

Christopher Theisen

Research Assistant - Department of Computer Science
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Education

Current: **North Carolina State University** – PhD in Computer Science: Expected 2018

- Current Research: *Risk-Based Attack Surface Approximation*
- Advisor: Dr. Laurie Williams

North Carolina State University – M.S. in Computer Science: 2016 – GPA: 3.87

- Thesis: *Automated Attack Surface Approximation*

University of Cincinnati – B.S. in Computer Science: 2010 – GPA: 3.7

- Senior design project: a ranking, sorting, and categorization system for Twitter.

Academic Experience

North Carolina State University

Research Experience for Undergraduates (REU) Mentorship – Summer 2016, Summer 2017

- Mentoring undergraduate students during their first research experience in academia

Teaching Assistant – Software Security – Fall 2013, Fall 2014, Fall 2016

- Designed penetration testing and secure design assignments for the class.
- Lectured on eight occasions on software security topics to classes of 100+ students.

Research Assistant for Software Security MOOC – Spring 2014 – Present

- Designed course material for an online course on software security featuring over 1,000 students.
- Organized and participated in weekly roundtable discussions with the other instructors on software security topics for the course

Conference Paper Reviews:

- ICSE 2018
- FSE 2017
- ESEM 2017
- MSR 2017
- NDSS 2017
- ICSE 2015
- DSN 2014
- Agile 2014

Journal Review Invitations:

- Computers and Security (2017)
- ACM TOIT (2017)

Industrial Experience

Microsoft Research Cambridge UK

Research Intern – May 2014 – August 2014, May 2015 – August 2015

- Innovated and developed an automated approach to attack surface estimation; approach implemented on product teams within the company.
- Supported optimization efforts in software engineering management for internal Microsoft teams.

Self Employed

Freelance Work – August 2012 – Present

- Supported startups in the Cincinnati and Columbus areas in various capacities; entry into tech incubators, course correction on flagging projects, et cetera.
- Technical assistant to computational chemistry lab at the University of Cincinnati (development in C/Python, code reviews, troubleshooting, bug fixes).
- Acted as expert witness for a Raleigh-based company, helping to settle multi-million dollar lawsuit.

Northrop Grumman – Xetron

Software Engineer (Band 1) – June 2010 – August 2012

- Individual classified tasking in network security and software engineering.
- Responsible for multiple investigations into new reverse engineering targets.
- Drove customer satisfaction from Satisfactory to Outstanding while in a customer-facing position.
- Provided on-site and remote technical assistance to customers in technical and non-technical roles.

Software Engineer (Co-op) – March 2009 – September 2009

- Lead a small team in developing a custom automated testing framework

Siemens PLM Software

Software Engineer (Co-op)– March 2007 – September 2007, March 2008 – September 2008

- Acted as go-between for software developers and customers; use cases, simple bug fixes, etc.
- Developed scalability tests for servers to estimate server usage for CAD software (NX, SolidEdge)

Publications

Chris Theisen, Ted Zhu, Kevin Oliver, and Laurie Williams, “Teaching Secure Software Development Through an Online Course”, International Workshop on Secure Software Engineering in DevOps and Agile Development. ESORICS (2017).

Chris Theisen, Kim Herzig, Brendan Murphy, and Laurie Williams, “Risk-Based Attack Surface Approximation: How Much Data is Enough?”, in Companion Proceedings of the 39th International Conference on Software Engineering. pp. 273-282

Chris Theisen, Marcel Dunaiski, Willem Visser, and Laurie Williams, “Writing Good Software Engineering Research Papers: Revisited”, in Companion Proceedings of the 39th International Conference on Software Engineering. pp. 402

Chris Theisen, “Risk-Based Attack Surface Approximation”, ACM Student Research Competition Grand Finals, 2016.

Chris Theisen, “Reusing Stack Traces: Automated Attack Surface Approximation”, to appear in the 38th International Conference on Software Engineering - Doctoral Symposium.

Chris Theisen, Laurie Williams, Emerson Murphy-Hill, and Kevin Oliver, “Software Security Education at Scale”, Companion Proceedings of the 38th International Conference on Software Engineering. pp. 346-355

Chris Theisen, and Laurie Williams, “Poster: Risk-Based Attack Surface Approximation”, appearing in the Proceedings of the Symposium and Bootcamp on the Science of Security, 121-123

Chris Theisen, “Automated Attack Surface Approximation”, in the 23rd ACM SIGSOFT International Symposium on the Foundations of Software Engineering - Student Research Competition, 2015, pp. 1063-1065.

Chris Theisen, Kim Herzig, Pat Morrison, Brendan Murphy, and Laurie Williams, “Approximating Attack Surfaces with Stack Traces”, in Companion Proceedings of the 37th International Conference on Software Engineering.

Presentations

July 10, 2017, “Prioritizing Security Efforts with a Risk-Based Attack Surface Approximation,” Science of Security Lablet Quarterly Meeting, Carnegie Mellon, Pittsburgh, PA

May 26, 2017, “Risk-Based Attack Surface Approximation: How Much Data is Enough?” International Conference on Software Engineering, Buenos Aires, AR

May 18, 2016, “Software Security Education at Scale,” International Conference on Software Engineering, Austin, TX.

November 5, 2015, “Attack Surface Analytics”, Data Science Workshop (DSW) at the IEEE International Symposium on Software Reliability Engineering (ISSRE), Washington, DC

October 29, 2015, “Automated Attack Surface Approximation”, Science of Security Industry Community Day, Raleigh, NC

September 4, 2015, “Automated Attack Surface Approximation”, Foundations of Software Engineering (Student Research Competition), Bergamo, IT

May 22, 2015, “Approximating Attack Surfaces with Stack Traces”, International Conference on Software Engineering, Florence, IT

Achievements

- 1st Place Graduate Students – Student Research Competition (SRC) at FSE/ESEC 2015.
- 3rd Place Graduate Students – SRC Grand Finals (included all winners of SRC's at all ACM conferences).
- Most Outstanding Co-op – Computer Science Class of 2010.
- Marine Leadership Award for leadership in the classroom – May 2008.