

# Tyler William Thomas

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Department of Mathematics, Statistics, and Computer Science

University of Wisconsin-Stout

## EDUCATION

### PhD, Computing and Information Systems

University of North Carolina at Charlotte

Dissertation: *"Security Code Review with Static Analysis Techniques for the Detection and Remediation of Security Vulnerabilities."*

Advisor: Dr. Heather Lipford

2018

### Master of Science in Information Technology

University of North Carolina at Charlotte

2015

### Bachelor of Arts in Software and Information Systems

University of North Carolina at Charlotte

*Summa Cum Laude*

2013

## RESEARCH AND TEACHING INTERESTS

Cybersecurity

Application Security

Software Engineering

Network Security

Human Computer Interfaces

IT Infrastructure

## TEACHING EXPERIENCE

### Associate Professor and Assistant Professor

University of Wisconsin-Stout

Fall 2018-Present

- ♣ Taught six sections of CS 144, Computer Science 1
- ♣ Taught two sections of CS 145, Computer Science 2
- ♣ Taught thirty-two sections (combined) of GDD 200 Video Game Development
- ♣ Taught seven sections of CS 480, Introduction to Computer Security
- ♣ Taught two sections of CS 458, Software Engineering Practicum
- ♣ Taught two sections of CS 290 Computer Science Professional Seminar
- ♣ Explained security course topics such as penetration testing, cryptography, and digital forensics
- ♣ Covered each layer of the OSI model in detail
- ♣ Explained CS topics such as control structures, functions, arrays, memory management and objects
- ♣ Participated in Canvas Pilot program with all courses
- ♣ Migrated existing course material into Canvas Pilot
- ♣ Synthesized resources from other faculty and textbook publishers
- ♣ Customized resources based on class dynamics
- ♣ Adhered to policies and schedule detailed in course syllabi

- ♣ Blended traditional instruction with live software engineering sessions
- ♣ Coordinated classes with two SI's
- ♣ Participated heavily in department meetings and CS group meetings
- ♣ Contributed knowledge towards NSA Center of Academic Excellence Designation
- ♣ Advised students in multiple programs with various academic backgrounds
- ♣ Organized and managed both computer science and art video game development teams
- ♣ Guided student game vision and scope
- ♣ Developed multiple security labs and integrated them into CS 480
- ♣ Formed worksheets for active participation in CS 480

**Instructor: ITIS 4166 Network Based Application Development**

2016

*University of North Carolina at Charlotte*

- ♣ Taught servlets, sessions, application-database interaction, databases, MVC, JSP, beans, and AJAX
- ♣ Integrated web security education into course curriculum
- ♣ Added hands-on exercises and workdays for increased student participation
- ♣ Restructured software engineering course to focus on real-world priorities
- ♣ Live coded applications during class
- ♣ Created example applications for students
- ♣ Created all assignments and projects
- ♣ Delivered in-depth lectures
- ♣ Created many sets of slides
- ♣ Graded assignments
- ♣ Graded projects
- ♣ Met with students regularly
- ♣ Held office hours

**Co-Instructor: ITIS 2300 Web Application Development**

2015

*University of North Carolina at Charlotte*

- ♣ Created and delivered 30% of course lectures
- ♣ Developed clicker quizzes and managed labs for an active learning classroom
- ♣ Developed and oversaw hands-on activities
- ♣ Instructed course in advanced active learning classroom
- ♣ Coordinated labs and grading with undergraduate TA's
- ♣ Tutored students in Javascript, JQuery, HTML, and CSS
- ♣ Graded projects
- ♣ Graded final exam
- ♣ Held office hours

**Teaching Assistant: ITIS 5221/4221 Secure Web Apps**

2014

*University of North Carolina at Charlotte*

- ♣ Tutored students in cybersecurity, penetration testing, detection techniques, and remediation
- ♣ Managed hacking and vulnerability remediation labs
- ♣ Proctored exams
- ♣ Graded projects and homework

