D. Brian Larkins

Associate Professor and Chair, Department of Computer Science

213 Briggs Hall, Rhodes College, 2000 N. Parkway, Memphis, TN 38112 | +1 (901) 843-3791 | larkinsb@rhodes.edu
www.rhodes.edu/bio/d-brian-larkins | github.com/brianlarkins | orcid.org/0000-0002-2131-0847 | Google Scholar

Education

The Ohio State University | Columbus, OH

Ph.D., Computer Science and Engineering 2010
Dissertation: *Efficient run-time support for global view programming of linked data structures on distributed memory parallel systems*
Advisor: P. Sadayappan

M.S., Computer Science and Engineering 2008

B.S., Computer Science and Engineering 1996

Professional Experience

Rhodes College | Memphis, TN 2015–present

Department Chair | Computer Science | 2025–present
Responsible for hiring new faculty, faculty reviews, budget oversight, tutoring program, managing staff, and interfacing with Academic Affairs.

Director of Fellowships and Undergraduate Research | 2021–2025
Managed fellowship programs for undergraduate research, community engagement, and creative activity. Oversaw college-wide student travel fund, Honors Research program, and the annual undergraduate showcase of student research and creative projects (Rhodes Symposium).

Associate Professor | Computer Science | 2020–present
Tenured position. Taught a variety of lower-level and upper-level computer science courses, conducted research in parallel computing, and performed service to the department and college.

Assistant Professor | Mathematics and Computer Science | 2015–2020
Taught a variety of computer science courses and maintained an active research program.

Assistant Professor | Coastal Carolina University, Computer Science 2010–2015

Awarded tenure and promoted to Associate Professor for Fall 2015.
Taught a variety of computer science courses, maintained an active research program.

Adjunct Professor | Capital University, Computer Science ..... Spring 2010
Teaching position. Taught an upper-level operating systems class to computer science majors.

The Ohio State University | Computer Science 2005–2010

Graduate Teaching Associate | 2008–2010
Taught and graded a variety of lower-level and upper-level computer science courses.

Graduate Research Associate | 2005–2009
Researched techniques for efficiently using irregular data structures such as trees and graphs on distributed-memory high-performance computing clusters.

Lead Development Engineer | Counterstorm, Inc. 2001–2004
Designed and developed automated network intrusion detection systems built using advanced machine learning and data mining techniques to automatically identify network attacks. Developed extensible feature extraction engine for IP, TCP/UDP, and ICMP protocols.

Director of Engineering | Starbak Communications 2000–2001

Led design and development of a Real-Time Streaming Protocol (RTSP) media server from initial concept to first shipping version.

Member of Technical Staff | Lucent Technologies, Bell Laboratories 1996–2000

Network Design & Architecture, Secure Web Infrastructure. Designed and implemented international IP routing architecture for corporate backbone and perimeter security networks. Designed and developed the security and network architecture for all corporate e-commerce applications.

Staff Engineer (contractor) | CDI Inc. / AT&T Bell Laboratories 1994–1996

Implemented a stable and scalable architecture for AT&T's external web presence. Administered several high-security / mission critical computer systems. Developed web site indexing software and search mechanism for www.att.com.

Honors and Awards

Clarence Day Award for Outstanding Teaching | Rhodes College 2021

Rhodes College's highest honor and award for teaching excellence.

Upsilon Pi Epsilon | ACM Honor Society for Computing and Information Disciplines 2004–present

Faculty Advisor, Member. Served as Treasurer 2005–2006.

Research Experience and Interests

Over the course of my career, my research focus has covered several areas of interest. While employed by Bell Laboratories, my work focused on Internet network architecture and web application security. My graduate work focused on programming models in high-performance computing (HPC) and has continued at both Coastal Carolina University (CCU) and Rhodes College. My research has focused on the following areas:

- **Parallel Programming Models:** I have developed several models for working with irregular problems on distributed memory parallel computers. I have published work on models for working on distributed tree structures, dynamic load balancing, and the use of logical addressing within a partitioned global address space.
- **Parallel Compile-time and Run-time Systems:** I have developed several run-time systems for parallel systems. Systems such as Global Trees and the Scioto work-stealing system provide parallel programmers with higher-level abstractions for dealing with irregular, non-uniform problems. More recently, I have focused on accelerator offload support and network offload systems. At Ohio State, I worked on two compiler systems: *Brew:* a compiler and programming language with support for multiple dispatch, strong code mobility, and retroactive data abstraction and *TCE:* a domain-specific compiler which optimizes tensor contraction expressions and outputs highly-tuned FORTRAN code.
- **CS Education and K-12 STEM Intervention:** I developed a common platform for teaching the CS systems curriculum using field-programmable gate array (FPGA) hardware. I have worked to improve the introductory CS curriculum for non-major students. I have also investigated the application of formal learning frameworks (cognitive apprenticeship) to increase K-12 student interest and retention in STEM subjects.

