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Education

University of Illinois at Urbana-Champaign

Math & Computer Science

Graduation Date: December 2018

Skills

Linux Server Administration: Apache/nginx, MySQL/MariaDB/Postgres, PHP, Postfix, Dovecot

Windows Server Administration: Microsoft SQL Server

Reverse Engineering: IDA, gdb, angr

System Programming: Low level Linux/BSD interfaces including epoll, BSD sockets, and no libc environments

Kernel Programming: A nontrivial amount of work was spent writing code for a hypervisor kernel module

Programming Languages: C/C++, Python 2.7, Haskell, Java, C#/Mono

Assembly Languages: MIPS, x86, amd64

Operating Systems: GNU/Linux (Debian based, Arch), FreeBSD, Windows

Professional

HTG Capital Partners: Summer 2015

- Automation of daily tasks via scripts
- Unified outputs of various internal tools

Polaris7 Investments, LLC: Winter 2015, Spring 2016, Summer 2016

- Backend inter-service communication service
- Frontend trading algorithm UI
- Network Administrator

Assured Information Security: June 6, 2017 -- September 1, 2017

- Bareflank hypervisor
- Bareflank unwinder and support libraries

NCC Group: May 29, 2018 -- August 10, 2018

- Live instrumentation of GHC compiled Haskell binaries
- Client network/application penetration testing

Open Source

Profanity: <http://profanity.im/>

XMobar: <http://projects.haskell.org/xmobar/>

XMonad BSP: <https://github.com/benweitzman/BinarySpacePartition>

Powerline: <https://powerline.readthedocs.io/en/latest/>

escrotum: <https://github.com/Roger/escrotum>

arithmoi: <https://hackage.haskell.org/package/arithmoi>

Sagemath: <https://www.sagemath.org/>

Bareflank: <https://github.com/Bareflank>

Project Euler: <https://github.com/incertia/projecteuler-haskell>

Research Interests

- Reverse engineering Haskell
- Computational cryptography
- Elliptic curves
- Algebraic geometry
- Number theory

Talks

Burnside's Lemma: <https://github.com/incertia/uiuc-splash-2015>

Advanced Number Theory - Polynomial Divisibility Criteria: Given at CS Sail (Splash) 2015

Introduction to Modern Cryptography: <https://github.com/incertia/crypto-primer>

Solving AIME Problems Isn't As Hard As You Think: Lecture series given at a local gifted program

AIME Seminar: <https://github.com/incertia/aime-seminar>

Introduction to Representation Theory: <https://github.com/incertia/cs-sail-2018>

Introduction to Modern Cryptography (again): <https://github.com/incertia/cs-sail-2018>

Intermediate Number Theory - Weak Dirichlet Theorem: <https://github.com/incertia/cs-sail-2018>

Contest Experience

CSAW CTF: 2015 and 2016 Finals

CSAW HSF: 2013 Finals (2nd place)

picoCTF: 2013 (1st place solo, 5th place overall)

plaidCTF: 2017

uiuctf: 2015, 2017 (challenge writer)

USAMO: 2012

ARML: 2010 - 2014 (Chicago B1, A2, A1, A2)

UIUC Freshman Math Contest: 2014 (2nd place)

Additional Resources

<https://github.com/incertia> -- <https://www.incertia.net/> -- <https://ctftime.org/team/5320>