

Calvin Deutschbein (they/them)

CONTACT INFORMATION	Assistant Professor of Computer Science Willamette University Computing & Information Sciences Ford Hall 307, 900 State Street Salem, OR 97301	Work: +1-503-370-6486 E-mail: ckdeutschbein@willamette.edu E-mail: calvindeu@gmail.com Website: cd-public.github.io/
ACADEMIC APPOINTMENTS	Assistant Professor of Computer Science , Willamette University School of Computing & Information Sciences.	August 2021 to present
	Adjunct Professor , Elon University Department of Computer Science	Spring 2020
	Instructor , The University of North Carolina at Chapel Hill Department of Computer Science	Summer 2018
	Research Scholar , Semiconductor Research Corporation SRC Research Scholars Program	October 2018 to August 2021
EDUCATION	The University of North Carolina at Chapel Hill , Chapel Hill, NC	
	Ph.D., Computer Science, August 2021	
	<ul style="list-style-type: none">• Thesis: <i>Mining Secure Behavior of Hardware Designs</i>• Advisor: Cynthia Sturton• Area: Hardware Security	
	M.S., Computer Science, August 2017	
	<ul style="list-style-type: none">• Thesis: <i>Multi-core Cyclic Executives for Safety-Critical Systems</i>• Advisor: Sanjoy Baruah• Area: Real-Time Systems	
	The University of Chicago , Chicago, IL	
	B.S., Computer Science, March 2015	
	<ul style="list-style-type: none">• Thesis: <i>Performance and Energy Limits of a Processor-integrated FFT Accelerator</i>• Advisor: Andrew A. Chien• Area: Computer Architecture	
	B.A., Mathematics, March 2015	
EXTERNAL RESEARCH FUNDING	Fostering Equity, Support and Community for Low-Income Undergraduates with Academic Potential in STEM	2022-2028
	<ul style="list-style-type: none">• NSF Award # 2221694,• Co-Principal Investigator 2024-, Senior Personnel 2022-2024• Total Intended Award Amount: \$1,499,246.00	
	Collaborative Research: SaTC: CORE: Medium: Hardware Security Insights: Analyzing Hardware Designs to Understand and Assess Security Weaknesses and Vulnerabilities	2023-2027
	<ul style="list-style-type: none">• NSF Award # 2247756,• Principal Investigator• Total Intended Award Amount: \$106,000.00	

REFEREED
JOURNAL
PUBLICATIONS

- [1] C. Deutschbein, A. Meza, F. Restuccia, R. Kastner, C. Sturton. Toward Hardware Security Property Generation at Scale In: *IEEE Security & Privacy*, April 2022.
doi:10.1007/s13389-022-00306-w
- [2] R. Zhang, C. Deutschbein, P. Huang, C. Sturton. End-to-End Automated Exploit Generation for Processor Security Validation. *IEEE Design & Test Special Issue: Hardware Security Top Picks*. 2021.
doi:10.1109/MDAT.2021.3063314
- [3] C. Deutschbein, T. Fleming, A. Burns, S. Baruah. Multi-core Cyclic Executives for Safety-Critical Systems. *Science of Computer Programming*, March 2019.
doi:10.1016/j.scico.2018.11.004

REFEREED
CONFERENCE
PUBLICATIONS

- [4] S. Aftabjahani, M. Tehranipoor, F. Farahmandi, Farimah, B. Ahmed, R. Kastner, F. Restuccia, A. Meza, K. Ryan, N. Fern, J. van Woudenberg, R. Veleglati, C. Breunese, C. Sturton, C. Deutschbein. Promising Directions for Automation of Security Assurance. In: *Special Session: CAD for Hardware Security at 2023 IEEE 41st VLSI Test Symposium (VTS)*, June 2023.
doi:10.1109/VTS56346.2023.10140100
- [5] C. Deutschbein, A. Meza, F. Restuccia, R. Kastner, C. Sturton. Isadora: Automated Information Flow Property Generation for Hardware Designs. In: *Proceedings of the 5th Workshop on Attacks and Solutions in Hardware Security (ASHES)*, November 2021.
doi:10.1145/3474376.3487286
- [6] C. Deutschbein, C. Sturton. Evaluating Security Specification Mining for a CISC Architecture. In: *Proceedings of the IEEE International Symposium on Hardware Oriented Security and Trust (HOST)*, December 2020.
doi:10.1109/HOST45689.2020.9300291
- [7] R. Zhang, C. Deutschbein, P. Huang, C. Sturton. End-to-End Automated Exploit Generation for Processor Security Validation. In: *MICRO-51: Proceedings of the 51st Annual IEEE/ACM International Symposium on Microarchitecture*, October 2018.
doi:10.1109/MICRO.2018.00071
- [8] C. Deutschbein, T. Fleming, A. Burns, S. Baruah. Multi-core Cyclic Executives for Safety-Critical Systems. In: *Proceedings of the Third International Symposium on Dependable Software Engineering: Theories, Repositories, and Applications, SETTA 2017*, October 2017.
doi:10.1016/j.scico.2018.11.004
- [9] C. Deutschbein, S. Baruah. Preemptive Uniprocessor EDF Schedulability Analysis with Preemption Costs Considered. In: *Proceedings of the 2016 IEEE Real-Time Systems Symposium (RTSS)*, November 2016.
doi:10.1109/RTSS.2016.047
- [10] T. Thanh-Hoang, A. Shambayati, C. Deutschbein, H. Hoffmann, A. A. Chien Performance and energy limits of a processor-integrated FFT accelerator. In: *Proceedings of the 2014 IEEE High Performance Extreme Computing Conference (HPEC)*, September 2014.
doi:10.1109/HPEC.2014.7040951