Publications

† denotes an undergraduate co-author.

Peer-Reviewed Conference Papers

Systems Thinking After the Silver Bullet: A Co-Designed Hardware/Software Foundation for the Liberal-Arts CS Major ..... SIGCSE 2027

D. Brian Larkins, Marion Lang. 58th ACM Technical Symposium on Computer Science Education (SIGCSE '27). Sacramento, CA, February 17–20, 2027. (acceptance rate: 25.8%)

Optimizing Work Stealing Communication with Structured Atomic Operations ..... ICPP 2021
Hannah Cartier†, James Dinan and **D. Brian Larkins**. 50th International Conference on Parallel Processing (ICPP '21). Chicago, IL, August 9–12, 2021. DOI: 10.1145/3472456.3472522 (accept: 26%)

Accelerated Work Stealing ..... ICPP 2019
D. Brian Larkins, John Snyder†, and James Dinan. 48th International Conference on Parallel Processing (ICPP '19). Kyoto, JP, August 5–8, 2019. DOI: 10.1145/3337821.3337878 (accept: 26%)

Efficient Runtime Support for a Partitioned Global Logical Address Space ..... ICPP 2018
D. Brian Larkins, John Snyder†, and James Dinan. 47th International Conference on Parallel Processing (ICPP '18). Eugene, OR, August 13–16, 2018. DOI: 10.1145/3225058.3225092 (accept: 29%)

Evaluating Computer Science Camp Topics in Increasing Girls' Confidence in Computer Science ..... CCSC-MS 2018
Hannah Chipman†, Haley Adams, Betsy Sanders, and **D. Brian Larkins**. 16th Annual Consortium of Computing Sciences Mid South (CCSC-MS '18). Memphis, TN, April 6–7, 2018.

Extending a Message Passing Runtime to Support Partitioned, Global Logical Address Spaces ..... COMHPC 2016
D. Brian Larkins, James Dinan. First International Workshop on Communication Optimizations in High Performance Computing (COMHPC '16). Salt Lake City, UT, November 18, 2016. DOI: 10.1109/COMHPC.2016.007 (accept: 34.8%)

GPU Acceleration of the Advanced Regional Prediction System (ARPS) ..... ACMSE 2014
Benjamin A. Whetstone†, Varavut Limpasuvan, **D. Brian Larkins**. 52nd ACM Southeast Conference (ACMSE '14). Kennesaw, GA, March 28–29, 2014. DOI: 10.1145/2638404.2735458 (accept: 36%)

Using FPGAs As a Reconfigurable Teaching Tool Throughout CS Systems Curriculum ..... SIGCSE 2013a
D. Brian Larkins, William M. Jones, H. Erin Rickard. 44th ACM Technical Symposium on Computer Science Education (SIGCSE '13). Denver, CO, March 6–9, 2013. DOI: 10.1145/2445196.2445316 (accept: 37.9%)

Application of the Cognitive Apprenticeship Framework to a Middle School Robotics Camp ..... SIGCSE 2013b
D. Brian Larkins, J. Christopher Moore, Louis J. Rubbo, Laura R. Covington†. 44th ACM Technical Symposium on Computer Science Education (SIGCSE '13). Denver, CO, March 6–9, 2013. DOI: 10.1145/2445196.2445226 (accept: 37.9%)

Improving Data Locality for Irregular Partitioned Global Address Space Parallel Programs ..... ACMSE 2012
D. Brian Larkins. 50th ACM Southeast Conference (ACMSE '12). Tuscaloosa, AL, March 29–31, 2012. DOI: 10.1145/2184512.2184577 (accept: 57%)

Targeting FPGA-based Processors for an Implementation-Driven Compiler Construction Course ..... ACMSE 2011a
D. Brian Larkins, William M. Jones. 49th ACM Southeast Conference (ACMSE '11). Kennesaw, GA, March 24–26, 2011. DOI: 10.1145/2016039.2016056 (accept: 50%)

