Rebecca Schreib (née Smith)

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EDUCATION	**Rice University**	August 2015 - December 2019

Rice University August 2015 - December 2019
Ph.D. in Computer Science
    Advisor: Professor Scott Rixner
    Thesis: "Computer Science Education at Scale: Providing Personalized and Interactive
        Learning Experiences Within Large Introductory Courses"
Certificate in Teaching and Learning

Rice University August 2014 - May 2015
M.S. in Computer Science
    Advisor: Professor Scott Rixner
    Thesis: "Reliability and Optimization in Memory-Constrained Embedded Systems"

Rice University August 2010 - May 2014
B.S. in Computer Science
    Summa Cum Laude
    Distinction in Research and Creative Works

FULL-TIME EMPLOYMENT

Rice University January 2020 - Present
Assistant Teaching Professor, Department of Computer Science

PEER-REVIEWED CONFERENCE PUBLICATIONS

M. Pham, A. Nguyen, and **R. Schreib**, "MemStep: An Interactive Tool for Constructing and Visualizing the Run-Time Memory Layout of Java Programs". In *Proceedings of the 29th ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (July 2024).

R. Smith and S. Rixner, "Compigorithm: An Interactive Tool for Guided Practice of Complexity Analysis". In *Proceedings of the 25th ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (June 2020).

R. Smith and S. Rixner, "Design and Evaluation of a Collaborative Online Computational Thinking Course". In *Proceedings of the 25th ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (June 2020).

R. Smith, T. Tang, J. Warren, and S. Rixner, "Auto-Generating Visual Exercises for Learning Program Semantics". In *Proceedings of the 24th ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (July 2019).

R. Smith and S. Rixner, "The Error Landscape: Characterizing the Mistakes of Novice Programmers". In *Proceedings of the 50th ACM SIGCSE Technical Symposium on Computer Science Education* (SIGCSE) (February 2019).

R. Smith and S. Rixner, "A Policy-Based Framework for Dynamic Scaling of Virtual Machine Memory Reservations" In *Proceedings of the 8th ACM SIGMOD/SIGOPS Symposium on Cloud Computing* (SoCC) (September 2017).

R. Smith, T. Tang, J. Warren, and S. Rixner, "An Automated System for Interactively Learning Software Testing". In *Proceedings of the 22nd ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (July 2017).

T. Tang, **R. Smith**, S. Rixner, and J. Warren, "Data-Driven Test Case Generation for Automated Program Assessment". In *Proceedings of the 21st ACM SIGCSE Conference on Innovation and Technology in Computer Science Education* (ITiCSE) (July 2016).

R. Smith and S. Rixner, "Leveraging Managed Runtime Systems to Build, Analyze, and Optimize Memory Graphs". In *Proceedings of the 12th ACM SIGPLAN/SIGOPS Conference on Virtual Execution Environments* (VEE) (April 2016).

R. Smith and S. Rixner, "Surviving Peripheral Failures in Embedded Systems". In *Proceedings of the 2015 USENIX Annual Technical Conference* (ATC) (July 2015).

T.W. Barr, **R. Smith**, and S. Rixner, "Design and Implementation of an Embedded Python Run-Time System". In *Proceedings of the 2012 USENIX Annual Technical Conference* (ATC) (June 2012).

INVITED TALKS	**MemStep: Visualizing the Memory Layout of Java Programs**	March 2024
	Rice CTE Pedagogical Sciences in Practice Showcase	
	Data-Driven Tools for CS Education	March 2018
	Duke University CS-ECE Seminar Series	

POSTER PRESENTATIONS

R. Smith and S. Rixner, "A Policy-Based Framework for Dynamic Scaling of Virtual Machine Memory Reservations". *Rice University Oil and Gas High Performance Computing Conference* (OGHPC) (March 2017).

R. Smith and S. Rixner, "Surviving Peripheral Failures in Embedded Systems". *Rice University Undergraduate Research Symposium* (April 2014).

R. Smith and S. Rixner, "A Memory Analyzer for an Embedded Python Run-Time System". *Rice University Centennial Poster Session of the Century* (October 2012).