INVITED TALKS

- [11] “Who ya gonna call?”: Cybersecurity for the Spectre Era. Pacific University Mathematics, Computer Science, and Data Science Colloquium. 17 November, 2022.
- [12] Isadora: Automated Information Flow Property Generation for Hardware Designs. 3rd Annual INTEL Side Channel Academic Program Workshop 2021. 11 November 2021.

- [13] Isadora: Automated Information Flow Property Generation for Hardware Designs. Workshop on Secure RISC-V Architecture Design (secrisc-v'21). 7 November 2021.
- [14] Creating Information Flow Specifications. Radix Presentation for Tortuga Logic. 20 August 2021.
- [15] Extracting IF specifications from HW designs. University of Illinois–Urbana Champaign 20 July, 2021.
- [16] “Who ya gonna call?": Cybersecurity for the Spectre Era. California State University Northridge Virtual Research Presentations: Computer Science and Cyber Security. 22 March, 2021.

CHAIR SERVICE

- Session Chair (Posters), Consortium for Computing Sciences in Colleges Northwestern Region (CCSC-NW 2024).
- Chair, Title III Grant Quantitative Reasoning (QR) Summer Learning Circles, Inquiry-Based Learning for Equity
- Session Chair (Posters), Consortium for Computing Sciences in Colleges Northwestern Region (CCSC-NW 2023).
- Session Chair (Coding and Automation), Northwest Scientific Association-American Association for the Advancement of Science Pacific Division 2023

PROGRAM COMMITTEE SERVICE

- Consortium for Computing Sciences in Colleges Northwestern Region (CCSC-NW 2024). <https://www.ccsc.org/northwest/2024/committee.html>
- Hardware and Architectural Support for Security and Privacy (HASP 2024), co-located with MICRO 2024. <https://haspworkshop.org/2024/committee.html>
- Consortium for Computing Sciences in Colleges Northwestern Region (CCSC-NW 2023). <https://www.ccsc.org/northwest/2023/committee.html>
- Hardware and Architectural Support for Security and Privacy (HASP 2023), co-located with MICRO 2023. <https://haspworkshop.org/2023/committee.html>
- Real-time And intelliGent Edge computing workshop (RAGE 2023), co-located with CPS-IoT Week 2023. <https://rage-workshop.github.io/2023/organizers/>
- Hardware and Architectural Support for Security and Privacy (HASP 2022), co-located with MICRO 2022. <https://haspworkshop.org/2022/committee.html>
- Sixth Workshop on Attacks and Solutions in Hardware Security (ASHES 2022), co-located with ACM CCS 2022. <http://ashesworkshop.org/committees-2022>

RESEARCH TOOLS

- Aphrodite. Willamette University. <https://github.com/wu-jldeyoung/Aphrodite>
- Isadora. HyperFloGen. <https://github.com/cd-public/Isadora>
- Astarte. HW Security @ UNC. <https://github.com/cd-public/Astarte>
- Undine. HW Security @ UNC. <https://github.com/cd-public/Undine>
- Coppelgia. HW Security @ UNC. <https://github.com/rzhang2285/Coppelgia>

TEACHING
MATERIALS

- Continuous Integration and Continuous Delivery Security
 - WGU MS-SWE project
 - External Subject Matter Expert - Content Design & Assessment Design
- Network Architecture and Advanced Cloud Computing
 - WGU MS-SWE project
 - External Subject Matter Expert - Content Design & Assessment Design
- chiTCP - A simple, testable TCP stack
 - [The UChicago \$\chi\$ -Projects](#),
 - Contributor
 - 14 stars / 26 watching / 11 forks on [GitHub](#)

TEACHING
MATERIALS

- Network Architecture and Cloud Computing. MS Software Engineering. Western Governor's University. Subject Matter Expert.
- Network Architecture and Cloud Computing. MS Software Engineering. Western Governor's University. Subject Matter Expert, Content Design & Assessment Design.
- chiTCP. The UChicago χ -Projects. <http://chi.cs.uchicago.edu>. Contributor.

PROFESSIONAL
DEVELOPMENT

- Chair, Title III Grant Quantitative Reasoning (QR) Summer Learning Circles, Inquiry-Based Learning for Equity
- Member, Title III Grant Quantitative Reasoning (QR) Summer Learning Circles, Data Deep Dive into BIPOC Representation in Computing and Data Science