

# 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

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### 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

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### 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 Participation of Women on Stack Overflow?

**FORD, D.**, HARKINS, A., 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

[Best Presentation Award]

### 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

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### 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

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### Paradise Unplugged: How We Create a More Empathetic and Helpful Online Community

COMCAST SOFTWARE AS CRAFT CONFERENCE

Philadelphia, PA  
Oct. 2017

Keynote Speaker

### Eating Your Donuts and Basking in Your Glow

DIAMOND HACKS HACKATHON

Raleigh, NC  
Sep. 2017

Keynote Speaker

### How Barriers and Identity Influence Participation in Programming Communities

MICROSOFT RESEARCH

Cambridge, UK  
Sep. 2016

## Identifying Personas of Software Engineers as Knowledge Workers

MICROSOFT RESEARCH

Redmond, WA

Aug. 2016

## NICL: Exploring Pupillometry in Cognitive Tasks

MIT LL SUMMER RESEARCH PRESENTATION

Lexington, MA

Aug. 2015

## SIGMA: Advisory Services Notifications System

MIT LL SUMMER RESEARCH PRESENTATION

Lexington, MA

Aug. 2014

## Interesting Projects

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### 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

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### 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  
[\[Course Materials\]](#)

### Think and Do Qualitative Research and R with Dena Ford

NC STATE LIBRARY

Raleigh, NC

Nov. 2016

- Prepared and presented material to explain how to use R to for large scale survey analysis  
[\[Course Materials\]](#)

### 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

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**Alisse Harkins** Project: Defining Peer Parity among Women on Stack Overflow

**Savannah Morgan** Project: How Programming Questions from Women are Received on Stack Overflow

## Honors & Awards

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- 2017 **Invited Participant**, University of Michigan: NextProf Workshop
- 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**, North Carolina State University Graduate Fellowship
- 2016 **Grad Cohort Scholarship Recipient**, CRA-W
- 2012 **Travel Scholarship Recipient**, Facebook Grace Hopper Scholar

## Skills

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

## Service

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### 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 **Graduate Chair**, NCSU Computer Steering Committee *Raleigh, NC*
- 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 **Graduate Advisor, Former Vice President, Former Publicity Chair**, Women In Computer Science *Raleigh, NC*