

# GRANT HERNANDEZ

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## EDUCATION

### University of Florida

GPA: 3.77 • Ph.D. Computer Engineering

Gainesville, FL (2015 - present)

Expected Spring 2020

### University of Central Florida

GPA: 3.81, Magna Cum Laude • B.S. Computer Engineering

Orlando, FL (2011 - 2015)

Awarded August 2015

## RESEARCH EXPERIENCE

### University of Florida, Research Assistant with FICS

Gainesville, FL – Fall 2015 - present

- **Advisor:** Dr. Kevin R. B. Butler
- **Area:** Systems security
- Designing a framework to analyse USB firmware, determine functionality, and communicate the impact
- Implementing a learning tool that is able to automatically recover firewall rulesets for censorship avoidance
- Utilized Intel SGX to improve Secure Function Evaluation (SFE) performance
- Working to improve TLS security through server-side enhancements

### University of Central Florida, Undergraduate Research Assistant

Orlando, FL – Summer 2013 - 2014

- **Advisor:** Dr. Yier Jin
- **Area:** Internet of Things security
- Discovered a USB entry point into Google's Nest Thermostat allowing full-root access
- Published findings at Black Hat USA 2014 entitled "Smart Nest Thermostat: A Smart Spy in your Home"

### University of Central Florida, EXCEL Undergraduate Research

Orlando, FL – Spring 2013

- **Advisor:** Dr. Mingjie Lin
- **Area:** FPGAs
- Learned Verilog through working with a HDL Huffman decoder

## PUBLICATIONS & ACADEMIC WORK

### Academic Conferences

1. **G. Hernandez**, F. Fowze, D. Tian, T. Yavuz, and K. Butler. FirmUSB: Vetting USB Device Firmware using Domain Informed Symbolic Execution. *ACM CCS*, 2017.
2. S. Etigowni, D. Tian, **G. Hernandez**, S. Zonouz, and K. Butler. CPAC: Securing Critical Infrastructure with Cyber-Physical Access Control. *ACSAC*, 2016.

### Industry Conferences

1. **G. Hernandez**, O. Arias, D. Buentello, and Y. Jin. Smart Nest Thermostat: A Smart Spy in your Home. *Black Hat USA*, 2014.

### Journals

1. A. Bates, D. Tian, **G. Hernandez**, T. Moyer, K. Butler, and T. Jaeger. Taming the Costs of Trustworthy Provenance through Policy. *Transactions on Internet Technology (TOIT)*, 2016.

### Posters

1. **G. Hernandez**, F. Fowze, D. Tian, C. Metcalf, T. Yavuz, and K. Butler. FirmUSB: Vetting USB Device Firmware using Domain Informed Symbolic Execution. *FICS Conference*, Mar. 2017. (**Best Poster**)
2. **G. Hernandez**, A. Bates, and K. Butler. SSL Certificate Verification Enhancements for the Server. *FICS Conference*, 2016
3. **G. Hernandez** and Y. Jin. Smart Nest Thermostat: A Smart Spy in your Home. *UCF Showcase for Undergraduate Research*, 2015

### Workshops

1. S. Deshmukh, H. Carter, **G. Hernandez**, P. Traynor, and K. Butler. Efficient and Secure Template Blinding for Biometric Authentication. *Proceedings of the IEEE Workshop on Security and Privacy in the Cloud (SPC)*, 2016.

## ACADEMIC SERVICE

### Program Committee Assistant

- *Network & Distributed System Security Symposium* (NDSS) – 2017  
Responsible for HotCRP accept/reject, limiting paper discussion time, and synchronizing dual-track PC meeting via custom spreadsheet.

### External Reviewer

- *IEEE Symposium on Security & Privacy* (Oakland, S&P) – 2017
- *USENIX Security Symposium* (USENIX Security) – 2017
- *ACM Conference on Computer and Communications Security* (CCS) – 2016, 2017
- *ACM Asia Conference on Computer and Communications Security* (AsiaCCS) – 2017
- *Annual Computer Security Applications Conference* (ACSAC) – 2017
- *Network & Distributed System Security Symposium* (NDSS) – 2017
- *USENIX Symposium on Operating Systems Design and Implementation* (OSDI) – 2016
- *USENIX Workshop on Offensive Technologies Workshop on Offensive Technologies* (WOOT) – 2016, 2017

#### PROFESSIONAL SERVICES

- Advising and training the University of Florida's Collegiate Cyber Defense Team (UFCCDC) under UF's Registered Student Organization (RSO) the Student InfoSec Team (UFSIT) (2016 – 2017).  
**Reference:** Dr. Joseph Wilson (jnw@cise.ufl.edu)

#### HONORS & AWARDS

##### University Florida

- Graduate School Fellowship Award (2015 - 2019)
- Appointed as Florida Institute of National Security (FINS) Fellow (2015)
- Harris Communication Fellowship (2015)
- Best poster award for “FirmUSB: Vetting USB Device Firmware using Domain Informed Symbolic Execution.” at the *FICS Conference*
- 3<sup>rd</sup> place at the Southeast Regional Collegiate Cyber Defense Competition (SECCDC) (2017)
- CISE Graduate Scholarship (2017)

##### University of Central Florida

- ICubed ( $I^3$ ) Fellow - presented Nest security research to an Advanced Painting class, inspiring their work (2015)
- Winner of the National Collegiate Cyber Defense Competition (NCCDC) out of 180 schools (April 2014)
- 1<sup>st</sup> place at the Southeast Regional Collegiate Cyber Defense Competition (SECCDC) (2013 and 2014)
- 2<sup>nd</sup> place at the UCONN CyberSEED Buffer Overflow competition (2014)
- 6<sup>th</sup> place and 5<sup>th</sup> place at CSAW CTF finals (2013 and 2014 respectively)
- EXCEL Student - NSF STEM only education program with guaranteed Sophomore year research (2011 - 2013)
- 1st place at UCF's 25th annual High School Programming Tournament
- UCF President's Honor Role (3 semesters)

#### SPEAKING

1. A Journey into Fuzzing with American Fuzzy Lop. *Hack@UCF* (2015)
2. Smart Nest Thermostat: Smart Spy in your Home. *Black Hat USA* (2015)

#### PRESS

1. “CISE Students Win at 2017 FICS Research Conference on Cybersecurity”  
Computer & Information Science & Engineering News, University of Florida (Quoted, April 3<sup>rd</sup>, 2017)
2. “Students Advance in Cyber Defense Competition”  
Computer & Information Science & Engineering News, University of Florida (Interviewed, March 8<sup>th</sup>, 2017)
3. “17 ways the Internet of Things can go horribly wrong”  
ZDNet (Mentioned, March 21<sup>st</sup>, 2016)
4. “UCF Cyber Defense Turns Smart Thermostat Into Potential Spy”  
UCF Today (Mentioned, August 11<sup>th</sup>, 2014)
5. “A used thermostat could hack your house”  
CNN Money (Interviewed (video), August 7<sup>th</sup>, 2014)
6. “Is your Watch or Thermostat a Spy? Cybersecurity Firms are on it”  
NPR - All Things Considered (Interviewed (voice), August 6<sup>th</sup>, 2014)
7. “Nest Hackers Will Offer Tool To Keep The Google-Owned Company From Getting Users' Data”  
Forbes Tech (Interviewed, July 16<sup>th</sup>, 2014)
8. “UCF wins Raytheon cyber defense contest”  
Orlando Sentinel (Mentioned, April 28<sup>th</sup>, 2014)

#### BONUS

- I'm a licensed amateur radio operator – KK4QIS