Integrating Digital Logic Design and Assembly Programming Using FPGAs in the Classroom ..... ACMSE 2011b
William M. Jones, **D. Brian Larkins**. 49th ACM Southeast Conference (ACMSE '11). Kennesaw, GA, March 24–26, 2011. DOI: 10.1145/2016039.2016053 (accept: 50%)

Introductory Computational Science Using MATLAB and Image Processing ..... WTCS 2010
D. Brian Larkins, William Harvey. Procedia Computer Science, 1(1):913-919, June 2010. DOI: 10.1016/j.procs.2010.04.100

Scalable Work Stealing ..... SC 2009
James Dinan, **D. Brian Larkins**, P. Sadayappan, Sriram Krishnamoorthy, Jarek Nieplocha. 21st ACM/IEEE Conference on High Performance Computing (SC '09). Portland, OR, November 14–20, 2009. DOI: 10.1145/1654059.1654113 (accept: 23%)

Global Trees: A Framework for Linked Data Structures on Distributed Memory Parallel Systems ..... SC 2008
D. Brian Larkins, James Dinan, Sriram Krishnamoorthy, Srinivasan Parthasarathy, Atanas Rountev, P. Sadayappan. 20th ACM/IEEE Conference on High Performance Computing (SC '08). November 2008. (21%)

Scioto: A Framework for Global-View Task Parallelism ..... ICPP 2008
James Dinan, Sriram Krishnamoorthy, **D. Brian Larkins**, Jarek Nieplocha, P. Sadayappan. 37th International Conference on Parallel Processing (ICPP '08). Portland, OR, September 8–12, 2008. DOI: 10.1109/ICPP.2008.44 (accept: 30.8%)

Internet Routing and DNS Voodoo in the Enterprise ..... LISA 1999
D. Brian Larkins. 13th Conference on Large Installation Systems Administration (USENIX LISA '99). Seattle, WA, November 7–12, 1999.

Refereed Abstracts and Posters

E-Assess: A Web-Based Tool for Coordinating and Managing Program Assessment ..... ACM SIGCSE 2015
Jean H. French, **D. Brian Larkins**. Peer-reviewed, published abstract.

Making Use of the Cognitive Apprenticeship Framework in an Undergraduate Robotics Course ..... ACM SIGCSE 2014
D. Brian Larkins. Peer-reviewed, published abstract.

Using FPGA Systems Across the Computer Science Curriculum ..... ACM SIGCSE 2012
D. Brian Larkins, H. Erin Rickard, William M. Jones. Peer-reviewed, published abstract.

Nanospectroscopy of Materials and Biomedicine at Fundamental Atomic and Molecular Scales Ohio Nanotechnology Summit 2005
Michael K. Mrozik, Russell Pitzer, Justin Oelgoetz, Max Montenegro, Sultana N. Nahar, Anil Pradhan, **D. Brian Larkins**, P. Sadayappan, Werner Eissner

Peer-Reviewed Workshops

Introduction to Using FPGAs in the Computer Science Curriculum ..... ACM SIGCSE 2012
William M. Jones, **D. Brian Larkins**. Led a half-day workshop training CS educators to use FPGA systems in CS curriculum design.

Invited Talks and Professional Presentations

"Systems Thinking After the Silver Bullet: A Co-Designed Hardware/Software Foundation for the Liberal-Arts CS Major" 2027
58th ACM Technical Symposium on Computer Science Education. February 2027. Sacramento, CA.

"Optimizing Work Stealing Communication with Structured Atomic Operations" 2021
50th International Conference on Parallel Processing. August 2021. Chicago, IL.

"Research Computing at Rhodes College" 2021
Greater Memphis IT Council. April 2021. Memphis, TN.

"Distributed Load Balancing in OpenSHMEM" 2020
Faculty Development Endowment Talks. September 2020. Memphis, TN.

"Building the Culture and Infrastructure for Research Computing in the Liberal Arts" 2020
Open Science Grid All-Hands Meeting. September 2020.

"Accelerated Work Stealing" 2019
48th International Conference on Parallel Processing. August 2019. Kyoto, JP.

"Hardware Accelerated Distributed Load Balancing" 2018
Faculty Development Endowment Talks. November 2018. Memphis, TN.

"Mis-using Network Hardware to Build Efficient Parallel Systems" 2018
Computer Science Department Seminar at the University of Mississippi. October 2018. Oxford, MS.

