

Jeremy Erickson

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EDUCATION

UC DAVIS | DAVIS, CA

MS IN COMPUTER SCIENCE

Grad. Mar 2012

Thesis: "An Investigation of Privacy Leaks in Android Applications"

BS IN COMPUTER SCIENCE

Grad. Dec 2010

Highest Honors

WEBSITE

jeremy-erickson.com

SKILLS

PLATFORMS

Linux • Kubernetes • Docker
Open Policy Agent (OPA)
Android • OpenWRT • SGX

PROGRAMMING

Go/Golang • Python • Rego
C • Bash

TOOLSETS

Authentication:

Istio • OAuth2 • OIDC • SAML
WebAuthn • CTAP2 • FIDO2
Fingerprints • Facial ID • Vein Scanning

Development:

Buildkite CI • Terraform • git
GitHub Enterprise

Networking:

Istio and Kubernetes Service Mesh
iptables • eBPF • tcpdump
aircrack-ng • hostapd / wpa_supplicant

Virtualization:

KVM • Xen • LibVMI

Data Storage:

Spanner • Redis
Cloud Object Storage (GCS, S3)
RDS/MySQL • SQLite • PostgreSQL

MISCELLANEOUS

vim • i3wm • markdown • \LaTeX
License-conscientious

WORK EXPERIENCE

CRUISE | STAFF SECURITY ENGINEER

October 2021 – Current | Seattle, WA

- Key architect and SME for Cruise Authorization (AuthZ) infrastructure, coalescing piecemeal auth solutions into unified, flexible, continuously updated, and distributed enforcement of authorization policy across 100+ kubernetes clusters and 2000+ cloud apps
- Collaborates across organizational boundaries to launch major initiatives:
 - Vehicle-to-cloud authentication using mTLS client certs; saved ProdEng from hiring a new team for alternative during return-to-market timeline
 - Cluster-ingress authentication migration for all apps at Cruise by default
 - Sidecar-based AuthZ enforcement middleware, transparently integrated with Istio identities for easy-setup service-to-service authentication
- Splits time between writing code, code review, working with stakeholders to architect new initiatives, supporting customer teams, incident response, writing RFCs and user guides, promoting teammates' professional development

DUO SECURITY | ENGINEERING TECHNICAL LEAD

May 2020 – Sept 2021 | Ann Arbor, MI

- Provided technical leadership for the formation of a new passwordless engineering team to create Duo's new passwordless product line, including the teaching of weekly technical sessions to quickly bring new hires up to speed
- As passwordless team lead, guided team in architectural discussions and encouraged a team culture of continuous documentation
- As passwordless technical SME, derisked technical approaches, wrote and reviewed code, and identified and fixed vulnerabilities before they impacted customers
- Worked closely with product team to define feasible scope, timeline, and priority of core product and product features

DUO SECURITY | SENIOR SECURITY R&D ENGINEER

Sept 2018 – May 2020 | Ann Arbor, MI

- Performed analyses on biometric options for passwordless auth
- Created SAML auth integration for Istio K8s service mesh
- Co-developed early prototype of passwordless auth feature on Duo mobile
- Co-developed first open-source WebAuthn client library for Android
- Created open-source tooling suite for interfacing with Apple T2 chip
- Regularly published research findings on [Duo Labs website](#)

UNIVERSITY OF MICHIGAN | DOCTORAL CANDIDATE

Sept 2015 – Aug 2018 | Ann Arbor, MI

- Evaluated feasibility of enforceable contracts in autonomous vehicle platooning
- Invented home router access control mechanism that prevents MAC/ARP/mDNS spoofing attacks with full legacy device compatibility
- Prototyped enclave-based crypto library for cloud platform root of trust
- Developed transparent RNG subversion using malicious hypervisor

SANDIA NATIONAL LABS | SENIOR R&D S&E CYBERSECURITY

Dec 2010 – Aug 2017 | Livermore, CA

- Developed Linux kernel analysis modules for VM introspection
- Virtualized hardware features of Android devices on minimega
- Core developer for FARM, a distributed malware analysis framework
- Built and maintained multiple private cloud clusters
- Performed vulnerability assessments on Sandia infrastructure

PROGRAM LEADERSHIP

CYBER TECHNOLOGIES ACADEMY | FOUNDER

Oct 2013 – Sept 2015 | Sandia National Labs | Livermore, CA

- Secured ongoing funding for staff time and scavenged second-hand equipment to build auto-deploying hands-on classroom environment.
- Worked closely with Sandia publicity team to manage outreach to local schools and national partner organizations
- Handled student enrollment, web presence, and program logistics
- Designed and taught classes on Programming, Introduction to Cyber Technologies, and Wireless Penetration Testing

CENTER FOR CYBER DEFENDERS | PROGRAM LEAD

Apr 2012 – Sept 2014 | Sandia National Labs | Livermore, CA

- Secured funding, projects, and mentorship; hired interns for summer program
- Conducted biweekly individual feedback sessions with interns
- Served as project lead on one or more intern projects each summer

PUBLICATIONS

Erickson, J., S. Chen, M. Savich, S. Hu and Z. M. Mao (2018). 'CommPact: Evaluating the Feasibility of Autonomous Vehicle Contracts'. In: 2018 IEEE Vehicular Networking Conference (VNC).

Erickson, Jeremy, Qi Alfred Chen, Xiaochen Yu, Erinjen Lin, Robert Levy and Z. Morley Mao (2018). 'No One In The Middle: Enabling Network Access Control Via Transparent Attribution'. In: Asia Conference on Computer & Communications Security (AsiaCCS). ACM.

Erickson, Jeremy Lee, Craig Shannon, Kina Winoto, Steven A Hurd, Christopher W Perr and Levi Lloyd (2015). Introduction to Cyber Technologies. Tech. rep. Sandia National Laboratories (SNL-CA), Livermore, CA (United States).

Choe, Yung Ryn, Michael Bierma, Jeremy Lee Erickson, David Jakob Fritz and Eric Gustafson (2014). 'Andlantis: Large-scale Android Dynamic Analysis'. In: Workshop on Mobile Security Technologies (MoST).

Stevens, Ryan, Clint Gibler, Jon Crussell, Jeremy Erickson and Hao Chen (2012). 'Investigating user privacy in android ad libraries'. In: Workshop on Mobile Security Technologies (MoST), p. 10.

Gibler, Clint, Jonathan Crussell, Jeremy Erickson and Hao Chen (2012). 'AndroidLeaks: automatically detecting potential privacy leaks in android applications on a large scale'. In: International Conference on Trust and Trustworthy Computing. Springer Berlin Heidelberg, pp. 291–307.

TALKS

HACKING WITH THE HOMIES | SPEAKER

February 2021 | Detroit, MI

WebAuthn: Hands on with Duo

BLACK HAT USA | SPEAKER

August 2019 | Las Vegas, NV

Inside the Apple T2

ESCAR USA | SPEAKER

June 2018 | Ypsilanti, MI

CommPact: Exploring the Feasibility of Autonomous Vehicle Contracts

MERIT MCRCON | INVITED SPEAKER

May 2017 | Dearborn, MI

No one in the Middle: Enabling network access control via transparent attribution

CYBER EDUCATION SYMPOSIUM | PANELIST

Nov 2013 | Arlington, VA

Integrating a University Program into the Government and Private Sector

NATIONAL LABS INFORMATION TECHNOLOGY SUMMIT | SPEAKER

May 2013 | Santa Fe, NM

FARM 5 for Malware Analysis and Collaboration