

# DWAYNE CHRISTIAN BROWN, JR. (“CHRIS”)

ASSISTANT PROFESSOR | DEPARTMENT OF COMPUTER SCIENCE | VIRGINIA TECH

✉ dcbrown@vt.edu 📍 Blacksburg, VA 🔗 <https://people.cs.vt.edu/dcbrown/> 📧 chbrown13 🐦 @d\_chrisbrown2

## EDUCATION

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**North Carolina State University** 2015 - 2021

*Ph.D.* in Computer Science

Dissertation: *Digital Nudges for Encouraging Developer Actions*

Advised by Dr. Chris Parnin

**North Carolina State University** 2015 - 2017

*M.S.* in Computer Science

**Duke University** 2009 - 2013

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

Minor in African and African American Studies

### ADDITIONAL EDUCATION

**North Carolina State University** 2019 - 2021

*Teaching and Communication Graduate Certificate*

## EMPLOYMENT HISTORY

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**Virginia Polytechnic Institute and State University (Virginia Tech)** Blacksburg, VA

*Assistant Professor, Fall 2021 - present*

**North Carolina State University (NC State)** Raleigh, NC

*Research Assistant, Fall 2016 - Spring 2021*

*Teaching Assistant, Fall 2015 - Spring 2016*

**Red Hat** Raleigh, NC

*Quality Engineering Intern, Summer 2018*

*Quality Engineering Intern, Summer 2017*

**Blackbaud** Charleston, SC

*Software Quality Engineer Intern, Summer 2016*

**Bank of America** Charlotte, NC

*Python Developer, July 2013 - July 2015*

## PUBLICATIONS

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(My name is in bold, underlined names are students directly supervised by me.)

### Journal Publications

[J1] Peipei Wang, **Chris Brown**, Jamie A. Jennings, Kathryn T. Stolee. *Demystifying Regular Expression Bugs: A comprehensive study on regular expression bug causes, fixes, and testing*. Empirical Software Engineering (EMSE 2022). [<https://doi.org/10.1007/s10664-021-10033-1>]

### Conference Publications

[C10] Swanand Vaishampayan, Sahar Farzanehpour, **Chris Brown**. *Procedural Justice and Fairness in Automated Resume Parsers for Tech Hiring: Insights from Candidate Perspectives*. Visual Languages and Human-Centric Computing (VL/HCC 2023).

[C9] Minhyuk Ko, Dibyendu Brinto Bose, Hemayet Ahmed Chowdhury, Mohammed Seyam, **Chris Brown**. *Exploring the Barriers and Factors that Influence Debugger Usage for Students*. Visual Languages and Human-Centric Computing (VL/HCC 2023).

- [C8] Tianjia Wang, Daniel Vargas Diaz, **Chris Brown**, Yan Chen. *Towards Adapting Computer Science Courses to AI Assistants' Capabilities*. Visual Languages and Human-Centric Computing (VL/HCC 2023).
- [C7] Mahnaz Behroozi, Chris Parnin, **Chris Brown**. *Asynchronous Technical Interviews: Reducing the Effect of Supervised Think-Aloud on Communication Ability*. Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2022). [22% acceptance] **🏆 Distinguished Paper Award 🏆**
- [C6] **Chris Brown**, Chris Parnin. *Understanding the Impact of GitHub Suggested Changes on Recommendations Between Developers*. Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020). [<https://doi.org/10.1145/3368089.3409722>]
- [C5] Peipei Wang, **Chris Brown**, Jamie A. Jennings, Kathryn T. Stolee. *An Empirical Study on Regular Expression Bugs*. International Conference on Mining Software Repositories (MSR 2020). [<https://doi.org/10.1145/3379597.3387464>]
- [C4] Peng Sun, **Chris Brown**, Ivan Beschastnikh, Kathryn T. Stolee. *Mining Specifications from Documentation Using a Crowd*. International Conference on Software Analysis, Evolution and Reengineering (SANER 2019). [<https://doi.org/10.1109/SANER.2019.8668025>]
- [C3] **Chris Brown**, Justin Middleton, Esha Sharma, Emerson Murphy-Hill. *How Software Users Recommend Tools to Each Other*. Visual Languages and Human-Centric Computing (VL/HCC 2017). [<https://doi.org/10.1109/VLHCC.2017.8103460>]
- [C2] Justin Smith, **Chris Brown**, Emerson Murphy-Hill. *Flower: Navigating Program Flow in the IDE*. Visual Languages and Human-Centric Computing (VL/HCC 2017). [<https://doi.org/10.1109/VLHCC.2017.8103445>]
- [C1] Susan H. Rodger, **Dwayne Brown**, Michael Hoyle, Daniel MacDonald, Michael Marion, Elizabeth Onstwedder, Bella Onwumbiko, Edwin Ward. *Weaving Computing into all Middle School Disciplines*. Innovation and Technology in Computer Science Education (ITiCSE 2014). [<https://doi.org/10.1145/2591708.2591754>]