"Efficient Runtime Support for a Partitioned Global Logical Address Space" 2018
47th International Conference on Parallel Processing. August 2018. Eugene, OR.

"Extending a Message Passing Runtime to Support Partitioned, Global Logical Address Spaces" 2017
Intel Research. March 2017. Hudson, MA.

"TUPLE-D: Efficient Coordination Language Implementation for Parallel Supercomputing Systems" 2017
Faculty Development Endowment Talks. February 2017. Memphis, TN.

"Extending a Message Passing Runtime to Support Partitioned, Global Logical Address Spaces" 2016
1st Int'l Workshop on Communication Optimizations in High Performance Computing. November 2016. Salt Lake City, UT.

"Improving the State of Parallel Program Development" 2015
Computer Science Department Seminar at Vassar College. December 2015. Poughkeepsie, NY.

"Massive Parallelism: Peeking Into the Future of Computing Performance" 2015
Rhodes College Department Seminar. January 2015. Memphis, TN.

"GPU Acceleration of the Advanced Regional Prediction System (ARPS)" 2014
52nd ACM Southeast Conference. March 2014. Kennesaw, GA.

"Using FPGAs as a Reconfigurable Teaching Tool Throughout CS Systems Curriculum" 2013
44th ACM Technical Symposium on Computer Science Education. March 2013. Denver, CO.

"Application of the Cognitive Apprenticeship Framework to a Middle School Robotics Camp" 2013
44th ACM Technical Symposium on Computer Science Education. March 2013. Denver, CO.

"Improving Data Locality for Irregular Partitioned Global Address Space Programs" 2012
50th ACM Southeast Conference. March 2012. Tuscaloosa, AL.

"Integrating Field-Programmable Gate Array (FPGA) Devices Across the Computer Science Curriculum" 2011
Grand Strand Technical Expo, November 2011. Myrtle Beach, SC.

"From Here to There: How Packets Get Pushed Around the Internet" 2011
CS Department Faculty Colloquium Series at Coastal Carolina University. February 2011. Conway, SC.

"Global Irregular Data Structures on Parallel Distributed Memory Systems" 2010
Computer Science Seminar at Coastal Carolina University. February 2010. Conway, SC.

"Global Trees: Support for Parallel Distributed Data Structures" 2009
Computer Science Department Seminar at Moravian College. November 2009. Bethlehem, PA.

"Global Trees: A Framework for Linked Data Structures on Distributed Memory Parallel Systems" 2008
20th ACM/IEEE Conference on High Performance Computing. November 2008. Austin, TX.

"Internet Routing and DNS Voodoo in the Enterprise" 1999
13th Conference on Large Installation Systems Administration. November 1999. Seattle, WA.

Mentored Undergraduate Research Presentations

Locality Aware Work Stealing ..... Rhodes Symposium 2024
Kamil Yousuf. Rhodes College Undergraduate Research Symposium, Oral Presentation, Memphis, TN, April 2024.

OpenSHMEM Accelerated Work Stealing ..... Rhodes Symposium 2021
Cameron Cartier. Rhodes College Undergraduate Research Symposium, Poster, Memphis, TN, April 2021.

Lockless Distributed Work Stealing ..... URCAS 2018
John Snyder. Rhodes College Undergraduate Research and Creative Activities Symposium (URCAS '18), Poster, Memphis, TN, April 2018.

Offloading Active Messages to Hardware in a Partitioned Global Logical Address Space ..... URCAS 2018
John Snyder. Rhodes College Undergraduate Research and Creative Activities Symposium (URCAS '18), Presentation, Memphis, TN, April 2018.

Image Segmentation Using the MAP-MRF Model and Contour Map Displacement Labels ..... ACM-MSE 2010
Neva Waynesboro. ACM Mid-Southeast 2010 Conference. Gatlinburg, TN, Nov. 11–12, 2010.

Conferences

- *International Conference for High Performance Computing Networking, Storage, and Analysis (SC)* 2008, 2011, 2016, 2017, 2018, 2019, 2021, 2023, 2024, 2025, 2026.
- *International Conference on Parallel Processing (ICPP)* 2018, 2019, 2021.
- *ISC High Performance (ISC)* 2016.
- *ACM Special Interest Group on CS Education (SIGCSE) Technical Symposium* 2012, 2013, 2014, 2015, 2016, 2023, 2026, 2027.
- *ACM South East Regional Conference (ACM-SE)* 2011, 2012, 2014.
- *Consortium for Computing Sciences in Colleges Mid-South Conference* 2016.
- *Workshop on Patterns in High Performance Computing (patHPC)* 2005.

