

**DWAYNE CHRISTIAN BROWN, JR. (“CHRIS”)**  
DOCTORAL CANDIDATE | COMPUTER SCIENCE | NORTH CAROLINA STATE UNIVERSITY

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## EDUCATION

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<b>North Carolina State University</b> <i>Ph.D.</i> in Computer Science Dissertation: <i>Digital Nudges for Encouraging Developer Actions</i> Advisor: Chris Parnin	August 2015 - present
<b>North Carolina State University</b> <i>Graduate Certificate</i> in Teaching and Communication The Graduate School Professional Development	September 2019 - present
<b>North Carolina State University</b> <i>M.S.</i> in Computer Science	August 2015 - May 2017
<b>Duke University</b> <i>B.S.</i> in Computer Science, with Distinction Minor in African and African American Studies	Class of 2013

## PUBLICATIONS

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### Conference Papers

*Nudging Students Toward Better Software Engineering Behaviors (in submission)*  
**Chris Brown**, Chris Parnin SIGCSE 2021  
· ACM Special Interest Group on Computer Science Education Technical Symposium

*Understanding the Impact of GitHub Suggested Changes on Recommendations Between Developers*  
**Chris Brown**, Chris Parnin ESEC/FSE 2020  
· ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering

*An Empirical Study on Regular Expression Bugs*  
Peipei Wang, **Chris Brown**, Jamie A. Jennings, Kathryn T. Stolee MSR 2020  
· ACM International Conference on Mining Software Repositories

*Mining Specifications from Documentation Using a Crowd*  
Peng Sun, **Chris Brown**, Ivan Beschastnikh, Kathryn T. Stolee SANER 2019  
· IEEE International Conference on Software Analysis, Evolution and Reengineering

*How Software Users Recommend Tools to Each Other*  
**Chris Brown**, Emerson Murphy-Hill, Justin Middleton, Esha Sharma VL/HCC 2017  
· IEEE Symposium on Visual Languages and Human-Centric Computing

*Flower: Navigating Program Flow in the IDE*  
Justin Smith, **Chris Brown**, Emerson Murphy-Hill VL/HCC 2017  
· IEEE Symposium on Visual Languages and Human-Centric Computing

*Weaving Computing into all Middle School Disciplines*  
Susan H. Rodger, **Dwayne Brown**, Michael Hoyle, Daniel MacDonald, Michael Marion, Elizabeth Onstwedder, Bella Onwumbiko, Edwin Ward ITiCSE 2014  
· ACM Innovation and Technology in Computer Science Education

## Workshops

*Comparing Different Developer Behavior Recommendation Styles*

**Chris Brown**, Chris Parnin

CHASE 2020

- ACM International Workshop on Cooperative and Human Aspects of Software Engineering, in conjunction with ICSE

*Sorry to Bother You Again: Developer Recommendation Choice Architectures for Designing Effective Bots*

**Chris Brown**, Chris Parnin

BotSE 2020

- ACM International Workshop on Bots in Software Engineering in conjunction with ICSE

*Sorry to Bother You: Designing Bots for Effective Recommendations*

**Chris Brown**, Chris Parnin

BotSE 2019

- IEEE International Workshop on Bots in Software Engineering in conjunction with ICSE

*Experimenting with and Integrating Alice 2.3 into many disciplines (demo)*

Susan H. Rodger, Steve Cooper, Wanda Dann, **Dwayne C. Brown, Jr.**, Jacobo Carrasquel

SIGCSE 2013

- ACM Special Interest Group on Computer Science Education Technical Symposium

## Doctoral Symposium

*Digital Nudges for Encouraging Developer Actions*

**Chris Brown**, Chris Parnin

ICSE 2019

- IEEE International Conference on Software Engineering

## Poster

*Integrating Computer Science into Middle School Mathematics*

Susan H. Rodger, **Dwayne C. Brown, Jr.**, Michael Hoyle, Michael Marion

SIGCSE 2013

- ACM Special Interest Group on Computer Science Education Technical Symposium

## INDUSTRY

### **Red Hat**

Summer 2018

*Quality Engineering Intern*

*Raleigh, NC*

- Verified bugs and automated tests with Python for the robottelo test suite for Red Hat Satellite 6
- Explored Federal Information Processing Standards (FIPS) compatibility for Satellite 6
- Created Ansible roles to automatically test and install Red Hat Satellite