### Workshop Publications

- [W9] Nivishree Palvannan, **Chris Brown**. *Suggestion Bot: Analyzing the Impact of Automated Suggested Changes on Code Reviews*. International Workshop on Bots in Software Engineering in conjunction with ICSE (BotSE 2023).
- [W8] Md Mahim Anjum Haque, Wasi Uddin Ahmad, Ismini Lourentzou, **Chris Brown**. *FixEval: Execution-based Evaluation of Program Fixes for Programming Problems*. International Workshop on Automated Program Repair in conjunction with ICSE (APR 2023).
- [W7] **Chris Brown**. *Nudging Developers to Participate in SE Research*. International Workshop on Recruitment Of Participants for Empirical SE Studies in conjunction with CHI (ROPES 2022). [<https://ropes-workshops.github.io/ropes22/>]
- [W6] **Chris Brown**, Chris Parnin. *Dark Patterns for Influencing Developer Behavior*. What Can CHI Do About Dark Patterns? Workshop in conjunction with CHI (Dark Patterns 2021). [<https://darkpatternsindesign.com/position-papers/>]
- [W5] **Chris Brown**, Chris Parnin. *Nudging Students Toward Better Software Engineering Behaviors*. International Workshop on Bots in Software Engineering in conjunction with ICSE (BotSE 2021). [<https://doi.org/10.1109/BotSE52550.2021.00010>]
- [W4] **Chris Brown**, Chris Parnin. *Comparing Different Developer Behavior Recommendation Styles*. International Workshop on Cooperative and Human Aspects of Software Engineering in conjunc-

tion with ICSE (CHASE 2021). [<https://doi.org/10.1145/3387940.3391481>]

- [W3] **Chris Brown**, Chris Parnin. *Sorry to Bother You Again: Developer Recommendation Choice Architectures for Designing Effective Bots*. International Workshop on Bots in Software Engineering in conjunction with ICSE (BotSE 2020). [<https://doi.org/10.1145/3387940.3391506>]
- [W2] **Chris Brown**, Chris Parnin. *Sorry to Bother You: Designing Bots for Effective Recommendations*. International Workshop on Bots in Software Engineering in conjunction with ICSE (BotSE 2019). [<https://doi.org/10.1109/BotSE.2019.00021>]
- [W1] Susan H. Rodger, Steve Cooper, Wanda Dann, **Dwayne C. Brown**, Jacobo Carrasquel. *Experimenting with and Integrating Alice 2.3 into many disciplines (abstract only)*. Special Interest Group on Computer Science Education (SIGCSE 2013). [<https://doi.org/10.1145/2445196.2445513>]

## Doctoral Symposia

- [DS1] **Chris Brown**. *Nudges for Encouraging Developer Actions*. International Conference on Software Engineering: Companion Proceedings (ICSE 2019). [<https://doi.org/10.1109/ICSE-Companion.2019.00082>]

