

# Nischal Shrestha

NC State University  
Raleigh, NC  
[nshrest@ncsu.edu](mailto:nshrest@ncsu.edu)  
[nischalshrestha.me](http://nischalshrestha.me)

## RESEARCH INTERESTS

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Software Engineering, Programming Languages, Human-Computer Interaction.

## EDUCATION

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- 2016-Present:**      **Ph.D. in Computer Science**, NC State University
- Advisor: [Dr. Chris Parnin](#)
  - Member of the [alt-code](#) lab
  - **Thesis:** Applying learning transfer will help programmers learn second and subsequent languages more effectively than traditional approaches
  - **Progress:** Passed the Written Preliminary in the Fall of 2018

**2011-2015:**      **B.S. in Computer Science**, NC State University

## PUBLICATIONS

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Conference Paper      *[It's Like Python But: Supporting Transfer of Programming Language Knowledge.](#)*  
**Nischal Shrestha**, Titus Barik, Chris Parnin. VL/HCC 2018.

Consortium Paper      *[Towards Supporting Knowledge Transfer of Programming Languages.](#)*  
**Nischal Shrestha**. VL/HCC 2018.

## EXPERIENCE

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- 2014 - 2015:**      Android Programmer at NC State University
- Undergraduate research led by Dr. Ben Watson. Co-PIs: Drs. Anne McLaughlin, and William Enck at NC State University
  - Developed an Android application for a field study on measuring user stress via mobile sensors using [AWARE](#)

- 2015 - 2016:**      Android/Web Programmer at NC State University
- Optimized a visual recognition game in Android with Drs. Benjamin Watson, Patrick FitzGerald, Christian Holljes, and Masters student, Shaun Kurian

- 2016:** Android Intern at WillowTree, Inc.
- Developed an Android application for AccuWeather
  - Implemented a widget from scratch using best Android practices
- 2016:** Graduate Research Assistant
- Researched human error and cognitive models for prediction (Advisor: Dr. Robert St. Amant)
  - Extended a cognitive modeling tool called Cogulator to allow for [selection rules](#) in GOMS (Goals Operators Methods and Selection Rules) modeling
- 2017:** Graduate Research Assistant
- Researched visualization of a cognitive model playing the concentration game with JavaScript (Advisor: Dr. David Roberts)
  - Wrote a [plugin](#) for [JIVUI](#) to visualize an ACT-R model playing the concentration game
- 2017:** Returning Android Intern at WillowTree, Inc.
- Worked on an Android application for a live video streaming application called [Halogen](#) for Halogen Networks, LLC
  - Gained experience using the MVVM architecture
- 2018-Present:** Graduate Research Assistant
- Researching learning transfer issues for programming languages (PhD Advisor: Dr. Chris Parnin)
  - Explored and built Transfer Tutor, a tool to assist learning transfer

## INTERESTING PROJECTS

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### Transfer Tutor

An interactive tool that guides programmers with a background in Python to learn R. Transfer Tutor was designed using HCI principles such as providing appropriate affordances to help maintain focus on key syntax elements with the use of colored highlights and incremental stepping of code. Participants found Transfer Tutor to be useful for mapping known concepts in Python to R.

### Transfer Issues In Stack Overflow

An exploration of issues programmers experience when moving from Python to R or vice-versa on Stack Overflow. Analysis on a small sample revealed that most programmers ask questions related to “how-tos” and a significant portion of questions ask for a direct translation of code written in the previous language.

## Spark API Translator

A Java application written for a graduate level compilers course that translates code written in a small subset of Apache Spark's RDD API to the Dataset or Dataframe API. The application uses ANTLR for lexing and parsing and custom transformer classes for code transformation.

## PRESENTATIONS

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**2018:** *It's Like Python But: Supporting Transfer of Programming Language Knowledge.*  
VL/HCC 2018, Lisbon, Portugal.

*Towards Supporting Knowledge Transfer of Programming Languages.*  
Knowledge. Graduate Consortium, VL/HCC 2018, Lisbon, Portugal.

## AWARDS AND HONORS

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**Dean's List:** Spring 2012, Spring & Fall 2014, Spring 2015

**Consortium Award:** VL/HCC 2018.

## TEACHING

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**Fall, 2016:** CSC 216: Programming Concepts in Java (Teaching Assistant/Lab Instructor)

**Fall, 2017:** CSC 116: Introduction to Computing - Java (Teaching Assistant)

**Spring, 2018:** CSC 116: Introduction to Computing - Java (Teaching Assistant)

**Summer, 2018:** REU: Science of Software (Mentor)

## TECHNICAL SKILLS

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**Programming:** Java, Python, Android, R, MySQL, LaTeX, HTML, CSS, JavaScript, Node.js

**Research:** Experimental Research Design, Qualitative & Quantitative analysis

## SERVICE

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**2018:** Reviewer, VISSOFT 2018 Artifact Evaluation Track Program Committee

## REFERENCES

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Dr. Christopher Parnin [Ph.D. Advisor]

North Carolina State University

Email: [cjparnin@ncsu.edu](mailto:cjparnin@ncsu.edu)

Website: <http://chrisparnin.me/>

Dr. David Roberts [previous Ph.D. Advisor]  
North Carolina State University  
**Email:** robertsd@csc.ncsu.edu  
**Website:** <https://people.engr.ncsu.edu/dlrober4/>

Dr. St. Amant [previous Ph.D. Advisor]  
North Carolina State University  
**Email:** stamant@ncsu.edu  
**Website:** <https://www.csc.ncsu.edu/people/stamant>

Dr. Ben Watson [undergraduate research Advisor]  
North Carolina State University  
**Email:** bwatson@ncsu.edu  
**Website:** <https://watson.csc.ncsu.edu>

Derek Brameyer [VP of Operations]  
Willow Tree, Inc.  
**Email:** derek.brameyer@willowtreeapps.com  
**Website:** <https://www.linkedin.com/in/derek-brameyer-96a3bb24>