### **Red Hat**

Summer 2017

*Quality Engineering Intern*

*Raleigh, NC*

- Verified bugs and automated tests with Python for the robottelo test suite for Red Hat Satellite 6
- Implemented satellite-populate modules to configure and run robottelo tests with Docker using YAML files (2017)

### **Blackbaud**

Summer 2016

*Software Quality Engineer Intern*

*Charleston, SC*

- Fixed C# bugs and verified test cases for Online Express and Sky Email
- Improved Givalanche API Documentation with Swagger and the Blackbaud Stache framework
- Constructed a dashboard to monitor the status of Online Express using AppDynamics

### **Bank of America**

July 2013 - July 2015

*Python Developer*

*Charlotte, NC*

- Developed, tested, and maintained Python code for the Manual Adjustment Tool application used internally at Bank of America

## RESEARCH

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### Research Assistant

Fall 2018 - present

*North Carolina State University*

*Raleigh, NC*

- Implemented and evaluated the *naive telemarketer design* baseline developer recommendation approach in *tool-recommender-bot* to generate automated pull requests recommending static analysis tools to Maven projects
- Mined GitHub repositories, surveyed users, and designed a user study to explore the impact of GitHub suggested changes on recommendations between developers
- Categorizing regular expression errors and fixes in GitHub pull requests
- Developing and planning evaluation for *nudge-bot* to determining the impact of digital nudges on improving adoption of useful developer behaviors

### Research Assistant

Fall 2017 - Spring 2018

*North Carolina State University*

*Raleigh, NC*

- Investigated implementing a new tool recommendation approach commending developers for bug fixes, apprehending locations of similar errors, and recommending tools to help find and fix bugs
- Researched using crowd-sourcing to improve automatically generated Java API documentation

### Research Assistant

Fall 2016 - Spring 2017

*North Carolina State University*

*Raleigh, NC*

- Developed and evaluated Eclipse plugin to improve code navigation for developers called *Flower*
- Conducted a user study to determine effective characteristics of peer interactions for tool recommendations and discovered user receptiveness is the only significant attribute
- Published and presented this work at a peer-reviewed research conference

### Independent Study

Fall 2016

*North Carolina State University*

*Raleigh, NC*

- Designed an algorithm using automated program repair concepts to grade introductory programming assignments

### Computer Science Undergraduate Research Fellow

Summer 2012 - Spring 2013

*Duke University*

*Durham, NC*

- Researched integrating computer science into middle school education with Alice
- Mapped Common Core K-12 standards to CSTA computer science education standards
- Created tutorials for students and teachers to create Alice worlds based on educational concepts
- Taught Alice programming and tutorials to K-12 teachers at summer workshops as well as middle school students during activity days
- Wrote senior honor's thesis "*Integrating Computer Science Into Middle School Mathematics*"
- Published a paper, poster, and participated in a workshop demo

### Distributed Research Experience for Undergraduates (DREU)

Summer 2011

*Brown University*

*Providence, RI - Moss Beach, CA*

- Investigated applications for robotics in society using ROS, Python, drones, and iRobot Create robots
- Developed *SwagBot*, a remote controlled telepresence robot to help disabled users retrieve items

## TEACHING

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### Instructor

May - July 2020

*North Carolina State University*

*\* Virtual due to COVID-19*

- Instructor of record for CSC116 (*Introduction to Computing - Java*) for Summer 2020

### Guest Lecture Presentation

March 2, 2020

*North Carolina State University*

*Raleigh, NC*

- "Team Project Bot" lecture presentation and *class-bot* demo for CSC326 (*Software Engineering*)