## Posters

- [P5] Sahar Farzanehpour, **Chris Brown**, Swanand Vaishampayan. “Automated Resume Parsing: Resume vs. Online Profiles”. *Virginia Tech Undergraduate Research in Computer Science Spring Symposium* (VTURCS 2023) [non-peer reviewed]
- [P4] Jenna Krebs, **Chris Brown**. “A Study of Exponent and Pramp as Technical Interview Preparation Tools”. *Virginia Tech Dennis Dean Undergraduate Research and Creative Scholarship Conference*. 2023 [non-peer reviewed]
- [P3] Grace Govan, Sean Gruber, **Chris Brown**. “Gaps in Software Engineering Education”. *Virginia Tech Undergraduate Research in Computer Science Spring Symposium* (VTURCS 2022) [non-peer reviewed]
- [P2] Hennah Nazari, Brian Bell, **Chris Brown**, Sang Won Lee. “Understanding Challenges in Technical Interview Preparation Process”. *Virginia Tech Undergraduate Research in Computer Science Spring Symposium* (VTURCS 2022) [non-peer reviewed]
- [P1] Susan H. Rodger, **Dwayne C. Brown**, Michael Hoyle, Michael Marion. *Integrating Computer Science into Middle School Mathematics*. Special Interest Group on Computer Science Education (SIGCSE 2013). [<https://doi.org/10.1145/2445196.2445424>]

## PRESENTATIONS AND TALKS

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### Invited Talks

- [T4] *How to Recommend Tools for Finding and Fixing Software Errors or Overcoming the Unwise Monkeys of Tool Adoption*. It Will Never Work in Theory (NWiT) session at Strange Loop, September 23, 2022. St. Louis, MO.
- [T3] *Sorry to Bother You! Effective OSS Recommendations*. DevConf.US Open Source Community Conference, August 17, 2019. Boston, MA.
- [T2] *How to Improve Software Tool Discovery and Usage*. Red Hat QECampX, October 10, 2018. Raleigh, NC.
- [T1] *How Software Users Recommend Tools to Each Other*. Laboratory for Analytic Sciences (LAS) Wednesday Research Meeting, November 29, 2017. Raleigh, NC.

### Invited Panels

- [T3] *VT Academic Jobs Panel*. Virginia Tech CS Grad Council, December 2, 2021. Blacksburg, VA.
- [T2] *NC State Career Retreat: Success Stories*. NC State Graduate School Professional Development Team, July 16, 2021. Virtual.\*
- [T1] *Undergraduate Research Conference Panel*. North Carolina Louis Stokes Alliance for Minority Participation (NC-LSAMP) conference. November 11, 2017. Raleigh, NC.

### Miscellaneous Presentations

- [T6] *New Faculty Hire Conversation w/ Chris Brown*. Office of Postdoctoral Affairs, Virginia Tech. August 9, 2023.
- [T5] Engineering Undergraduate Research Seminar (ENGR 1014), Virginia Tech. October 28, 2022.
- [T4] Faculty Research Presentation. Graduate Student Recruiting Weekend. Virginia Tech. March 18, 2022.
- [T3] *Code World, No Blanket*. Graduate Seminar (CS 5944), Virginia Tech. September 10, 2021.
- [T2] Meet the Faculty. Graduate Seminar (CS 5944), Virginia Tech. September 3, 2021.
- [T1] *Digital Nudges for Encouraging Developer Behaviors*. NC State Three Minute Thesis (3MT) competition, September 24, 2020. Virtual.\*

### Invited Meetings

- [M1] *Software Developer Diversity and Inclusion Workshop*. NII Shonan Meeting, June 26-29, 2023. Kanagawa, Japan.

## RESEARCH FUNDING (TOTAL = \$128,000)

*(I am the primary investigator (PI) unless otherwise specified.)*

- [G3] **Student Engineers' Council Big Contribution Grant** \$8,000
- [G2] **Commonwealth Cyber Initiative (CCI): Securing Interactions between Humans and Machines** \$60,000  
*Understanding the Impact of Data Privacy Regulations on Software and Its Stakeholders*  
 · Co-PI: Aaron Brantley (*Political Science*), Virginia Tech
- [G1] **Google Award for Inclusion Research** \$60,000  
*Supporting Under-Resourced Software Engineering Job Seekers through Facilitating Online Collaboration in Technical Interview Preparation*  
 · Co-PI: Sang Won Lee, Virginia Tech

## TEACHING

*(I am the instructor of record unless otherwise specified.)*

### Virginia Tech

CS 5704: Software Engineering  
*Spring 2022, Spring 2023*

CS 5974: Independent Study  
*Summer 2022, Spring 2023*

CS 4974: Independent Study  
*Spring 2023, Summer 2023*

CS 3704: Intermediate Software Design and Engineering

Fall 2023

CS 2974: Independent Study

Spring 2022

## NC State

Summer 2020 CSC116: Introduction to Computing - Java\*

Spring 2016 CSC216: Java Programming Concepts (*Teaching Assistant*)

