

# Curriculum Vitæ of David Kohlbrenner

## Contact

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## Academic History

- 8/2011 — Present **University of California, San Diego**  
Master of Science in Computer Science (*2015*)  
Doctor of Philosophy, Computer Science (*2018*)
- 8/2007 — 5/2011 **Carnegie Mellon University**  
Bachelor of Science, Computer Science. Minor in Philosophy

## Publications

- [1] D. Kohlbrenner and H. Shacham, “On the effectiveness of mitigations against floating-point timing channels,” in *Proceedings of USENIX Security 2017* (E. Kirda and T. Ristenpart, eds.), pp. 69–81, USENIX, Aug. 2017.
- [2] C. Disselkoben, D. Kohlbrenner, L. Porter, and D. Tullsen, “Prime+abort: A timer-free high-precision l3 cache attack using intel tsx,” in *Proceedings of USENIX Security 2017* (E. Kirda and T. Ristenpart, eds.), pp. 51–67, USENIX, Aug. 2017.
- [3] D. Kohlbrenner and H. Shacham, “Trusted browsers for uncertain times,” in *Proceedings of USENIX Security 2016* (T. Holz and S. Savage, eds.), pp. 63–80, USENIX, Aug. 2016.
- [4] M. Andryscio, D. Kohlbrenner, K. Mowery, R. Jhala, S. Lerner, and H. Shacham, “On sub-normal floating point and abnormal timing,” in *Proceedings of IEEE Security and Privacy (“Oakland”) 2015* (L. Bauer and V. Shmatikov, eds.), IEEE Computer Society, May 2015.
- [5] K. Mowery, M. Wei, D. Kohlbrenner, H. Shacham, and S. Swanson, “Welcome to the entropics: Boot-time entropy in embedded devices,” in *Security and Privacy (SP), 2013 IEEE Symposium on*, pp. 589–603, IEEE, 2013.

## Teaching experience

- Summer 2017 **Instructor CSE80 - UNIX Lab**  
New course developed from scratch  
Immersion learning for the terminal and UNIX environment  
Open-sourced at <https://bitbucket.com/t4cs/t4cs>
- Spring 2014 **Teaching Assistant CSE127 - Computer Security**  
Developed large attack projects for students  
Lectured for section, held office hours, grading  
200+ students and 2 other TAs
- 2013 — Present **Advisor for UC San Diego SIGINT CTF Team**  
Lectured on a variety of security topics  
Organized and taught workshops on security topics  
Taught reverse engineering skills and tools

## Industry Experience

- 6/2015 — 9/2015     **Internship at Qualcomm Technologies Inc.**  
Security evaluation of an embedded system product line  
Produced 90 page report with recommendations, all were implemented
- 9/2012 — 9/2013     **Co-founder of Somerset Recon**  
Embedded systems reverse engineer  
Reverse engineered undocumented wire protocols  
Developed embedded platforms in C with heavy resource constraints
- Summer 2010 & 2011   **Internships at Sandia National Laboratories**  
Reverse engineered and developed exploits for embedded systems  
Reverse engineered malware samples and exploits

## Service

- External reviewer for USENIX Security 2017
- External reviewer for USENIX Security 2016
- Preliminary Judge for NYU CSAW Applied Research Competition 2017
- UC San Diego Academic Integrity Review Board 2016—Present

## Awards

- UC San Diego CSE Graduate Award for Research 2016
- 2nd place NYU Poly CSAW Applied Research Competition 2016  
“Trusted browsers for uncertain times”
- 3rd place NYU Poly CSAW Applied Research Competition 2013  
“Welcome to the Entropics: Boot-Time Entropy in Embedded Devices.”

## Invited Talks

- 11/2017   **Invited talk at The University of Arizona**  
Uncovering and addressing security assumptions about hardware
- 5/2017   **Invited talk at OWASP San Diego**  
Timing attacks on web privacy and how to trust the browser again
- 5/2016   **Invited lecture ECE 289 UC San Diego**  
Side channel research and attacks
- 6/2015   **Invited talk at University City High School**  
The security mindset

## Selected Skills

**Languages:** C, Python, x86/x86\_64 Assembly, L<sup>A</sup>T<sub>E</sub>X

**Reverse Engineering:** C++, x86/x86\_64 binaries, C, embedded systems

**Tools:** IDA, Wireshark

## CTF

- 2009—2011     Founding member of Carnegie Mellon University’s PPP team  
2013—Present   Founder and advisor for UC San Diego’s SIGINT team