

Denae M. Ford

DOCTORAL STUDENT · COMPUTER SCIENCE

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Using **human computer interaction** to understand **programming knowledge** communication in **socio-technical ecosystems**

Education

North Carolina State University

PH.D. IN COMPUTER SCIENCE. EST. 2019

- Minor: Cognitive Science
- Advisor: Dr. Christopher Parnin

Raleigh, NC

Aug. 2014 - Present

North Carolina State University

M.S. IN COMPUTER SCIENCE

Raleigh, NC

Aug. 2014 - Dec 2016

North Carolina State University

B.S. IN COMPUTER SCIENCE

- Magna Cum Laude

Raleigh, NC

Aug. 2010 - May 2014

Publications

Selfies as Social Movements: Influences on Participation and Perceived Impact on Stereotypes

LIU, F., **FORD, D.**, PARNIN, C., DABBISH, L.

- ACM Conference on Computer-Supported Cooperative Work and Social Computing

CSCW 2018

Someone Like Me: How Does Peer Parity Influence Women Participation on Stack Overflow?

HARKINS, A., **FORD, D.**, PARNIN, C.

- IEEE Symposium on Visual Languages and Human-Centric Computing

VL/HCC 2017

Characterizing Software Engineering Work with Personas Based on Knowledge Worker Actions

FORD, D., ZIMMERMANN, T., BIRD, C., NAGAPPAN, N.

- IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)

ESEM 2017

The Tech-Talk Balance: What Technical Interviewers Expect from Technical Candidates

FORD, D., BARIK, T., RAND-PICKETT, L., PARNIN, C.

- IEEE ICSE 10th International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)

[ICSE] CHASE 2017

Recognizing Gender Differences in Stack Overflow Usage: Applying the Bechdel Test

FORD, D.

- IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) Graduate Consortium

VL/HCC 2016

Paradise Unplugged: Identifying Barriers for Female Participation on Stack Overflow

FORD, D., SMITH, J., GUO, P.J., PARNIN, C.

- ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)

FSE 2016

What We Have Here is a Failure to Communicate! A Cross-Tool Study on Program Analysis Tool Notifications

JOHNSON, B., PANDITA R., SMITH J., **FORD, D.**, ELDER, S., MURPHY-HILL, E., HECKMAN S., SADOWSKI, C.

- ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)

FSE 2016

Studying Sustained Attention and Cognitive States in Remote Technical Interviews

FORD, D., BARIK, T., PARNIN, C.

- ACM ICER 3rd International Workshop on Eye Movements in Programming (EMIP)

[ICER] EMIP 2015

Exploring the Causes of Frustration for Software Developers

FORD, D., PARNIN, C.

- IEEE ICSE 8th International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)

[ICSE] CHASE 2015

Experience

RESEARCH

Microsoft Research

RESEARCH IN SOFTWARE ENGINEERING GROUP INTERN

Redmond, WA
May 2016 - Aug. 2016

- Researching differences and similarities between knowledge workers and software engineers
- Determining detailed description of knowledge worker actions to adapt to software engineers
- Conducted interview and surveys to identify software engineering personas
- Presented personas of software engineers internally and prepared conference publication

North Carolina State University

GRADUATE RESEARCH ASSISTANT

Raleigh, NC
Aug. 2015 - May 2016

- Researched socio-technical ecosystems and how knowledge is shared amongst software engineers
- Conducted qualitative and quantitative empirical studies to better understand the users of the community
- Collaborated with researches from Carnegie Mellon University and University of Rochester and learned varied approaches to studying similar problems
- Presented findings at international conferences for software engineering and biometrics of programming

MIT Lincoln Laboratory

BIOENGINEERING SYSTEMS AND TECHNOLOGIES INTERN

Lexington, MA
Jun. 2015 - Aug. 2015

- NICL (Neural Indicators of Connectivity and Learning) Project
- Developed eye characterization tool to analyze pupil dilation, saccades, and fixations using Python
- Conducted pilot study with both spatial & rotational cognitive tasks to identify learning styles
- Eye characterization tool to be combined with EEG for full evaluation of learning
- Attended GEM Conference on behalf of MITLL to discuss research opportunity

MIT Lincoln Laboratory

INFORMATICS AND DECISION SUPPORT RESEARCH INTERN

Lexington, MA
Jun. 2014 - Aug. 2014

- SIGMA (Scalable Integration of Geo Dispersed Monitoring Assets) Project
- Implemented decision support and advisory services feature into video monitoring tool
- Conducted pilot study to determine which recommendations were ideal for video operators
- Integrated perspectives of Human Factors and Software Engineering to make responsive tool

North Carolina State University

UNDERGRADUATE RESEARCH ASSISTANT

Raleigh, NC
Aug. 2012 - Oct. 2013

- Center for Educational Informatics: JavaTutor Project (Advisor: Dr. Kristy Boyer)
- An intelligent tutoring system to teach students computational thinking through Java
- Analyzing linguistics from multifaceted data including facial expressions and body posture
- Performed analysis of galvanic skin response to determine engagement of participants

DEVELOPMENT

SAS Institute

DEVELOPMENT TESTING INTERN

Cary, NC
May 2013 - Aug. 2013

- Collaborated on testing strategies with a team from Beijing, China
- Implemented tests to measure performance of Scalable Performance Data Server (SPDS)
- Authored Cloudera Hadoop Custom Sequence Reader and Writer for Embedded Processes (EP)
- Optimized documentation creating internal wiki sites

