Matthew R. Cole

CONTACT INFORMATION	P.O. Box 6000 Department of Computer Science State University of New York at Binghamton Binghamton, NY 13902-6000	*Voice:* (206) 790-8791 *E-mail:* mcole8@cs.binghamton.edu *Web:* https://colematt.github.io

RESEARCH INTERESTS

Computer system security at the intersection of compiler design, program analysis, computer architecture, and reverse engineering.

EDUCATION

State University of New York at Binghamton, Binghamton, New York USA

Ph.D. Candidate, Computer Science

- Dissertation Topic: "Enforcing Integrity Models Through Hardware-Software Cohesive Systems"
- Advisor: Aravind Prakash

M.S., Computer Science, May 2018

- Thesis Topic: "Integrity Models"

United States Naval Academy, Annapolis, Maryland USA

B.S. Computer Science, May, 2005

HONORS AND AWARDS

United States Naval Academy: graduated *With Merit*, Upsilon Pi Epsilon. Captained winning team of National Security Agency's Cyber Defense Exercise.

ACADEMIC EXPERIENCE

State University of New York at Binghamton, Binghamton, New York USA

Lecturer   **January 2022 - Present**

Taught graduate and undergraduate courses for classes between 30 and 70 students.
- CS 580U: Programming Systems and Tools, Fall 2023
- CS 580U: Programming Systems and Tools, Fall 2022
- CS 458, CS 558: Introduction to Computer Security, Spring 2022

Research Assistant   **January, 2018 - December 2021**

Performed analyses using the LLVM compiler toolchain, providing defenses to eliminate attack surface area. Engineered an implementation of the RISC-V architecture employing inline code and data tagging for integrity models.

Teaching Assistant   **January, 2017 - Present**

Co-taught graduate and undergraduate level courses. Authored and proctored weekly labs and graded all coursework. Delivered lectures during instructor-of-record's absence. Piloted a Github Classroom/Travis-CI course delivery system to provide instant feedback and version control software experience to students while expediting grading.

- CS 458, CS 558: Introduction to Computer Security, Spring 2023
- CS 480, CS 580: Introduction to Computer Security, Spring 2017
- CS 220: Computer Systems II, Architecture and C Programming, Fall 2017

Graduate Assistant   **August, 2015 - January 2017**

Explored widespread unscientific use of performance benchmarks within the computer security community. Repurposed Intel's MPX spatial memory safety architecture extension as secure storage for

information hiding applications.

PUBLICATIONS

PROFESSIONAL
EXPERIENCE

United States Navy, Bangor, Washington USA

Department Director   **May, 2005 - July, 2014**
Held qualifications as Instructor, Instructor Evaluator and Course Supervisor. Oversaw a department of 40 instructors and 11 laboratories. Planned curricula for 3 courses and delivered lectures for over 120 trainees and 23 submarine crews annually. Rated "highly effective" by external auditors during entire tenure.

United States Naval Research Laboratory, Washington, District of Columbia USA

Intern   **May, 2004 - August, 2004**
Prototyped Java Management Extensions (JMX) for Mobile Ad Hoc Wireless Networks (MANETs) serving large, distributed sensor networks in real-time.

PROFESSIONAL
SERVICE

- Binghamton University Graduate Student Organization Senate, 2016-2018.
- Binghamton University Graduate Student Organization Judicial Officer, 2018-2019.
- ACSAC Artifact Committee, 2017. `https://www.acsac.org/2017/committees/#artifact`
- ACSAC Artifact Committee, 2020. `https://www.acsac.org/2020/committees/artifact/`
- ACSAC Artifact Committee, 2021. `https://www.acsac.org/2021/committees/artifact/`