### Python Instructor

June - August 2019

*The Coding School*

*Virtual*

- Tutored a high school student through the codeConnects teaching and mentorship summer program for underrepresented minorities in STEM

- Java Tutor** August - December 2017  
*North Carolina State University Raleigh, NC*  
 · Tutored CSC116 (*Introduction to Computing - Java*) students through NC State Students and Technology in Academia, Research and Service (STARS)
- Java Tutor** August - December 2016  
*AP Computer Science Raleigh, NC*  
 · Tutored a local high school student enrolled in AP Computer Science
- Teaching Assistant** January - May 2016  
*North Carolina State University Raleigh, NC*  
 · Graded projects and exams, held office hours, and used Jenkins to manage student Java programming assignments for CSC216 (*Java Programming Concepts*)
- Teaching Assistant** August - December 2015  
*North Carolina State University Raleigh, NC*  
 · Graded assignments and exams, held office hours, taught lab sections, and used Jenkins to manage Java programming assignments for CSC326 (*Software Engineering*)
- C++ Tutor** January - May 2015  
*Central Piedmont Community College Charlotte, NC*  
 · Tutored a student taking an introductory programming class at Central Piedmont Community College
- Alice Activity Day** March 23, 2013  
*Duke University Durham, NC*  
 · Taught Alice programming to local 6th grade students in two 3-hour sessions to collect data for research thesis through the Duke Computer Science Undergraduate Research Fellowship (CSURF) program
- Creating a 3D Interactive Story** February 22, 2013  
*Duke University Durham, NC*  
 · Taught Alice programming to 4th-6th grade girls for Females Excelling More in Math, Engineering, and Science (FEMMES) event
- Adventures in Alice** November 30, 2012  
*Oak Grove Middle School Winston-Salem, NC*  
 · Taught Alice programming using created tutorials to three 6th grade math and science classes
- Adventures in Alice Programming Workshops** June 18-29 and July 9-13, 2012  
*Duke University Durham, NC*  
 · Taught Alice programming to K-12 teachers to integrate beginner computer science concepts into K-12 curriculum

## SERVICE

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<b>NC State CSC PhD Recruitment Weekend</b>	Coordinator	<i>Raleigh, NC</i>	February 28-29, 2020
<b>HackDuke: Code for Good</b>	Volunteer	<i>Durham, NC</i>	November 2-3, 2019
<b>All Things Open</b>	Volunteer	<i>Raleigh, NC</i>	October 2016, 2017, 2018, 2019
<b>NC State CSC PhD Recruitment Weekend</b>	Volunteer	<i>Raleigh, NC</i>	Spring 2018, 2019
<b>Bridge to the Doctorate Program</b>	Graduate Student Panelist	<i>Raleigh, NC</i>	February 15, 2019
<b>Open Source 101</b>	Volunteer	<i>Raleigh, NC</i>	February 2017, 2018
<b>NC-LSAMP<sup>1</sup></b>	Undergraduate Research Conference Panelist	<i>Raleigh, NC</i>	November 11, 2017
<b>VL/HCC, Blocks and Beyond Workshop</b>	Student Volunteer	<i>Raleigh, NC</i>	October 10-13, 2017
<b>Red Hat Diversity and Inclusion Week</b>	“Why Diversity Matters”	<i>Raleigh, NC</i>	July 2017
<b>Big Brothers Big Sisters</b>	Big Brother (Mentor)	<i>Charlotte, NC</i>	October 2014 - July 2015
<b>SIGCSE 2012</b>	Student Volunteer	<i>Raleigh, NC</i>	February 29 - March 3, 2012

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<sup>1</sup>North Carolina Louis Stokes Alliance for Minority Participation

