

# DWAYNE “CHRIS” BROWN, JR.

✉ [debrow10@ncsu.com](mailto:debrow10@ncsu.com) 📍 Raleigh, NC 🔗 <https://chbrown13.github.io> in [linkedin.com/in/chris-brown-04840654](https://www.linkedin.com/in/chris-brown-04840654) 🌐 [chbrown13](https://github.com/chbrown13)

## EDUCATION

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### North Carolina State University

August 2015 - present

*Ph.D.* in Computer Science

Dissertation: *Digital Nudges for Encouraging Developer Actions*

Advisor: Chris Parnin

### North Carolina State University

August 2015 - May 2017

*M.S.* in Computer Science

### Duke University

Class of 2013

*B.S.* in Computer Science, with Distinction

Minor in African and African American Studies

## PUBLICATIONS

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### Conference Papers

#### Mining Specifications from Documentation Using a Crowd

SANER 2019

Peng Sun, *Chris Brown*, Ivan Beschastnikh, Kathryn T. Stolee

*Hangzhou, China*

· International Conference on Software Analysis, Evolution and Reengineering

#### How Software Users Recommend Tools to Each Other

VL/HCC 2017

*Chris Brown*, Emerson Murphy-Hill, Justin Middleton, Esha Sharma

*Raleigh, NC*

· Visual Languages and Human-Centric Computing

#### Flower: Navigating Program Flow in the IDE

VL/HCC 2017

Justin Smith, *Chris Brown*, Emerson Murphy-Hill

*Raleigh, NC*

· Visual Languages and Human-Centric Computing

#### Weaving Computing into all Middle School Disciplines

ITiCSE 2014

Susan H. Rodger, *Dwayne Brown*, Michael Hoyle, Daniel MacDonald, Michael Marion, Elizabeth Onstwedder, Bella Onwumbiko, Edwin Ward

*Uppsala, Sweden*

· Innovation and Technology in Computer Science Education

### Workshops

#### Sorry to Bother You: Designing Bots for Effective Recommendations (paper) BotSE 2019

*Chris Brown*, Chris Parnin

*Montreal, QC, Canada*

· International Workshop on Bots in Software Engineering in conjunction with ICSE 2019

#### Experimenting with and Integrating Alice 2.3 into many disciplines (demo) SIGCSE 2013

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

*Denver, CO*

· ACM Special Interest Group on Computer Science Education

### Doctoral Symposium

#### Digital Nudges for Encouraging Developer Actions

ICSE 2019

*Chris Brown*, Chris Parnin

*Montreal, QC, Canada*

· International Conference on Software Engineering

### Posters

#### Integrating Computer Science into Middle School Mathematics

SIGCSE 2013

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

*Denver, CO*

· ACM Special Interest Group on Computer Science Education

## RESEARCH

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### Research Assistant

Fall 2018 - present

*North Carolina State University*

*Raleigh, NC*

- Created the *naive telemarketer design* as a baseline approach to examine automated recommendations to software developers
- Implemented and evaluated the *naive telemarketer design* in *tool-recommender-bot* to generate automated pull requests recommending static analysis tools to Maven projects
- Found this approach ineffective due to a poor social context and integration in developer workflows
- Published and presented this work at a peer-reviewed research workshop (BotSE 2019)
- Mined GitHub repositories, surveyed users, and designed a user study to explore the impact of GitHub suggested changes on recommendations between developers (ICSE 2020, *in submission*)
- 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 (SANER 2019)

### Research Assistant

Fall 2016 - Spring 2017

*North Carolina State University*

*Raleigh, NC*

- Developed and evaluated an Eclipse plugin in Java to improve code navigation in the IDE called *Flower* (VL/HCC 2017)
- 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 (VL/HCC 2017)

### 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 (ITiCSE 2014), poster (SIGCSE 2013), and participated in a workshop demo (SIGCSE 2013) at peer-reviewed research conferences

### 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

## INDUSTRY

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### 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

## TEACHING

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- Teaching and Communication Certificate** September 2019 - present  
*North Carolina State University* Raleigh, NC
- Enrolled in the graduate certificate program requiring 100 hours of approved workshops and activities
- 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  
*NC State CSC116: Introduction to Programming Java* Raleigh, NC
- Tutored students in the Introduction to Computing Java course 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  
*NC State CSC216: Java Programming Concepts* Raleigh, NC
- Graded projects and exams, held office hours, and used Jenkins to manage student Java programming assignments
- Teaching Assistant** August - December 2015  
*NC State CSC326: Software Engineering* Raleigh, NC
- Graded assignments and exams, held office hours, taught lab sections, and used Jenkins to manage Java programming assignments
- 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 CSURF* Durham, NC
- Taught Alice programming to local 6th grade students in two 3-hour sessions to collect data for research thesis
- Creating a 3D Interactive Story** February 22, 2013  
*Duke FEMMES* 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 at a two-week workshop and a 1-week workshop for K-12 teachers  
· Presented methods and tutorials to integrate beginner computer science concepts with Alice into K-12 curriculum

## PRESENTATIONS

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**DevConf.US** August 15-17, 2019  
*“Sorry to Bother You! Effective OSS Recommendations”* Boston, MA  
· Accepted talk presented at DevConf.US 2019 OSS developer community and technology conference

**Free Open Source Software Interest Group** January 25, 2019  
*Lightning Talk* Raleigh, NC  
· Presented my research as a lightning talk for the FOSS Interest Group meeting at NC State

**Red Hat QECampX** October 10, 2018  
*“How to Improve Software Tool Discovery and Usage”* Raleigh, NC  
· Accepted talk presented at the Red Hat QECampX quality engineering conference

**Linux User’s Group @ NC State** February 28, 2018  
*Lightning Talk* Raleigh, NC  
· Presented my research as a lightning talk for the Linux User’s Group

**Intern Expo** August 2017, 2018  
*Red Hat* Raleigh, NC  
· Showcase and demo internship projects to Red Hat employees

**Laboratory for Analytic Sciences** November 29, 2017  
*Wednesday Research Meeting* Raleigh, NC  
· Invited talk to present my research at the Laboratory for Analytic Sciences’ weekly research meeting

**Intern Showcase** August 2016  
*Blackbaud* Raleigh, NC  
· Present the work completed during my internship to Blackbaud interns and employees

## OTHER CONFERENCES

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**All Things Open** Opensource.com Raleigh, NC October 2016, 2017, 2018, 2019  
**URMD Grad Cohort Workshop** CRA Waikoloa Village, HI March 21-23, 2019  
**Foundations of Software Engineering** ACM Lake Buena Vista, FL November 5-9, 2018  
**National Society of Blacks in Computing** NSBC New Orleans, LA August 9-11, 2018  
**Open Source 101** Opensource.com Raleigh, NC February 2017, 2018  
**National Society of Blacks in Computing** NSBC Atlanta, GA June 1-3, 2017  
**Foundations of Software Engineering** ACM Seattle, WA November 14-18, 2016  
**LeaderShape** Duke University Sophia, NC August 2012

## 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, Maven, Linux, Windows, LaTeX, Android

## SERVICE

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<b>Hack Duke</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>	March 1-2, 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</b> Conference 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
<b>ACM Mid-Atlantic Region Programming Contest</b> Volunteer <i>Durham, NC</i>	November 5, 2011

## 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</i> ) <i>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

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