TEACHING EXPERIENCE

Instructor of Record
Rice University Department of Computer Science
    Introduction to Program Design (COMP 215)
        Required sophomore-level course for Bachelor of Computer Science
        Fa20: 3 sections, 195 students, 1.29 overall instructor effectiveness
        Fa21: 3 sections, 189 students, 1.23 overall instructor effectiveness
        Fa22: 4 sections, 251 students, 1.20 overall instructor effectiveness
        Sp23: 1 section, 40 students, 1.28 overall instructor effectiveness
        Fa23: 2 sections, 128 students, 1.15 overall instructor effectiveness
        Sp24: 1 section, 51 students, in progress

    Computational Thinking (COMP 140)
        Required freshman-level course for Bachelor of Computer Science
        Fa15: 1 section, 68 students, 1.19 overall instructor effectiveness
        Sp19: 1 section, 65 students, 1.47 overall instructor effectiveness
        Sp20: 1 section, 63 students, 1.18 overall instructor effectiveness
        Sp21: 2 sections, 94 students, 1.34 overall instructor effectiveness
        Sp22: 2 sections, 112 students, 1.20 overall instructor effectiveness

    Programming for Data Science (COMP 614)
        Required first semester course for Master of Data Science
        Fa21: 1 section, 41 students, 1.66 overall instructor effectiveness

Pedagogy for Computer Science (COMP 691)
   Training course for new CS PhD Student & Postdoc Teaching Program
   Su23: 1 section, 3 students, no course evaluations completed
   Sp24: 1 section, 6 students, in progress

Rice University Center for Teaching Excellence
   Practicum in College Teaching (UNIV 502)
      Required course for Graduate Certificate in Teaching and Learning
      Sp23: 1 section, 6 students, 1.00 overall instructor effectiveness

Presentation Coach
Rice University Department of Computer Science
   Graduate Seminar in Computer Science (COMP 600)   Fa17, Sp18, Fa18, Sp19, Fa19

Head Teaching Assistant
Rice University Department of Computer Science
   Computational Thinking (COMP 140)   Fa13, Fa14

Teaching Assistant
Rice University Department of Computer Science
   System-Level Virtualization (COMP 528)   Sp17
   Compiler Construction (COMP 412)   Fa16
   Introduction to Computer Systems (COMP 321)   Sp15
   Computational Thinking (COMP 140)   Fa11, Fa12

EDUCATIONAL TOOL DEVELOPMENT

MemStep: Created a tool that enabled students to interactively step through an arbitrary Java program and produce the state of the stack and the heap corresponding to that program. Deployed in COMP 215 at Rice.

EvOwl: Created a tool that leverages peer and self code review to help students to learn best program design practices and facilitate grading of program design in large classes. Deployed in COMP 318 at Rice.

Compigorithm: Created a tool that guides students as they practice a five-step process for performing Big-O algorithmic complexity analysis. Deployed in COMP 182 at Rice.

VizQuiz: Created a tool that produces visual exercises with immediate, automated feedback for teaching Python semantics. Deployed in COMP 140 at Rice.

Testception (github.com/rice-cs-edutools/testception): Created a tool that generates interactive exercises for teaching novice students how to develop comprehensive test suites using a combination of black-box and white-box testing. Deployed in COMP 140 at Rice.

FEAT: Created framework that constructs an expansive test suite for a function, given an inductive specification of the function's parameters. Deployed in COMP 140 at Rice.

Stratocode: Worked on a team to develop a cloud-based IDE that targets introductory to intermediate computer science courses. Designed a lightweight version control system and storage server that interfaces with Google Cloud Storage. Deployed in COMP 215 at Rice.

Dr. Java (drjava.org, github.com/DrJavaAtRice/drjava): Worked on a team to update and improve a lightweight Java IDE that targets introductory to intermediate computer science courses. Integrated code coverage with JUnit testing and re-architected sub-system for managing regions in open documents.