**Teaching Assistant: ITIS 2300 Web Application Development**

2012-14

*University of North Carolina at Charlotte*

- ♣ Tutored students in Javascript, JQuery, HTML, and CSS
- ♣ Graded projects

- ♣ Graded exams
- ♣ Held office hours

## RESEARCH AND SERVICE

### Associate Professor and Assistant Professor

2018-present

*University of Wisconsin-Stout*

- ♣ Served as chair of the Fall 2021, Spring 2022, Summer 2022, and Fall 2022 CNIT Search Committees
- ♣ Currently serving as CSTEMM representative of the Positive Action, Ethics, and Competition Review Committee. (Fall 2021 to Present)
- ♣ Currently serving on the Curriculum and Instruction Committee (Spring 2022 to Present)
- ♣ Current member of the CSTEMM EDI group
- ♣ Performed analysis of comparable programs for new cybersecurity major
- ♣ Delivered multiple campus tours in Fall 2021 and Spring 2022 for CS Program
- ♣ Served as a faculty judge for the GameJam event in Spring 2022, Fall 2021, and Spring 2021
- ♣ Helped coordinate and organize SGX (Stout Game Expo) Fall 2018 through present
- ♣ Served as faculty member in graduation procession (Fall 2021, Spring 2022 registered)
- ♣ Currently planning new cybersecurity classes
- ♣ Covered classes for other instructors
- ♣ Served on Fall 2019 and Spring 2020 CS Search committees
- ♣ Participated in all CS senior project reviews
- ♣ Advised three independent study projects
- ♣ Mentored multiple honor contracts
- ♣ Wrote and submitted various research proposals
- ♣ Served as advisor for two student organizations.
- ♣ Advertised open CS position among professional networks
- ♣ Served on colloquium committee through 2018
- ♣ Directed work study student developing cybersecurity labs

### Research Assistant

2013-2018

*University of North Carolina at Charlotte*

- ♣ Designed interface for application specific vulnerability detection
- ♣ Assisted in the writing of research proposals
- ♣ Engineered security code review process, system, and interface fed by static analysis
- ♣ Explored use of interactive static analysis to teach security
- ♣ Examined effect of contextualized real time android permission notifications
- ♣ Studied social implications of expiring tweets and Facebook posts
- ♣ Developed network-based Android software in Java
- ♣ Obtained IRB certifications for all studies

### Undergraduate Researcher

2013

*University of North Carolina at Charlotte*

- ♣ Developed native android applications in Java
- ♣ Engineered networked system for remote data collection
- ♣ Wrote extraction and sorting scripts for millions of data records
- ♣ Learned the fundamentals of academia under the direction of a PhD student mentor

## INDUSTRY EXPERIENCE

### Managing Director/Founder

2008-12

*Thomas Tech Support*

- ♣ Established licensed IT services company, Thomas Tech Support, at age 17
- ♣ Provided IT services to the Gaston County government and various corporations
- ♣ Authored the interpreted language, Interp-L, for experimental purposes
- ♣ Deployed an Exchange server, web server, and datacenter
- ♣ Migrated cloud-based data
- ♣ Communicated technical problems and coordinated solutions
- ♣ Formulated hardware and software specifications based on business needs
- ♣ Designed company website and maintained business records
- ♣ Developed professional customer contact skills
- ♣ Achieved the CompTIA A+ certification at age 17

## CERTIFICATIONS

Computing Technology Industry Association (CompTia) IT Professional Certification

2008-Present

## FELLOWSHIPS AND GRANTS

Student jobs for at-risk students

2019-2021

Graduate Assistance in Areas of National Need (GAANN) Teaching Fellowship

2014-17

GASP Award Recipient

2014-16

## HONORS AND AWARDS

President of Hexarity Computing Charity

2014-2021

Vice President of Interact

2013-14

Student Marshal for UNCC

2012

Voted First Place Research Flash Talks

2014

Chancellor's List (All Undergraduate Semesters)

2009-2013

OWASP Affiliate

2016

## STUDENTS MENTORED

Katherine Currier, *Undergraduate Researcher*

Matthew Scola, *Undergraduate Special Topics Student*

Ambarish Regmi, *Peer Mentee*

Madiha Tabassum, *Peer Mentee*

Mahmood Mohammadi, *Peer Mentee*

Nasheen Nur, *Peer Mentee*

## WORKS IN PROGRESS

Manuscript: "Human-Driven Simulation of Networked, Tool-Assisted, Security Code Review: A Process Evaluation"  
Article manuscript in progress.

