Adrian Herrera

Experience

Interrupt Labs — Canberra, Australia
Principal Vulnerability Researcher — *Feb. 2023 – Present*

- Develop tools (fuzzers, emulators, static analyzers) for vulnerability research and exploit development
- Software reverse engineering and auditing

Australian National University (ANU) — Canberra, Australia
Adjunct Lecturer — *Feb. 2020 – Present*

- "Software Security" lecturer, teaching automated vulnerability discovery

Defence Science and Technology Group (DSTG) — Canberra, Australia
Technical Team Lead — *Feb. 2021 – Feb. 2023*

- Led a team of computer scientists and security researchers undertaking cyber security R&D for the Australian Defence Organisation
- Build and manage relationships with operational clients, international partners, and academia

DSTG — Canberra, Australia
Senior Security Researcher — *Aug. 2017 – Feb. 2021*

- Research on automated vulnerability discovery (fuzzing, program analysis)

École polytechnique fédérale de Lausanne (EPFL) — Lausanne, Switzerland
Research Engineer (Dependable Systems Lab) — *Jul. 2016 – Aug. 2017*

- Develop the S^2E binary analysis platform

Australian Cyber Security Centre (ACSC) — Canberra, ACT
Malware Analyst and Researcher — *Feb. 2015 – Jul. 2016*

- Reverse engineering, software development, and research for malware analysis

DSTG — Adelaide, SA / Canberra, ACT
Security Researcher — *Jan. 2012 – Jul. 2016*

- Research, develop, and deploy malware detection and analysis capabilities for the Australian Cyber Security Centre (ACSC)

Commonwealth Scientific and Industrial Research Organisation (CSIRO) — Brisbane, QLD
Summer Intern and Honours Student — *Nov. 2010 – Nov. 2011*

- Research on wireless sensor network security

Education

ANU — Canberra, ACT
PhD (Computer Science) — *Mar. 2019 – Dec. 2023*

- Dissertation: "State Space Search in Fuzzing"

University of Wollongong (UOW) — Wollongong, NSW
Bachelor of Engineering (Computer) (Honours I) — *Mar. 2006 – Nov. 2011*

Publications

- S. Luo, **A. Herrera**, P. Quirk, M. Chase, D. Ranasinghe, S. Kanhere, "Make out like a (Multi-Armed) Bandit: Improving the Odds of Fuzzer Seed Scheduling with T-Scheduler", *ACM Asia Computer and Communications Security* (AsiaCCS), 2024
- **A. Herrera**, M. Payer, A. Hosking, "datAFLow: Toward a Data-Flow-Guided Fuzzer", *ACM Transactions on Software Engineering and Methodology* (TOSEM), 2023
- Z. Jiang, S. Gan, **A. Herrera**, F. Toffalini, L. Romerio, C. Tang, M. Egele, C. Zhang, M. Payer, "Evocatio: Conjuring Bugs from a Single PoC", *ACM Computer and Communications Security* (CCS), 2022
- **A. Herrera**, M. Payer, A. Hosking, "Registered Report: datAFLow – Towards a Data-Flow-Guided Fuzzer", *Fuzzing Workshop* (FUZZING), 2022
- **A. Herrera**, H. Gunadi, S. Magrath, M. Norrish, M. Payer, A. Hosking, "Seed Selection for Successful Fuzzing", *ACM International Symposium on Software Testing and Analysis* (ISSTA), 2021
- A. Hazimeh, **A. Herrera**, M. Payer, "Magma: A Ground-Truth Fuzzing Benchmark", *ACM SIGMETRICS*, 2021
- **A. Herrera**, "Optimizing Away JavaScript Obfuscation", *IEEE Source Code Analysis and Manipulation* (SCAM), 2020
- **A. Herrera**, H. Gunadi, L. Hayes, S. Magrath, F. Friedlander, M. Sebbastian, M. Norrish, A. Hosking, "Corpus Distillation for Effective Fuzzing: A Comparative Evaluation", *arXiv:1905.13055*, 2019
- B. Zhang, C. Feng, **A. Herrera**, V. Chipounov, G. Candea, "Discover Deeper Bugs with Dynamic Symbolic Execution and Coverage-based Fuzz Testing", *IET Software*, 2018
- **A. Herrera**, "Automated Analysis of Flash Malware", *DST Group Report DST-Group-TN-1511*, 2016
- **A. Herrera**, B. Cheney, "JMD: A Hybrid Approach for Detecting Java Malware", *Australasian Information Security Conference* (AISC), 2015 (**Best paper award**)
- **A. Herrera**, "How Secure is the Next-Generation Internet? An Examination of IPv6", *DSTO Report DSTO-GD-0767*, 2013
- **A. Herrera**, W. Hu, "A Key Distribution Protocol for Wireless Sensor Networks", *IEEE Local Computer Networks* (LCN), 2012

Talks

- "LLMs and Fuzzing: Payload of the Future or Just Empty Bytes?", *Australian Reverse Engineering and Vulnerability Research* (AUREVR), 2025
- "Building Domain-Specific Fuzzers", *Australian Reverse Engineering and Vulnerability Research* (AUREVR), 2024
- "The Hitchhiker's Guide to Fuzzer Coverage Metrics", *Australasian Software Engineering Summer School* (ASESS), 2024
- "Code Analysis with Databases", *CSides Canberra*, 2023
- "Hot Fuzz: We've got grey, or…white[-box fuzzers]", *Australian Reverse Engineering and Vulnerability Research* (AUREVR), 2022
- "Seed Selection for Successful Fuzzing", *CSIRO's Data61 & DST Cyber Security Summer School* (CSSS), 2022
- "Analyzing Trigger-Based Malware with S^2E", *Malware Reverse Engineering* (MRE), 2019
- "Deobfuscating JavaScript Malware", *BSides Canberra*, 2019 (**Best speaker award**)
- "JavaScript Obfuscation", *CSides Canberra*, 2018
- "Program Analysis for Reverse Engineers: from $\top$ to $\bot$", *BSides Canberra*, 2018

Service

- Program committee, *Source Code Analysis and Manipulation* (SCAM) engineering track, 2025
- Artifact evaluation committee, *Usenix Security* (SEC), 2025 (**Noteworthy reviewer award**)
- Artifact evaluation committee, *Workshop on Offensive Technologies* (WOOT), 2023, 2024
- Technical reviewer, *Exploring and fuzzing IoTs Firmware with Qemu* book, 2022
- Artifact evaluation committee, *Fuzzing Workshop* (FUZZING), 2022
- Organizing committee, *CSIRO's Data61 & DSTG Cyber Security Summer School* (CSSS), 2022
- Organizing committee, *International Summer School on Information Security and Protection* (ISSISP), 2018