Fall 2015 CSC326: Software Engineering (*Teaching Assistant*)

## MISCELLANEOUS

### The Coding School

Python Instructor

Summer 2019

Virtual

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

## SERVICE

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### External Service

#### Journal Reviewer

IEEE Software (*Special Issue on Developing your Software Engineering Career*): 2023

Empirical Software Engineering (EMSE): 2022, 2023

IEEE Software: 2022

IEEE Software (*Special Issue Bots in Software Engineering*): 2022

PeerJ Computer Science: 2021

IEEE Transactions on Software Engineering (TSE): 2021

#### Program Committee Member

Foundations of Software Engineering (FSE): 2023 [Tutorials Track]

Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium: 2023  
[Birds of a Feather Track]

International Workshop on Bots in Software Engineering (BotSE): 2021, 2022, 2023

International Conference on Cooperative and Human Aspects of Software Engineering (CHASE):  
2022

#### Organizing Committee

Foundations of Software Engineering (FSE): 2024 [Web Co-Chair]

#### Session Chair

International Conference on Cooperative and Human Aspects of Software Engineering (CHASE):  
2022 [Mixed Session]

### Internal Service

#### Department of Computer Science

Undergraduate Program Committee: Fall 2022 - present

Software Engineering PhD Qualifying Exam Committee: 2022, 2023

#### Virginia Tech

Future Faculty Diversity Program (2020 Cohort)

## ADVISING

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## PhD Students

(*Co-advisor*)

Yoseph Berhanu	Fall 2023 - present
Arpit Thool	Fall 2023 - present
Dibyendu Brinto Bose	Spring 2023 - present
Swanand Vaishampayan	Spring 2023 - present
Tianjia Wang ( <i>Dr. Yan Chen</i> )	Spring 2023 - present
Hunter Leary	Fall 2022 - present
Minhyuk Ko	Fall 2022 - present
Xiaoxiao Gan	Summer 2022 - present
Shawal Kahlid	Spring 2022 - present

## MS Students

Sahar Farzanehpour	Fall 2023 - present, expected Spring 2025
Peiqing Guo	Fall 2023 - present, expected Spring 2025
Swetha Rajeev	Spring 2023 - present, expected Fall 2024
Tian-Yu Shing	Spring 2023 - present, expected Fall 2024
Huayu Liang	Spring 2023 - present, expected Fall 2024
Jeffrey Smith	Fall 2022 - present, expected Fall 2023
Brian Bell*	Spring 2022 - Spring 2023
Lucas Franke*	Spring 2022 - Spring 2023
Mahim Haque	Spring 2022 - present, expected Fall 2023
Ryan Wood	Spring 2022 - Spring 2023
Sean Gruber	Fall 2021 - Spring 2023
Nivishree Palvannan	Fall 2021 - Spring 2023

\* Accelerated BS/Master's program

## Undergraduate Students

Jenna Krebs	Spring 2023
Sahar Farzanehpour	Spring 2023
PeiQing Guo	Spring 2022
Grace Govan	Fall 2021 - Sprint 2022

## Undergraduate Summer Researchers

Dylan Murphy Summer 2023

### *Multicultural Academic Opportunities Program (MAOP)*

Omer Ahmed	Summer 2023
Edwin Lewis II (Morehouse)	Summer 2023
Colin Roberts	Summer 2023

\* Virginia Tech students unless otherwise specified

## 🏆 Student Awards 🏆

Shawal Khalid	<i>Bitshares Fellowship</i>
Brian Bell	<i>New Horizon Graduate Scholar</i>

## Thesis Advisory Committees

(*Student advisor, committees are for the CS Department at Virginia Tech unless otherwise specified.*)

- Miles Frantz, PhD (*Dr. Daphne Yao*)
- Divyansh Mishra, MS (*Dr. Steve Edwards*)
- Alex Hicks, PhD (*Dr. Cliff Shaffer*)

- Juntong Chen, MS (*Dr. Na Meng*)
- Ming Zhu, PhD (*Dr. Ismini Lourentzou* and *Dr. Daphne Yao*)

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\* Virtual due to COVID-19