Manuscript: "Immersive Cybersecurity Learning: AI-Powered 3D Simulations for Effective Training" Data collection  
in progress.

Invited Talk: "Cybersecurity Training from the Sofa: A Networked, 3D, First-person Cybersecurity Simulation  
with Artificial Intelligence For Cybersecurity Training and Education." Planned Presentation at CIPHERCON  
Conference, April 2024

Invited Talk: "Making Math Work: Best Practices in Usable Cryptographic Systems. AMS special session on Mathematical Aspects of Cryptography and Cybersecurity. April 20-21 2024.

Invited Talk: "Understanding and Leveraging Modern AI for Seniors." Wisconsin Association for Home and Community Education (HCE). Fall 2024

## PUBLICATIONS

**Thomas, Tyler.** "The intersection of static analysis and security code reviews: A collaborative model." *Int J Eng Comput Sci*; DOI: 10.33545/26633582.2023.v5.i2a.93. 2023.

**Thomas, Tyler.** "CS-458 Software Engineering Practicum: Senior Project Pitch Showcase." In *Journal of Computing Sciences in Colleges* 39.4. Indianapolis, IN, USA 2023.

**Thomas, Tyler.** "SecView: A Design for Lightweight Security Code Reviews through Live Static Analysis Integration." Work In Progress Presentation. *Journal of Computing Sciences in Colleges* 39.4. Indianapolis, IN, USA 2023.

**Thomas, Tyler.** "Cybersecurity for Seniors" Professional Presentation. *Wisconsin Association for Home and Community Education*, Dunn County Home Community Education (HCE) Extension. Menomonie, WI 2023.

Seth Berrier, Karl Koehle, Kimberly Long Loken, Michael Tetzlaff, and **Tyler Thomas** "Interdisciplinary Project-Driven Learning in Game Design and Development." In *Journal of Computing Sciences in Colleges* 38.4, 2022.

Andrew Besmer, **Tyler Thomas**, and Heather Richter Lipford. "Effects of Privacy Notification Style and Frequency on Phone Usage" In press, *Journal of Computer Information Systems*, 2019.

**Tyler Thomas**, Madiha Tabassum, Bill Chu, and Heather Richter Lipford. "Security During Application Development: An Application Security Expert Perspective" In *CHI Conf. on Human Factors in Computing Systems*, 2018.

Michael Whitney, Heather Richter Lipford, Bill Chu, and **Tyler Thomas**. "Embedding Secure Coding Instruction into the IDE: Complementing Early and Intermediate CS Courses with ESIDE" In press, *Journal of Educational Computing Research*, 2017.

**Tyler Thomas**, Heather Lipford, Bill Chu, Justin Smith, and Emerson Murphy-Hill. "What questions remain? an examination of how developers understand an interactive static analysis tool." In *WSIW@SOUPS*, 2016.

**Tyler Thomas**, Bill Chu, Heather Lipford, Justin Smith, and Emerson Murphy-Hill. "A study of interactive code annotation for access control vulnerabilities" in *Proceedings of the 2015 IEEE Symposium on Visual Languages and Human-Centric Computing*, ser. VLHCC '15. Washington, DC, USA: IEEE Computer Society, 2015.

**Tyler Thomas**. "Exploring the Usability and Effectiveness of Interactive Annotation and Code Review for the Detection of Security Vulnerabilities" In *2015 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)* Atlanta, GA USA 2015.

Jun Zhu, Bill Chu, Heather Lipford, and **Tyler Thomas**. "Mitigating access control vulnerabilities through interactive static analysis." In *Proceedings of the 20<sup>th</sup> ACM Symposium on Access Control Models and Technologies*, SACMAT '15, New York, NY, USA 2015.

Heather Lipford, **Tyler Thomas**, Bill Chu, and Emerson Murphy-Hill. "Interactive Code Annotation for Security Vulnerability Detection." In *Proceedings of the 2014 ACM Workshop on Security Information Workers (SIW '14)*. ACM, New York, NY, USA 2014.