

DWAYNE CHRISTIAN BROWN, JR. (“CHRIS”)

ASSISTANT PROFESSOR | DEPARTMENT OF COMPUTER SCIENCE | VIRGINIA TECH

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EDUCATION

North Carolina State University <i>Ph.D.</i> in Computer Science Dissertation: <i>Digital Nudges for Encouraging Developer Actions</i> Advised by Dr. Chris Parnin	2015 - 2021
North Carolina State University <i>M.S.</i> in Computer Science	2015 - 2017
Duke University <i>B.S.</i> in Computer Science, with Distinction Minor in African and African American Studies	2009 - 2013

PUBLICATIONS

Conference Papers

- Understanding the Impact of GitHub Suggested Changes on Recommendations Between Developers*
Chris Brown, Chris Parnin ESEC/FSE 2020
· 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
· International Conference on Mining Software Repositories
- Mining Specifications from Documentation Using a Crowd*
Peng Sun, **Chris Brown**, Ivan Beschastnikh, Kathryn T. Stolee SANER 2019
· 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
· 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
· 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
· Conference on Innovation and Technology in Computer Science Education

Workshops

- Dark Patterns for Influencing Developer Behavior*
Chris Brown, Chris Parnin Dark Patterns 2021
· What Can CHI Do About Dark Patterns? Workshop in conjunction with CHI
- Nudging Students Toward Better Software Engineering Behaviors*
Chris Brown, Chris Parnin BotSE 2021
· International Workshop on Bots in 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

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

Comparing Different Developer Behavior Recommendation Styles

Chris Brown, Chris Parnin CHASE 2020

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

Sorry to Bother You: Designing Bots for Effective Recommendations

Chris Brown, Chris Parnin BotSE 2019

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

Experimenting with and Integrating Alice 2.3 into many disciplines (abstract only)

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

SIGCSE 2013

- Special Interest Group on Computer Science Education Technical Symposium

Doctoral Symposium

Digital Nudges for Encouraging Developer Actions

Chris Brown, Chris Parnin ICSE 2019

- 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

- 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 to configure and robottelo tests with Docker using YAML files

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

Research Assistant Fall 2018 - present

North Carolina State University (Dr. Chris Parnin) 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
- Developed and evaluated *class-bot* systems to determining the impact of digital nudges on improving student programming behaviors

Research Assistant

Fall 2017 - Spring 2018

North Carolina State University (Dr. Emerson-Murphy-Hill)

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 (Dr. Emerson Murphy-Hill)

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 (Dr. Guoliang Jin)

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 (Dr. Susan Rodger)

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 (Dr. Chad Jenkins)

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

Teaching and Communication Certificate

September 2019 - present

North Carolina State University

Raleigh, NC

- NC State Graduate Certificate program requiring 100 hours of approved workshops and activities

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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- Program Committee Member** BotSE 2021
- Decoding CS Grad School Panelist** *Virtual* December 1, 2020
- NC State CSC PhD Recruitment Weekend Coordinator** *Raleigh, NC* February 28-29, 2020
- HackDuke: Code for Good Volunteer** *Durham, NC* November 2-3, 2019
- All Things Open Volunteer** *Raleigh, NC* October 2016, 2017, 2018, 2019
- NC State CSC PhD Recruitment Weekend Volunteer** *Raleigh, NC* Spring 2018, 2019
- Bridge to the Doctorate Program Graduate Student Panelist** *Raleigh, NC* February 15, 2019
- Open Source 101 Volunteer** *Raleigh, NC* February 2017, 2018
- NC-LSAMP¹ Undergraduate Research Conference Panelist** *Raleigh, NC* November 11, 2017
- VL/HCC, Blocks and Beyond Workshop Student Volunteer** *Raleigh, NC* October 10-13, 2017
- Red Hat Diversity and Inclusion Week “Why Diversity Matters”** *Raleigh, NC* July 2017
- Big Brothers Big Sisters Big Brother (Mentor)** *Charlotte, NC* October 2014 - July 2015
- SIGCSE 2012 Student Volunteer** *Raleigh, NC* February 29 - March 3, 2012

¹North Carolina Louis Stokes Alliance for Minority Participation

PRESENTATIONS AND INVITED TALKS

- North Carolina State University Three Minute Thesis** September 24, 2020
“Digital Nudges for Encouraging Developer Behaviors” *Virtual*
· Participated in the NC State Graduate School Three Minute Thesis (3MT) competition
- 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

- Future Faculty Diversity Program at Virginia Tech*** *Virtual* October 4-7, 2020
- Red Hat Research Day Infrastructure Software** *Virtual* September 30, 2020
- NC State Academic Packways*** *Virtual* June 4-5, 2020
- NC State Virtual Writing Retreat*** *Virtual* May 4-8, 2020
- Open Source 101 at Home*** *Virtual* May 12, 2020
- All Things Open** Red Hat *Raleigh, NC* October 2016, 2017, 2018, 2019, 2020
- URMD Grad Cohort Workshop** CRA *Waikoloa Village, HI* March 21-23, 2019
- ESEC/FSE 2018** ACM *Lake Buena Vista, FL* November 5-9, 2018
- NSBC 2018** National Society of Blacks in Computing *New Orleans, LA* August 9-11, 2018
- Open Source 101** Opensource.com *Raleigh, NC* February 2017, 2018
- NSBC 2017** National Society of Blacks in Computing *Atlanta, GA* June 1-3, 2017
- ESEC/FSE 2016** ACM *Seattle, WA* November 14-18, 2016
- LeaderShape** Duke University *Sophia, NC* August 2012

HONORS AND AWARDS

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

* Virtual due to COVID-19