

# Powerful Technology for Society's Benefit



Emerson Murphy-Hill  
Assistant Professor, Computer Science

## CURRENT RESEARCH

### Improving existing technology to reap the benefits of software programming

Recent credit card malware breaches have resulted in million of credit card numbers being stolen. Such breaches are preventable however; if we were to understand programs better, vulnerabilities could be fixed before such breaches occur. Dr. Emerson Murphy-Hill, of North Carolina State University, works to make existing programming tools and techniques more usable. His work focuses around helping information workers make better use of technology, with a substantial focus on one particular type of information workers-- software developers. Despite the powerful and useful software development tools that have been created, software developers only use a subset of the available tools, and those that a developer does use are often not fully leveraged. With the belief that the solution to this problem can be found by rethinking the design of software development tools, Dr. Murphy-Hill's innovative research is based on a better understanding of why developers use and do not use these tools. Such modifications of existing tools and techniques will help programmers to directly aid the rest of society by making our lives faster, more efficient, and secure.

Dr. Murphy-Hill's group, called the Developer Liberation Front, consisting of Ph.D. students, masters students, undergraduate students, and multidisciplinary collaborations, tackles a variety of problems in order to make existing tools and techniques more usable. By educating future scientists and thus, motivating students to use their individual creativity to solve pressing issues, Dr. Murphy-Hill is not only a rigorous researcher but also a dedicated mentor. As the winner of the NSF Career Award in 2013 and of four ACM SIGSOFT Distinguished Paper Awards, his...

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## AFFILIATION



North Carolina State University

## EDUCATION

- Postdoc. in Computer Science, 2010  
The University of British Columbia
- Ph.D. in Computer Science, 2009  
Portland State University
- B.S. in Computer Science, 2004  
The Evergreen State College

## AWARDS

- National Science Foundation CAREER Award, 2013
- ACM SIGSOFT Distinguished Paper Award, 2014, 2010 twice, 2009
- Best Paper Award, 2014
- Microsoft Software Engineering Innovation Foundation Award, 2012

## RESEARCH AREAS

Technology, Computational Sciences / Mathematics, Cybersecurity, Informational Sciences / Internet

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Emerson Murphy-Hill as he rethinks the design of software development tools to fix technological vulnerabilities. Donations will support the necessary \$46K per year required to support each Ph.D. student, and \$2K required for travel each year per student. In choosing to donate, you will play a role in helping information workers do their jobs more efficiently and effectively thus, benefiting all who benefit from their tools in the long-run.