SERVICE & LEADERSHIP	DEPARTMENTAL SERVICE & LEADERSHIP	
	Director of Undergradute Studies, Rice CS	Su23 - Present
	Transfer Credit Advisor, Undergraduate Program	Sp22 - Present
	Major Advisor, Undergraduate Program	Fa20 - Present
	Member, Lecturer Search Committee	Fa23 - Sp24
	Member, Undergraduate Curriculum Working Group	Fa22 - Sp23
	Member, Lecturer Search Committee	Fa22 - Sp23
	Chair, PhD Student Teaching Working Group	Fa21 - Sp22
	Member, Assistant Teaching Professor Search Committee	Sp22
	Member, Admissions Committee for MDS Program	Sp22
	Member, Admissions Committee for MDS Program	Sp21
	Student Member, Lecturer Search Committee	Sp19
	Student Member, Lecturer Search Committee	Sp17
	President, Rice CS Grad Student Association (CS GSA)	Sp18 - Fa18
	Mentorship & Recruitment Director, Rice CS GSA	Sp17 - Fa17
	SCHOOL OF ENGINEERING SERVICE	
	Member, Engineering School Course Review Committee	Fa23 - Present
	UNIVERSITY SERVICE	
	Divisional Advisor, Wiess College	Fa22 - Present
	Faculty Advisor, RemixCS	Sp24 - Present
	Faculty Advisor, RiceApps	Fa22 - Present
	Faculty Associate, Wiess College	Sp22 - Present
	Presenter, Owl Days Faculty Classroom Sampler	April 2024
	Member, Rice OURI Vertically Integrated Project Working Group	Sp24
	Presenter, Owl Days Faculty Classroom Sampler	April 2023
	Judge, HackRice Annual Hackathon	September 2022
	Presenter, Owl Days Faculty Classroom Sampler	April 2022
	Graduate Fellow, Rice Center for Teaching Excellence (CTE)	Fa18 - Sp19
	Graduate Fellow, Rice Center for Teaching Excellence (CTE)	Fa17 - Sp18
	CS Representative, Rice CTE Graduate Advisory Board	Sp17 - Fa19
	Member, Rice CTE Search Committee for Assistant Director	Sp18
	Ambassador, Rice Graduate and Postdoctoral Studies	Sp17

HONORS & AWARDS	FACULTY HONORS & AWARDS	
	Winner, Nicolas Salgo Outstanding Teaching Award	March 2024
	Winner, Sophia Meyer Farb (Phi Beta Kappa) Prize for Teaching	March 2024
	Career Champion Award, Rice CCD	August 2023
	Finalist, Sophia Meyer Farb (Phi Beta Kappa) Prize for Teaching	March 2023
	Favorite Professor, 37th Annual Rice Scholar Athletic Celebration	February 2023
	Career Champion Award, Rice CCD	August 2022
	Favorite Professor, Wiess College	February 2020
	Favorite Professor, Will Rice College	February 2020
	GRADUATE RESEARCH FELLOWSHIPS	
	NSF GRFP, National Science Foundation	Fa15 - Sp18
	Presidential Fellowship, Rice University	Fa15 - Sp19
	Computational Science Fellowship, Ken Kennedy Institute	Fa15 - Sp19
	MS Research Fellowship, Rice CS Department	Fa14 - Sp15

MENTORSHIP & OUTREACH		
	Mentor, Rice Summer Undergradute Research Fellowship Program (SURF)	Su24
	Invited Panelist, Rice CSters (Women in CS) Graduate School Panel	March 2024
	Invited Panelist, Rice UNIV 201 Research Readiness Panel	Februrary 2024

Invited Speaker, Bellaire High School Girls Who Code Club   December 2023
Invited Panelist, Rice WRC Women in STEM Panel   November 2023
Invited Panelist, Rice UNIV 201 Research Readiness Panel   October 2023
Invited Speaker, STEM & Rose Fireside Chat Series   October 2023
Invited Panelist, Rice SURF STEM Career Panel   June 2023
Mentor, Rice Summer Undergradute Research Fellowship Program (SURF)   Su23
Invited Panelist & Mentor, NCWIT Regional Awards Ceremony   April 2023
Invited Panelist, Rice Women in STEM Professors Panel   November 2022
Big Sister, Rice CSters (Women in CS)   Fa18 - Sp19
Invited Panelist, Rice CSters Grad School Panel   April 2018
Mentor, Rice CS Grad Student Association   Fa17 - Sp18
Invited Speaker, Robotech: NCWIT AspireIT K-12 Outreach Program   June 2017
Graduate Mentor, Rice GSA Undergrad Mentorship Program   Fa16 - Sp17
Mentor, Rice CS Grad Student Association   Fa16 - Sp17
Graduate Mentor, Rice GSA Undergrad Mentorship Program   Fa15 - Sp16
Mentor, Rice CS Grad Student Association   Fa15 - Sp16
Invited Speaker, Clements High School Girls in Computing Hack Day   December 2016
Invited Speaker, Rice CS Undergrad Lunch & Learn Series   November 2016
Big Sister, Rice CSters (Women in CS)   Fa15 - Sp16