- *USENIX Large Installation System Administration Conference (LISA)* 1999.
- *Internet Engineering Task Force Meeting (IETF)* 1998.
- *USENIX UNIX Security Symposium* 1995.

Sponsored Research

Funded External Awards

CC* Compute: A High Performance Computing Cluster to Accelerate Research, Education and Training at Rhodes College | PI, $389,662 2020
NSF. Purchased a high-performance computing cluster for use as a centralized research computing resource. (*Award# 2018758*)

XSEDE Compute Allocations | PI, $131,211 (XSEDE est.) 2013–2020
NSF Extreme Science and Engineering Discovery Environment. Thirteen allocations totaling 2,660,200 hours of compute time, at Coastal Carolina University and Rhodes College:

- Campus Champion allocations (2013, 2014, 2016, 2018, 2019, 2020): 2,302,200 hours on five to seven high-performance computing systems (*TRA160031*)
- CS education allocations (2014, 2016, 2017, 2019, 2020): 258,000 hours, primarily on the Comet supercomputer (*TG-CIE160009*)
- Research allocations (2017, 2019): 100,000 hours on the Comet supercomputer (*TG-ECS170009*)

Accelerating Irregular Data Accesses with Active Messages in OpenSHMEM | PI 2018
National Energy Research Scientific Computing (NERSC), U.S. Department of Energy. Awarded 100,000 hours of compute time on two petascale supercomputing systems (*m3190*)

NVIDIA GPGPU Academic Partnership Program | PI, $10,600 2014
NVIDIA Research. Awarded two high-end K40 GPGPU processor cards for scientific computing research

AMD GPGPU Academic Hardware Donation | PI, $600 2012
AMD Research. Awarded one high-end GPGPU processor card for scientific computing research

NVIDIA CUDA Teaching Center Award | Co-PI, $5,045 2012
NVIDIA Research. Awarded six high-end GPGPU processor cards for scientific computing education

NVIDIA GPGPU Academic Partnership Program | PI, $4,400 2012
NVIDIA Research. Awarded two high-end GPGPU processor cards for scientific computing research

LittleFe Parallel Computing Mini-Cluster | PI, $6,817 2011
Shodor Education Foundation. Awarded a distributed-memory parallel cluster and travel support for attending Supercomputing 2011 conference in Seattle, WA

Funded Internal Awards

Designing a Summer Study Abroad Robotics Course in Japan | PI, $5,000 2026
Buckman International Curricular Development Grant. Awarded to develop a new CS study abroad course in Japan

Re-Envisioning the Computer Science Curriculum in Light of Generative AI | PI, $8,000 2025
Hill Development Fund, Rhodes College. Award to redesign the CS curriculum at Rhodes College

Updating COMP 231 in the CS Systems Curriculum | PI, $4,299 2025
Hill Development Fund, Rhodes College. Award to redesign the computer organization course at Rhodes College

Designing a Study Abroad Course in Computer Science | PI, $5,000 2023
Buckman International Curricular Development Grant. Awarded to develop a new CS study abroad course in the United Kingdom

Hardware Accelerated Parallel Programming Models | PI, $5,000 2021
Mid-Career Scholarship Fund, Rhodes College. Awarded to develop new research opportunities related to the HPC cluster awarded to Rhodes.

Re-Envisioning the CS Curriculum at Rhodes College | Co-PI, $10,092 2020
Hill Development Fund, Rhodes College. Award to redesign the CS curriculum at Rhodes College

Parallel Computing Fellowship | PI, $5,344 2020–2024
Rhodes College Fellowship Fund. Awarded summer funding for an undergraduate to work on an optimized HPC load balancing system

Faculty Development Endowment Grant | PI, $5,000 2020
Faculty Development Committee, Rhodes College. Awarded funding for research into parallel dynamic load balancing with OpenSHMEM

Parallel Computing Fellowship | PI, $3,676 2019
Rhodes College Fellowship Fund. Awarded summer funding for an undergraduate to work on an OpenSHMEM load balancing system

Faculty Development Endowment Grant | PI, $5,000 2018
Faculty Development Committee, Rhodes College. Awarded funding for research into distributed-memory parallel dynamic load balancing

