Evan Johnson

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EDUCATION

University of California San Diego, La Jolla , CA
Ph.D. Candidate in Computer Science
Advisor: Deian Stefan and Stefan Savage

University of Illinois Champaign-Urbana, Urbana, Illinois
B.S. Computer Engineering (2019)

PUBLICATIONS

Private delegated computations using strong isolation Mathias Brossard, Guilhem Bryant, Basma El Gaabouri, Xinxin Fan, Alexandre Ferreira, Edmund Grimley-Evans, Christopher Haster, Evan Johnson, Derek Miller, Fan Mo, Dominic P Mulligan, Nick Spinale, Eric Van Hensbergen, Hugo JM Vincent, Shale Xiong
IEEE Transactions on Emerging Topics in Computing

WaVe: a verifiably secure WebAssembly sandboxing runtime Evan Johnson, Evan Laufer, Zijie Zhao, Dan Gohman, Shravan Narayan, Stefan Savage, Deian Stefan, and Fraser Brown
IEEE S&P 23

Going beyond the Limits of SFI: Flexible and Secure Hardware-Assisted In-Process Isolation with HFI Shravan Narayan, Tal Garfinkel, Mohammadkazem Taram, Joey Rudek, Daniel Moghimi, Evan Johnson, Chris Fallin, Anjo Vahldiek-Oberwagner, Michael LeMay, Ravi Sahita, Dean Tullsen, and Deian Stefan
ASPLOS 23

Segue & ColorGuard: Optimizing SFI Performance and Scalability on Modern x86 Shravan Narayan, Tal Garfinkel, Evan Johnson, David Thien, Joey Rudek, Michael LeMay, Anjo Vahldiek-Oberwagner, Dean Tullsen, and Deian Stefan.
PLAS 2023

FaJITa: Verifying Optimizations on Just-In-Time Programs David Thien, Michael Smith, Evan Johnson, Sorin Lerner, Hovav Shacham, Deian Stefan, and Fraser Brown
PriSC 2023

MSWasm: Soundly Enforcing Memory-Safe Execution of Unsafe Code Alexandra E. Michael, Anitha Gollamudi, Jay Bosamiya, Evan Johnson, Aidan Denlinger, Craig Disselkoen, Conrad Watt, Bryan Parno, Marco Patrignani, Marco Vassena, and Deian Stefan
POPL 2023

Isolation without Taxation: Near Zero Cost Transitions for WebAssembly and SFI
Matthew Kolosick, Shravan Narayan, Evan Johnson, Conrad Watt, Michael LeMay, Deepak Garg, Ranjit Jhala, and Deian Stefan
POPL 2022

Trust but verify: SFI safety for native-compiled Wasm
Evan Johnson, David Thien, Yousef Alhessi, Shravan Narayan, Fraser Brown, Sorin Lerner, Tyler McMullen, Stefan Savage, and Deian Stefan
Network and Distributed System Security Symposium (NDSS) 2021

Swivel: Hardening WebAssembly against Spectre
Shravan Narayan, Craig Disselkoen, Daniel Moghimi, Sunjay Cauligi, Evan Johnson, Zhao Gang, Anjo Vahldiek-Oberwagner, Ravi Sahita, Hovav Shacham, Dean Tullsen, and Deian Stefan
USENIX Security Symposium 2021

Jetset: Targeted Firmware Rehosting for Embedded Systems
Evan Johnson, Maxwell Bland, YiFei Zhou, Joshua Mason, Stephen Checkoway, Stefan Savage and Kirill Levchenko
USENIX Security Symposium 2021

Reinam: Reinforcement learning for input-grammar inference
Zhengkai Wu, Evan Johnson, Wei Yang, Osbert Bastani, Dawn Song, Jian Peng, and Tao Xie
ESEC/FSE 2019

Awards

Distinguished paper - IEEE Symposium on Security and Privacy (S&P), 2023. *WaVe: a verifiably secure WebAssembly sandboxing runtime*

Invited Article - IEEE Micro Top Picks. *Going beyond the Limits of SFI: Flexible and Secure Hardware-Assisted In-Process Isolation with HFI*

Finalist - Intel Hardware Security Award. *Going beyond the Limits of SFI: Flexible and Secure Hardware-Assisted In-Process Isolation with HFI*

Recognized contributor to the Bytecode Alliance's formal verification efforts.

Finalist - Applied Research Competition, CSAW 2021. *Trust but verify: SFI safety for native-compiled Wasm.*

Service

Foundations of Computer Security 2024 - PC Member

Usenix Security 2023 - Artifact evaluation committee

Usenix Security 2023 - Student reviewer of papers

HotOS 2023 - Student reviewer of papers

Talks

At IEEE S&P 2023. *WaVe: a verifiably secure WebAssembly sandboxing runtime.* May 2023

At the Center for Networked Systems' Research Review. *WaVe: a verifiably secure WebAssembly sandboxing runtime.* May 2023

At the Dagstuhl Seminar on Foundations of WebAssembly. *WaVe: a verifiably secure WebAssembly sandboxing runtime.* Mar 2023

At New England Systems Verification Day at MIT. *WaVe: a verifiably secure WebAssembly sandboxing runtime.* Oct 2022

At the Applied Research Competition, CSAW 2021. *Trust but verify: SFI safety for native-compiled Wasm.* Nov 2021

At Stanford security seminar. *Trust but verify: SFI safety for native-compiled Wasm.* Oct 2021

At USENIX Security 2021. *Jetset: Targeted Firmware Rehosting for Embedded Systems.* Aug 2021

At CMU graduate security class. *Trust but verify: SFI safety for native-compiled Wasm.* Apr 2021

At ARM corp. *Trust but verify: SFI safety for native-compiled Wasm.* Apr 2021

At NDSS 2021. *Trust but verify: SFI safety for native-compiled Wasm.* Feb 2021

At the Center for Networked Systems' Research Review. *Trust but verify: SFI safety for native-compiled Wasm.* Oct 2020

TEACHING

Co-taught, CSE 291: Building Secure Systems with Rust **Fall 2024**

Graduate Teaching Assistant, CSE 127: Computer Security **Fall 2021**

Graduate Teaching Assistant, CSE 127: Computer Security **Fall 2020**