4134 4th Ave, Apt 220
San Diego, 92103
+1 (425) 209-7454
srn002@eng.ucsd.edu
https://shravanrn.com

Shravan Ravi Narayan

Education

2016–current **Ph.D.**, *University of California, San Diego.*
Advisor: Prof. Deian Stefan

2009–2013 **B.Eng**, *McGill University*, Montreal.

Publications

1. M. Kolosick, S. Narayan, C. Watt, M. LeMay, D. Garg, R. Jhala, and D. Stefan. Isolation without taxation: Near zero cost transitions for SFI. Principles of Programming Languages (POPL), 2022.
2. S. Narayan, C. Disselkoen, and D. Stefan. Tutorial: Using RLBox to sandbox unsafe C code. IEEE Secure Development Conference (SecDev), 2021.
3. S. Narayan, C. Disselkoen, D. Moghimi, S. Cauligi, E. Johnson, Z. Gang, A. Vahldiek-Oberwagner, R. Sahita, H. Shacham, D. Tullsen, D. Stefan. Swivel: Hardening WebAssembly against Spectre. USENIX Security Symposium, 2021.
4. E. Johnson, Y. Alhessi, D. Thien, S. Narayan, F. Brown, S. Lerner, T. McMullen, S. Savage, and D. Stefan. Доверяй, но проверяй: SFI safety for native-compiled Wasm. Network and Distributed System Security Symposium (NDSS), 2021.
5. T. Garfinkel, S. Narayan, C. Disselkoen, H. Shacham, and D. Stefan. The road to less trusted code: Lowering the barrier to in-process sandboxing. Article in USENIX ;login; journal, Winter 2020.
6. S. Narayan, C. Disselkoen, T. Garfinkel, N. Froyd, E. Rahm, S. Lerner, H. Shacham, and D. Stefan. Retrofitting fine grain isolation in the Firefox renderer. USENIX Security Symposium, 2020.
7. J. Talpin, J. Marty, S. Narayan, D. Stefan, and R. Gupta. Towards verified programming of embedded devices. Design, Automation and Test in Europe Conference (DATE), 2019. Invited paper.
8. M. Smith, C. Disselkoen, S. Narayan, F. Brown, and D. Stefan. Browser history re:visited. USENIX Workshop on Offensive Technologies (WOOT), 2018.
9. F. Brown, S. Narayan, Riad S. Wahby, Dawson Engler, R. Jhala, and D. Stefan. Finding and preventing bugs in JavaScript bindings. IEEE Symposium on Security and Privacy (S&P), 2017.

Others

10. S. Narayan and D. Stefan. Making software sandboxing practical using language-based techniques. Article in SIGPLAN PL Perspectives blog, Jul 2021.
11. RLBox: Retrofitting fine grain isolation in the Firefox renderer. IEEE Symposium on Security and Privacy (S&P), 2021. Invited poster.
12. S. Narayan, T. Garfinkel, S. Lerner, H. Shacham, and D. Stefan. Gobi: WebAssembly as a practical path to library sandboxing. In arXiv preprint arXiv:1912.02285, Jan 2019, updated Nov 2019.

Awards and honors

2022 (Not yet public) NSA Best Scientific Cybersecurity Paper, Honorable Mention. *Retrofitting fine grain isolation in the Firefox renderer.*

2021 Google V8 research grant. *Practical, portable, and verified library sandboxing using Wasm.*

2021 Fastly grant. *The edge computer project.*

2021 Finalist, Applied Research Competition, CSAW 2021. Доверяй, но проверяй*: SFI safety for native-compiled Wasm.*

2020 Doctoral Award for Excellence in Research. Computer Science and Engineering, UC San Diego.

2020 Winner, Applied Research Competition, CSAW 2020. *Retrofitting fine grain isolation in the Firefox renderer.*

2020 Distinguished paper award at the USENIX Security Symposium 2020. *Retrofitting fine grain isolation in the Firefox renderer.*

Software

RLBox A general purpose library sandboxing framework that supports sandboxing plugins.

sbx-wasm2c A sandboxing Wasm to C compiler for library sandboxing.

VeriWasm Sandbox validator for Cranelift WebAssembly compiler.

Swivel Spectre-resistant WebAssembly compiler.

Talks

Oct'21 At the IEEE Secure Development Conference. Using RLBox to sandbox unsafe C code.

Aug'21 At the USENIX Security Symposium. Swivel: Hardening WebAssembly against Spectre.

Jul'21 At Intel Corp. Swivel: Hardening WebAssembly against Spectre.

Oct'20 At MIT's CSAIL Security Seminar. Retrofitting fine grain isolation in the Firefox renderer.

Oct'20 At the CNS Research Review. RLBox: secure sandboxing for buggy application components.

Aug'20 At the USENIX Security Symposium. Retrofitting fine grain isolation in the Firefox renderer.

Jul'20 At Brave Software, Inc. Retrofitting fine grain isolation in the Firefox renderer.

Work experience

Jun'21–Sept'21 **Research Intern**, Intel Corp., Portland, OR, USA (Remote).
Designed a hardware sandboxing extension based on my research.

Jun'20–Sept'20 **Research Intern**, Intel Corp., Portland, OR, USA (Remote).
Integrated my sandboxing research with security projects ongoing at Intel.

Oct'13–Aug'16 **Software Development Engineer**, Microsoft Corp., Redmond, WA, USA.
Worked in Windows telemetry. Also responsible for developer tools within our team of 8.