## PRESENTATIONS AND INVITED TALKS

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<b>DevConf.US</b> <i>“Sorry to Bother You! Effective OSS Recommendations”</i> · Accepted talk presented at DevConf.US 2019 OSS developer community and technology conference	August 15-17, 2019 Boston, MA
<b>Free Open Source Software Interest Group</b> <i>Lightning Talk</i> · Presented my research as a lightning talk for the FOSS Interest Group meeting at NC State	January 25, 2019 Raleigh, NC
<b>Red Hat QECampX</b> <i>“How to Improve Software Tool Discovery and Usage”</i> · Accepted talk presented at the Red Hat QECampX quality engineering conference	October 10, 2018 Raleigh, NC
<b>Linux User’s Group @ NC State</b> <i>Lightning Talk</i> · Presented my research as a lightning talk for the Linux User’s Group	February 28, 2018 Raleigh, NC
<b>Intern Expo</b> <i>Red Hat</i> · Showcase and demo internship projects to Red Hat employees	August 2017, 2018 Raleigh, NC
<b>Laboratory for Analytic Sciences</b> <i>Wednesday Research Meeting</i> · Invited talk to present my research at the Laboratory for Analytic Sciences’ weekly research meeting	November 29, 2017 Raleigh, NC
<b>Intern Showcase</b> <i>Blackbaud</i> · Present the work completed during my internship to Blackbaud interns and employees	August 2016 Raleigh, NC

## OTHER CONFERENCES

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<b>NC State Academic Packways</b> * <i>Virtual due to COVID-19</i>	June 4-5, 2020
<b>NC State Virtual Writing Retreat</b> * <i>Virtual due to COVID-19</i>	May 4-8, 2020
<b>Open Source 101 at Home</b> * <i>Virtual due to COVID-19</i>	May 12, 2020
<b>All Things Open</b> Red Hat <i>Raleigh, NC</i>	October 2016, 2017, 2018, 2019
<b>URMD Grad Cohort Workshop</b> CRA <i>Waikoloa Village, HI</i>	March 21-23, 2019
<b>ESEC/FSE 2018</b> ACM <i>Lake Buena Vista, FL</i>	November 5-9, 2018
<b>NSBC 2018</b> National Society of Blacks in Computing <i>New Orleans, LA</i>	August 9-11, 2018
<b>Open Source 101</b> Opensource.com <i>Raleigh, NC</i>	February 2017, 2018
<b>NSBC 2017</b> National Society of Blacks in Computing <i>Atlanta, GA</i>	June 1-3, 2017
<b>ESEC/FSE 2016</b> ACM <i>Seattle, WA</i>	November 14-18, 2016
<b>LeaderShape</b> Duke University <i>Sophia, NC</i>	August 2012

## HONORS AND AWARDS

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<b>DevConf.US Diversity Travel Scholarship</b> Red Hat <i>Boston, MA</i>	June 25, 2019
<b>SIGSOFT CAPS NSF Travel Award</b> NSF <i>(ICSE 2019) Montreal, QC, Canada</i>	March 27, 2019
<b>Graduate Merit Award</b> North Carolina State University <i>Raleigh, NC</i>	August 2015
<b>Goldman Sachs Research Scholar</b> Goldman Sachs <i>Durham, NC</i>	Summer 2012
<b>Undergraduate Research Fellowship</b> Duke University <i>Durham, NC</i>	May 2012 - May 2013
<b>Computing Research Association DREU</b> Brown University <i>Providence, RI</i>	Summer 2011

## TECHNICAL SKILLS AND ORGANIZATIONS

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**Red Hat Enterprise Linux 7 Certified System Administrator**  
**Organizations:** ACM, IEEE, Python Software Foundation, Linux Foundation, Minority Engineering Graduate Student Association (MEGSA), Free Open Source Software Interest Group (FOSS), Red Hat BUILD (Blacks United in Leadership and Diversity)  
**Hackathons:** Hacktoberfest 2019, PackHacks 2018, Open Jam 2017, Duke Men’s Basketball Hackathon, HackNC 2016, HackDuke 2016, Off the Grid 2016 (Blackbaud)  
**Programming Languages:** Python, Java, R, Ruby, C#, C++, C, HTML, JavaScript, SQL  
**Tools and Technologies:** Git, Ansible, Jenkins, Docker, TravisCI, Linux, Windows, LaTeX, Android