James Scot Conners

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EDUCATION

PhD. Computer Science
Brigham Young University
Research Area: Usable and Systems Security
September 2018-Current
Advisor: Dr. Daniel Zappala

M.S. Computer and Electronics Technology
Concentration: *Information Technology*
Indiana State University, Terre Haute, IN

B.S. Computer Engineering Technology
Minors: *Computer Science and Electronics Engineering Technology*
Indiana State University, Terre Haute, IN

WORK HISTORY

Graduate Research Assistant — Brigham Young University
August 2018 – Current Supervisor: Dr. Daniel Zappala
Usable Security and Privacy Lab

- Researched password-based and passwordless authentication protocols
- Designed architecture for a new authentication system
    - Completely designed and programmed the certificate authority using Golang
    - Designed API for website, CA and mobile application implementations
    - Designed and implemented cryptographic protocols
- Deployed CA, and web applications via linux servers

Instructor / Graduate Assistant – Indiana State University
August 2017 – May 2018 Supervisor: Dr. Xiaolong Li
ECT 160; Electronic Fundamentals

- Content includes: resistance, electromotive force, current, power, D.C. power, reactance, A.C. generation, and introduction to power supplies and amplifiers.
- Created engaging content to demonstrate course content
- Held office hours to engage with students outside of the classroom.

ECT 301; Tech Data Management & Application

- Content includes: database architectures, capabilities, data structures, and typical applications at the factory and enterprise levels. Factory information systems, data filtering, data for quality analysis, and summary report generation

Project Manager / Graduate Assistant – Indiana State University; Student Media - Syc Creations
January 2017 – August 2017 Supervisor: Dr. Chad Clark

- Created websites with HTML, PHP and Javascript
- Managed projects across video, graphic design and web development
- Managed schedules for undergraduate employees
- Developed training modules for CMS specific to Indiana State University Student Media

Student Project Manager- Indiana State University; NSF research grant CULMINATE
May 2013 - August 2016 Supervisor: Dr. Yuetong Lin

- Designed microcontroller shield to connect with certain sensors on a Dynamometer
- Programmed the microcontroller to read data from LS2
- Created algorithm for temperature sensor to MCU conversion

Biomedical Engineering Technician- Fresenius Medical Care, Chicago, IL
October 2010 - October 2011 Supervisor: Timothy Bryan

- Performed and/or oversaw repair and maintenance on water treatment and dialysis equipment
- Documented all repair and maintenance activity/repairs and test results
- Actively supported and participated in Quality Assessment and Process Improvement
- Maintained relationships with facility staff to ensure all regulatory and OSHA requirements were met.

Publications/Projects

Publications:

- "Let's Authenticate: Automatic Certificates for User Authentication" Network and Distributed Systems Security Symposium 2022 (NDSS 2022)
- "Let's Authenticate: Automated Cryptographic Authentication for the Web with Simple Account Recovery." *Who Are You* (2019).
- "Improving Teaching Effectiveness of Automotive Sensing and Communication using Customized Signal Conditioning Circuits." 2016 ATMAE Conference Papers, 308-315.
- "Assessing the Use of Open Source Microcontroller Board for Teaching Engine Sensing and Communication in Automotive Laboratory." 2017 IEEE FIE Conference Papers

Projects:

- What is authentication: a survey and interview study of the mental models behind user choices in authentication. We take a look at the differences between physical and online authentication, why users make the specific choices they do, and talk about design preferences.
- Let's Authenticate: a client authentication system that automatically issues certificates to users. Our system is based on issuing certificates to users, rather than using bare keys. Due to the complexity of designing a new authentication system, we focused on authentication to websites, using either a web browser or a mobile application as the front end, leaving exploration of other use cases for certificate-based authentication for future work.
- UniLOA Application: Designed a web application that allowed users to take a brief survey that would then store the information into a database that is used to generate national averages. If a response was below the national average, a paragraph was provided to the student instructing the student on how they could improve. The evaluation was available for viewing online and as a downloadable pdf.

TECHNICAL EXPERTISE

Languages: Golang, C, SQL, PHP, JavaScript, VueJS, Dart, Flutter, Assembly
Hardware: CISCO Switch and programming, DC/AC circuit design and analysis, Microcontroller design
Software: OpenSSL, Nginx, API Development, Microsoft Office, Wireshark, PingPlotter

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References available on request.