Data Analytics at Rhodes College | Co-PI, $3,876 2018
Hill Development Fund. Award to develop a Data Analytics major at Rhodes College

Parallel Computing Fellowship | PI, $1,100 2016
Rhodes College Fellowship Fund. Awarded two semesters of funding for an undergraduate to work on a distributed hash table

Faculty Development Endowment Grant | PI, $5,000 2016
Faculty Development Committee, Rhodes College. Awarded funding for research on parallel programming models

Professional Enhancement Grant | PI, $2,628 2012
Coastal Carolina University. Awarded funding for undergraduate student research

Funded Internal Travel Awards

CCU College of Science Professional Activities Mini-Grant | $850 2014
Award for travel to SIGCSE 2014 conference in Atlanta, GA

CCU College of Science Professional Activities Mini-Grant | $400 2014
Award for travel to ACM SE 2014 conference in Atlanta, GA

CCU College of Science Professional Activities Mini-Grant | $1,825 2012
Award for travel to SIGCSE 2013 conference in Denver, CO

CCU College of Science Professional Activities Mini-Grant | $1,250 2011
Award for travel to SIGCSE 2012 in Raleigh, NC and ACMSE 2012 conference in Tuscaloosa, AL

CCU College of Science Professional Activities Mini-Grant | $400 2011
Award for travel to ACM SE 2011 conference in Kennesaw, GA

Ohio State CSE Department Travel Award | $1,200 2008
for travel to Supercomputing 2008 conference in Austin, TX

Unfunded External Proposals

ACM SIGCSE Special Project Award | PI, $5,000 2014
ACM Special Interest Group on CS Education. Requested support to develop education modules for teaching compiler construction

Silicon Mechanics Research Cluster Grant | PI, $50,000 2012
Silicon Mechanics. Requested award of a GPU and CPU-based parallel research cluster for weather simulation

NSF EPSCoR RII Track-2 | PI, $165,000 2011
NSF. Requested funds to create a center for scientific computing at Coastal Carolina University and equip a 1,000+ core parallel computing cluster. Recommended for funding, but unfunded due to program cancellation

NASA SBIR Subtopic A4.02 | Co-PI, subcontract, $7,000 2011
NASA. Requested funds to develop software to assist in automated damage assessment of composite material systems

Teaching Interests

Throughout my career in academia, I have taught at all levels of the undergraduate computer science curriculum. My teaching interests have focused on the following areas:

- **Computer Systems:** I enjoy computer systems and have been responsible for the majority of the systems curriculum at Rhodes, regularly teaching computer organization and operating systems. I have also taught these courses at Coastal Carolina and Capital University. My experience from industry has given me a broad background in this area – including networking, computer security, and systems software development that I strive to include in my teaching.
- **Parallel and High-Performance Computing:** With my research specialization in high-performance computing (HPC), I am enthusiastic about sharing my experience and perspectives on performance with undergraduates. My industry background has had me look for learning opportunities outside the classroom, such as giving assignments that require students to solve real-world problems using large-scale supercomputing systems.
- **Programming Languages:** My research has focused on both compile-time and run-time systems within HPC. I have brought this background into the classroom through programming languages and compiler implementation courses. I taught the required programming language / compiler implementation sequence at CCU and have taught compilers as an upper-level elective at Rhodes. I have also utilized this experience when teaching theory of computation – drawing parallels between theoretical constructs such as Turing machines and pragmatic tools like compilers.
- **Introductory CS:** I am passionate about teaching students new to computer science and have taught a total of seven CS1/CS2 sections (mostly CS2) at both institutions. I have developed introductory courses that have been more systems-focused using C/C++, object-oriented in focus with Java, and application-focused using MATLAB.
- **CS for K-12 Students:** In addition to teaching in a formal undergraduate setting, I am deeply committed to cultivating interest and self-confidence in computer science and STEM fields. Prior to graduate school, I mentored high school students in computer science for eight years. Since then, I have participated, developed and led a total of nine summer camps focusing on building CS and STEM interest. I continued this work at Rhodes by leading Camp Codette, a summer camp for middle and high school girls, from 2016 to 2019.

Teaching Experience

Instructor of record for all courses listed.

