

Calvin Deutschbein

PRONOUNS: THEY/ANY

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Education

University of North Carolina at Chapel Hill

DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

Chapel Hill, NC

Expected August 2021

University of North Carolina at Chapel Hill

MASTER OF SCIENCE IN COMPUTER SCIENCE

Chapel Hill, NC

2017

University of Chicago

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Chicago, IL

2015

University of Chicago

BACHELOR OF ARTS IN MATHEMATICS

Chicago, IL

2015

Publications

Evaluating Security Specification Mining for a CISC Architecture

C. Deutschbein, C. Sturton

Specification mining can define security over x86 without source access using state partitions to refine search space.

HOST 2020

Mining Security Critical Linear Temporal Logic Specifications for Processors

C. Deutschbein, C. Sturton

Specification mining with typed LTL templates generates manageable numbers of human readable security assertions.

MTV 2018

End-to-End Automated Exploit Generation for Validating Security of Processor Designs

R. Zhang, C. Deutschbein, P. Huang, C. Sturton

Backwards symbolic execution gives deployable exploits for known security bugs.

Nominated for Best Paper.

MICRO 2018

Multi-core Cyclic Executives for Safety-Critical Systems

C. Deutschbein, T. Fleming, A. Burns, S. Baruah

Real-time scheduling of multiprocessor tasks with mixed periodicity has an optimal solution.

SETTA 2017

Preemptive Uniprocessor EDF Schedulability Analysis with Preemption Costs Considered

C. Deutschbein, S. Baruah

Earliest Deadline First (EDF) scheduling with preemption costs can be reduced to EDF scheduling.

RTSS 2016

Performance and energy limits of a processor-integrated FFT accelerator

T. Thanh-Hoang, A. Shambayati, C. Deutschbein, H. Hoffmann, A. A. Chien

Heterogenous accelerators can improve average case performance and efficiency at minimal cost in chip area.

HPEC 2014

Teaching

CSC 130: Computer Science 1

ADJUNCT PROFESSOR

- Taught class, held office hours, and developed a course curriculum.
- Developed asynchronous remote option for accessibility across timezones: *See remote instruction homepage.*

Elon University

2020

COMP 116: Scientific Computing

INSTRUCTOR

- Taught class, held office hours, and developed a course curriculum

UNC Chapel Hill

2018

COMP 410: Data Structures and Analysis

(HEAD) TEACHING ASSISTANT

- Graded assignment and exams, held office hours and recitations, and developed new homework assignments

UNC Chapel Hill

2017 - 2018

CMSC 233: Networks and Distributed Systems

INSTRUCTIONAL STAFF

- Graded programming assignments and exams and held online office hours

UChicago

2015

CMSC 151: Introduction to Computer Science

INSTRUCTIONAL STAFF

- Graded programming assignments and exams and held online office hours

UChicago

2014

Work Experience

University of North Carolina at Chapel Hill

RESEARCH ASSISTANT

- Instructed and developed new curriculum for 2018 Summer Session of COMP 116: Scientific Computing
- Teaching assistant for 2017 Fall and 2018 Spring COMP 410: Data Structures
- Completed coursework and prepared multiple publications (see *Publications*)

Chapel Hill, NC

2015 - present

Lockheed Martin

SOFTWARE ENGINEER (INTERN INTO FULL-TIME)

- Validated real-time operating system for Orion spacecraft

Littleton, CO

2014 - 2015

University of Chicago Chi Instructional Projects

UNDERGRADUATE DEVELOPER

- Developed the ChiTCP project for CMSC 233: Networks and Distributed Systems

Chicago, IL

2012 - 2015

University of Chicago Large Scale Systems Group

UNDERGRADUATE RESEARCHER

- Prepared a publication on heterogeneous processing (see *Publications*)

Chicago, IL

2012 - 2015

Seagate Technology

FIRMWARE ENGINEER INTERN

- Tested experimental high density firmware for hard disk drives

Longmont, CO

2012

Twin Peaks Robotics

PRODUCTION ENGINEER

- Assembled radio robotics controllers

Longmont, CO

2011

Equity & Inclusion

Boldly Elon Solidarity Collective

ELON FACULTY UNION ORGANIZING COMMITTEE REPRESENTATIVE

- Support students in community organizing efforts to manage COVID-19 outbreaks at Elon
- Support students working to make Black Lives Matter at Elon University
- Work with students concerned about labor issues for adjuncts and other workers at Elon University

Elon, NC

2020 - present

National Association for the Advancement of Colored People (NAACP)

CHAPEL HILL-CARRBORO BRANCH COMMITTEES ON EDUCATION, LABOR, & CRIMINAL JUSTICE

- Organized a student bake sale to raise \$300+ for the 2019 Scholarship Fund
- Branch Delegate to State Convention, 2018
- Coding and data analysis for committees, branch, and statewide NAACP

Chapel Hill-Carrboro, NC

2016 - present

Graduate Women in Computer Science at UNC (GWiCS)

ALLY

- Support GWiCS events, including set-up, research presentations, outreach, and panel moderation
- Connect GWiCS members with other departmental affinity groups on campus
- Use male-passing privilege to elevate concerns and needs of GWiCS and members

Chapel Hill, NC

2015 - present

Academic Admissions & Advising

Pre-Graduate Advisor

UNIVERSITY CAREER SERVICES

- Hold advising office hours for students considering graduate education
- Organize panel events for students consider graduate education
- Support department or university events about post-graduation options

UNC Chapel Hill

2017 - present

Orientation Advisor

COLLEGE ACADEMIC ADVISING OFFICE

- Student advising to incoming first-year students
- Support advising office during numerous events during Orientation Week and Parents Weekend

UChicago

2012 - 2015

Alumni Interviewer and Mentor

ALUMNI BOARD OF GOVERNORS

- Meet students interested in UChicago one-on-one for recruitment and admissions
- Advise admitted students and prospective students

UChicago

2015

Leadership

Treasurer, Solidarity Committee Co-chair

NORTH CAROLINA PUBLIC SERVICE WORKERS UNION, UNC CHAPTER (UE150)

- Support student-led campaigns to remove unsafe Confederate monuments from campus
- Organize workers to gain a living wage for full-time public service workers in North Carolina
- Connect workers on campus with community centers in Chapel Hill-Carrboro
- Manage payroll deductions and member enrollment for a branch of 100+ members

Chapel Hill, NC

2018 - present

Town Council Appointed Member

CHAPEL HILL COMMUNITY POLICING ADVISORY COMMITTEE (CPAC)

- Review and provide analysis on annual and quarterly police reports and event plans
- Equip communities to better understand how Chapel Hill Police Department operates
- Propose changes to end racial disparities in policing Black and Latinx communities

Chapel Hill, NC

2016 - 2020

Oversight Chair, Senator, Cabinet-level Public Safety Advocate

GRADUATE AND PROFESSIONAL STUDENT FEDERATION

- Investigate racial disparities in Campus Policing and Student Conduct Office
- Write, introduce, and pass resolutions outlining solutions to racial disparities.

UNC Chapel Hill, NC

2016 - 2019

President

YOUNG DEMOCRATS OF ORANGE COUNTY

- Reorganize chapter to include Black leaders in senior positions on the formerly all-white Executive Board
- Per a multi-county agreement, YDOC was also the Young Democrats branch for Elon in Alamance County until 2019

Orange County, NC

2018 - 2019