N. A., & Russello, G. (2026). AGentVLM: Access Control Policy Generation and Verification Framework with Language Models. Journal of Information Security and Applications (Q1 journal - Impact factor: 3.7).

[S.1] **Jayasundara, S. H.**, Gamagedara Arachchilage, N. A., Biddle, R., & Russello, G. (2026). CHAGent: Context-aware Human-centric Access Control Policy Generation. IEEE Symposium on Security and Privacy (A* conference in cybersecurity).

[S.2] **Jayasundara, S. H.**, Gamagedara Arachchilage, N. A., Biddle, R., & Russello, G. (2026). "This is going to change the game": Design and Evaluation of a Usable and Accurate Automated Access Control Policy Generation System. ACM CHI conference on Human Factors in Computing Systems (A* conference in HCI).

TECHNICAL SKILLS

- **Knowledge Areas:** Software Engineering, DevOps, Machine Learning, Computer Vision, Natural Language Processing & Signal Processing
- **Programming Languages:** Python, Java, C/C++, GO, & Dart
- **Web Technologies:** HTML, CSS, & JavaScript
- **Database Systems:** SQL, MongoDB, & Neo4J
- **Software & Machine Learning Frameworks:** Springboot, FastAPI, Pytorch, Keras, Tensorflow, & Scikit-learn
- **Cloud Technologies:** AWS & Azure
- **DevOps & Version Control:** Docker, Kubernetes, Jenkins, Git, GitHub, & GitHub actions
- **API Protocols:** REST, JSONRPC, & SOAP
- **Software Development Methodologies:** Agile

HONORS AND AWARDS

- **ESET Chillisoft Scholarship in Cybersecurity** *November 2022*
  ESET
- **MBIE Artificial Intelligence for Human-Centric Security Project Scholarship** *October 2022*
  Ministry of Business, Innovation and Employment (MBIE), New Zealand
- **2nd runner up in National ICT Awards - Best university project** *March 2021*
  NBQSA, Sri Lanka

Knowledge Sharing and Teaching

- **Professional Teaching Fellow** *March 2026 - Present*
  University of Auckland
  - Prepare and deliver lectures for undergraduate and postgraduate courses: Data structures and Algorithms, Theoretical computer science, Cryptographic management, and Programming for industry (Java).
  - Support students through hands-on guidance in coursework, labs, and project-based assignments.
  - Supervise examinations and assess assignments and projects, ensuring fair and consistent evaluation.

- **Graduate Teaching Assistant** *December 2022 - May 2025*
  University of Auckland
  - Delivered tutorials and laboratory sessions on Java programming and web technologies for postgraduate courses.
  - Supported students through hands-on guidance in coursework, labs, and project-based assignments.
  - Supervised examinations and assessed programming assignments and projects, ensuring fair and consistent evaluation.

- **Tutor/Workshop Instructor** *March 2021 - March 2023*
  University of Moratuwa
  - Delivered lectures and technical workshops on the Robot Operating System (ROS) as part of the IEEE RAS Sri Lanka Chapter seminar series.
  - Designed and facilitated hands-on exercises to reinforce core robotics concepts and practical ROS workflows.
  - Supervised participants during lab sessions, providing guidance on implementation, debugging, and system integration.