Rhodes College | Assistant, Associate Professor 2015–present

- **COMP 105: Transformational Ideas of Computing in the UK.** Summer study abroad course focusing on the history of general-purpose computing, Alan Turing and John Von Neumann.
- **COMP 142: Computer Science II.** Introduction to fundamental concepts of computer science, data abstraction, and algorithmic design.
- **COMP 231: Computer Organization.** Introduction to computer organization, architecture, and assembly language programming.
- **COMP 251: Introduction to Computer Systems.** Introduction to computer systems programming in C, memory management, memory hierarchy, concurrency, and interprocess communication.
- **COMP 315: Computer Networks.** Introduction to computer network communication, protocols, routing, and security.
- **COMP 330: Operating Systems.** Introduction to fundamental concepts of operating systems: processes, scheduling, synchronization, and memory management.
- **COMP 340: Databases.** Introduction to the fundamentals of database systems: data models, relational algebra, database design, and query languages.
- **COMP 350: Theory of Computation.** Introduction to theoretical models of computing. Finite state automata, Turing machines, decidability, complexity theory and NP-Completeness.
- **COMP 360: Programming Languages.** Introduction to concepts and issues of programming language design and implementation.

- **COMP 362/465: Principles of Compiler Design.** Design and implementation of modern high-level language compilation systems.
- **COMP 380/465: Introduction to Parallel Systems.** Organization and architecture of parallel systems, decomposition, and programming models.

Coastal Carolina University | Assistant Professor 2010–2015

- **CSCI 130: Introduction to Computer Science.** Introduction to fundamental concepts and an overview of major topics in computer science.
- **CSCI 140/140L: Introduction to Algorithmic Design I.** Introduction to fundamental concepts of computer science and algorithmic design.
- **CSCI 150/150L: Introduction to Algorithmic Design II.** Introduction to fundamental concepts of computer science, data abstraction, and algorithmic design.
- **CSCI 210: Computer Organization and Programming.** Introduction to computer organization, architecture, and assembly language programming.
- **CSCI 350: Organization of Programming Languages.** Introduction to concepts and implementation issues of programming language design.
- **CSCI 356: Operating Systems.** Introduction to fundamental concepts of operating systems: processes, scheduling, synchronization, and memory management.
- **CSCI 450: Principles of Compiler Design.** Design and implementation of modern high-level language compilation systems.
- **CSCI 473: Introduction to Parallel Systems.** Organization and architecture of parallel systems, parallel task and data decomposition, performance analysis, and parallel programming models.
- **CSCI 485: Introduction to Robotics.** Introduction to concepts and realization of robotic systems.

Capital University | Adjunct Professor ..... Spring 2010

- **CS 380: Operating Systems.** Introduction to operating systems design, implementation, and distributed systems.

The Ohio State University | Graduate Teaching Associate 2008–2010

- **CSE 294P: Computational Thinking in Context: Science and Engineering.** Introduction to scientific computing using MATLAB.
- **CSE 201: Elementary Computer Programming.** Introduction to computer programming using Java.

Associate Advisor/Instructor | Explorer Post 891 / Learning for Life 1993–2001

Taught weekly courses year-round in a program sponsored by AT&T Bell Laboratories designed to introduce and educate high-school students about basic computer science concepts. Taught classes on basic computer literacy, programming in C, Java, Scheme, network architecture, web development, and computer security. Students were all from Columbus, OH area public schools and had no previous training in computer science.

Activities and Service

University/College Service

Assistant Professor Search Committee, Psychology | Rhodes College 2026
Promotion and Tenure Committee | Rhodes College 2024–2026
Committee on Committees | Rhodes College 2024–2026
Faculty Governance Committee | Rhodes College 2023–2024
Assistant Professor Search Committee, Biology | Rhodes College 2022
Assistant Professor Search Committee, Biology | Rhodes College 2021
Director of Fellowships and Undergraduate Research | Rhodes College 2021–2025
Coronavirus Task Force, Health & Safety Subcommittee | Rhodes College 2020–2021
Institutional Review Board | Rhodes College 2019–2022
Faculty Professional Interest Committee | Rhodes College 2018–2021
Upsilon Pi Epsilon, faculty advisor | Rhodes College 2018–present

ACCESS/XSEDE Campus Champion | Rhodes College 2015–present
Assist students and faculty with using high-performance computing resources as a part of the NSF-funded Extreme Science and Engineering Discovery Environment.