Lexmark International

FIRMWARE-SOFTWARE STUDENT INTERN

Lexington, KY
Jun. 2012 - Aug. 2012

- Team programmed to develop software with a team from the Philippines
- Designed and implemented software traversal tool with expandable testing capabilities
- Performed demos and to present functionalities and progress to superiors
- Agile scrum team member, responsible for tasks with testing new software architecture

Invited Talks

Identifying Personas of Software Engineers as Knowledge Workers

MICROSOFT RESEARCH SUMMER PRESENTATION

Redmond, WA
Aug. 2016

Studying Sustained Attention and Cognitive States in Remote Technical Interviews

ACM ICER 3RD INTERNATIONAL WORKSHOP ON EYE MOVEMENTS IN PROGRAMMING (EMIP)

[Best Presentation Award]

Joensuu, Finland
Nov. 2015

NICL: Exploring Pupillometry in Cognitive Tasks

MIT LL SUMMER RESEARCH PRESENTATION

Lexington, MA
Aug. 2015

Interesting Projects

Evaluating the Cognitive Burden of Technical Interviews with Biometric Sensing

GRADUATE RESEARCH PROJECT

Fall 2015 - PRESENT

- Compared technical knowledge sharing during remote programming interviews
- Analyzed the interviewer perspective on technical programming interviews

Identity Based Movements: Community Support and Impact through Selfies

GRADUATE RESEARCH PROJECT

Fall 2015 - SPRING 2017

- Interviewed participants of #ilLookLikeAnEngineer, an identity based hashtag movement

Females Participation on Stack Overflow

GRADUATE RESEARCH PROJECT

Spring 2015 - PRESENT

- Identified Barriers of female participation
- Investigating techniques to measure female participation
- Collaborating with the Stack Overflow Research team to implement mentorship program

Teaching Experiences

Snap It! Craft It! Print It! Coding Camp

NC STATE: COLLEGE OF ENGINEERING

Raleigh, NC

Jul. 2017

- As lead instructor, prepared and presented materials for the week long interactive course

Data Science and Visualization Institute for Librarians: Preparing Data for Qualitative Analysis

NC STATE LIBRARY

Raleigh, NC

Apr. 2017

- Prepared and presented material to explain how to use qualitative analysis tools such as ATLAS.ti, NVivo, and RStudio
- **Link:** [Course Materials]

Think and Do Qualitative Research and R with Denae Ford

NC STATE LIBRARY

Raleigh, NC

Nov. 2016

- Prepared and presented material to explain how to use R to for large scale survey analysis
- **Link:** [Course Materials]

The Science Of Technical Interviews: What To Expect And How To Succeed

NC STATE GRADUATE SOFTWARE ENGINEERING COURSE

Raleigh, NC

Oct. 2016

- Prepared and presented lecture of University Graduate Software Engineering course

Preparing for the Technical Interview

NC STATE UNDERGRADUATE SOFTWARE ENGINEERING COURSE

Raleigh, NC

Apr. 2015

- Prepared and presented lecture of University Undergraduate Software Engineering course

INSPIRE: Young Girls interested in Technology

INTECH CAMP

Kingstree, SC

Sep. 2015

- Team taught an introductory HTML+CSS course to middle school girls

Students Mentored

- Alisse Harkins** Project: Defining Peer Parity among Women on Stack Overflow
- Savannah Morgan** Project: How Women ask Questions on Stack Overflow and How Users Respond

Honors & Awards

- 2017 **Travel Scholarship Recipient**, National Society of Blacks in Computing
- 2017 **Travel Scholarship Recipient**, Black Women In Computing Conference
- 2016 **Recipient**, NSF Graduate Research Fellowship Program
- 2016 **Recipient**, Microsoft Research PhD Fellowship
- 2015 **Recipient**, Xerox Technical Minority Scholarship
- 2014 **Recipient**, National GEM Consortium Fellowship
- 2014 **Recipient**, University Graduate Fellowship

Skills

Programming Python, Java, LaTeX, HTML, R, MATLAB, C/C++, SQL

Service

PROGRAM COMMITTEES

- 2017 **Industry Track**, ICPC Program Committee *Buenos Aires, AR*
- 2016 **Student Volunteer**, ICSME Organizing Committee *Raleigh, NC*
- 2016 **Tool Track**, ICSME Program Committee *Raleigh, NC*
- 2016 **Social Media Chair**, VISSOFT Organizing Committee *Raleigh, NC*
- 2015 **Poster Reviewer**, NC-LSAMP *Pembroke, NC*

ORGANIZATIONS

- 2017 **Lead Camp Counselor**, INTech Camp for Girls *Raleigh, NC*
- 2016 **IMSD Ambassador**, NCSU Initiative for Maximizing Student Diversity (IMSD) *Raleigh, NC*
- 2016 **Panelist + Instructor**, INTech Camp for Girls *Kingstree, SC*
- 2015- **Member**, Association for Computing Machinery (ACM) *Raleigh, NC*
- 2015- **Member**, Institute of Electrical and Electronics Engineers (IEEE) *Raleigh, NC*
- 2014 - **Member**, Minority Engineering Graduate Student Association (MEGSA) *Raleigh, NC*
- 2011 **Member, Former Vice President, Former Publicity Chair**, Women In Computer Science *Raleigh, NC*