Curriculum Committee, College of Science, Chair | Coastal Carolina University 2014–2015

XSEDE Campus Champion | Coastal Carolina University 2013–2015

Search Committee – Associate VP Sponsored Research | Coastal Carolina University 2012

Curriculum Committee, College of Science | Coastal Carolina University 2012–2015

Technology Committee, College of Science | Coastal Carolina University 2011–2015

Long Range Planning Committee, College of Science | Coastal Carolina University 2011

New Faculty Orientation, Mentor | Coastal Carolina University 2011

Departmental Service

Chair of Computer Science Department | Rhodes College 2025–present

Open-rank Professor Search Committee, Computer Science | Rhodes College 2025

Visiting Assistant Professor Search Committee, Computer Science | Rhodes College 2025

Open-rank Professor Search Committee, Computer Science | Rhodes College 2023

Computer Science Systems Administrator | Rhodes College 2023–2024

Admissions Liaison for Computer Science | Computer Science, Rhodes College 2022–2025

Strategic Planning Committee | Math and Computer Science, Rhodes College 2018–2019

CS ABET Assessment Coordinator | Coastal Carolina University 2014–2015

Lecturer Search Committee, Chair | Computer Science and Information Systems, Coastal Carolina University 2013

Assistant Professor Search Committee | Computer Science and Information Systems, Coastal Carolina University . 2013

Lecturer Search Committee, Physics and Chemistry | Coastal Carolina University 2012

CS ABET Assessment Committee | Coastal Carolina University 2011–2015

CS Curriculum Committee | Coastal Carolina University 2010–2015

CS Technology Infrastructure Committee | Coastal Carolina University 2010–2011

ABET Course Assessment Coordinator | Coastal Carolina University 2012–2015

- CSCI 150: Introduction to Algorithmic Design II
- CSCI 150L: Introduction to Algorithmic Design II Lab
- CSCI 350: Organization of Programming Languages
- CSCI 356: Operating Systems
- CSCI 370: Data Communication Systems and Networks
- CSCI 450: Principles of Compiler Design

CS Curriculum Committee, Graduate Representative | The Ohio State University 2009–2010

Graduate Admissions Committee, Graduate Representative | The Ohio State University 2008–2009

Service to the Community / Outreach

Camp Codette 2016–2019
Teaching middle school girls how to program during an annual 1-2 week summer camp

Lake City, SC Robotics Demonstrations 2013
Conducted a robotics demonstration at Ronald E. McNair Middle School and Lake City College Preparatory Academy to increase STEM awareness for rural South Carolina K-12 students

CCU Robocamp 2012–2015
Mentored middle school students to build robotic systems for a two-week half-day summer camp

FIRST LEGO League Program at Ocean Bay Elementary School 2012–2015
Mentored 3rd-5th grade girls and boys to build robotic systems to participate in a district-wide robotics competition

FIRST Robotics Competition Program at Conway High School 2012
Mentored high school students to build a robot designed to participate in a national robotics competition

Future Engineers Summer Camp | The Ohio State University 2009
Assisted with activity development and supervision of a workshop introducing computer science concepts to 8th-grade girls.

Engineers in Motion Summer Camp | The Ohio State University 2009
Assisted with activity development and supervision of a workshop introducing computer science concepts to female high school students.

Professional Service

IEEE/ACM Utility and Cloud Computing (UCC) and Big Data Computing, Applications, and Technologies (BDCAT) | Poster Chair, Program Committee 2022

IEEE Cluster Conference (CLUSTER) | Reviewer 2022

Workshop on Education for High-Performance Computing (EduHPC) | Prog. Committee 2020–present

Workshop on Parallel and Distributed Computing Education (EduPar) | Prog. Committee 2020–present

ACM Tech. Symp. for Computer Science Education (SIGCSE) | Prog. Committee 2011–2020

International Conference on Parallel Processing (ICPP) | Ph.D. Forum Mentor 2018

ACM Transactions on Architecture and Code Optimization (TACO) | Reviewer 2017–2018

Int'l Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS) | Reviewer .. 2013

ACM Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE) | Reviewer 2012–2013

IEEE International Conference on Parallel and Distributed Systems (ICPADS) | Reviewer 2012

IEEE/ACM Int'l Symposium on Cluster, Cloud and Grid Computing (CCGrid) | Reviewer 2012

International Conference on Supercomputing (ICS) | Reviewer 2011

Int'l Conference on Computer Communication Networks (ICCCN) | Reviewer 2011

Affiliations

Member | Association for Computing Machinery (ACM)

Member | ACM Special Interest Group on High Performance Computing (ACM SIGHPC)