
Department of Mathematics and Computer Science
The University of the South
735 University Ave
Sewanee, TN 37383
(931) 598-2000
rtsowell@sewanee.edu

RESEARCH INTERESTS

Human-robot interaction: privacy, trust, mental models, user studies
Computer graphics: interactive visualization, biomedical modeling, animation
Computer science education: active learning, cooperative learning, pedagogy

EDUCATION

Washington University, Department of Computer Science and Engineering, St. Louis (MO)
Ph.D. in Computer Science, August 2012
Dissertation: *Modeling Surfaces from Volume Data Using Nonparallel Contours*
Advisor: Dr. Cindy M. Grimm

The University of the South, Department of Mathematics and Computer Science, Sewanee (TN)
B.S. in Computer Science, May 2005
Summa Cum Laude with Honors, minor in Mathematics
Advisor: Dr. Lucia K. Dale

PROFESSIONAL EXPERIENCE

The University of the South, Department of Mathematics and Computer Science, Sewanee (TN)
Associate Professor, Fall 2023 – Present

Rhodes College, Department of Mathematics and Computer Science, Memphis (TN)
Assistant Professor, Fall 2018 – Spring 2023

Cornell College, Department of Computer Science, Mount Vernon (IA)
Associate Professor, Fall 2017 – Spring 2018
Assistant Professor, Fall 2011 – Spring 2017

Washington University, Media and Machines Lab, St. Louis (MO)
Graduate Research Assistant, Fall 2005 – Fall 2011
Supervisor: Dr. Cindy M. Grimm
Topic: Interactive extraction and editing of surfaces from biomedical imaging data

TEACHING EXPERIENCE

Associate Professor, Sewanee: The University of the South
Introduction to Modeling and Programming (CSCI 157), Fall 2023, Spring 2024
Object-Oriented Programming (CSCI 257), Spring 2024
Principles of Interactive Computer Graphics (COMP 360), Fall 2023

Assistant Professor, Rhodes College
Object-Oriented Programming (COMP 142), Fall 2018, Spring 2019, Fall 2019, Spring 2020, Spring 2021, Spring 2022
Discrete Structures for Computer Science (COMP 172), Fall 2022
Data Structures and Algorithms (COMP 241), Fall 2018, Fall 2019, Fall 2021
Computer Graphics (COMP 320), Fall 2021

Human-Robot Interaction (COMP 370), Spring 2019, Fall 2022

Associate Professor, Cornell College

The Beauty & Joy of Computing (CSC 131), Spring 2014, Fall 2015, Fall 2016**Foundations of Computer Science (CSC 140)**, Fall 2011, Spring 2012, Fall 2012, Fall 2013, Spring 2016, Fall 2016, Spring 2018**Software Architecture (CSC 144)**, Spring 2013, Spring 2014, Spring 2015, Spring 2017**Discrete Mathematics for CS (CSC 151)**, Spring 2012, Fall 2012, Spring 2013, Spring 2015, Fall 2015**Computer Organization (CSC 218)**, Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016**Introduction to Data Science (CSC/STA 255)**, Spring 2015, Spring 2017**Algorithms and Data Structures (CSC 301)**, Spring 2012, Spring 2016, Spring 2017, Spring 2018**Systems Software (CSC 311)**, Fall 2011**Computer Graphics (CSC 321)**, Spring 2013, Spring 2015**Advanced Topics: Virtual Reality (CSC 356)**, Spring 2018**Advanced Topics: Human Robot Interaction (CSC 356)**, Spring 2014, Spring 2016**Professional Practice (CSC 512)**, Fall 2016, Spring 2017

Instructor, Washington University in St. Louis

Introduction to Computing Tools: MATLAB Skills (CSE 100B, JCS 1002), Spring 2010**Research Seminar on Computer Science Pedagogy (CSE 7001)**, Fall 2010**AWARDS AND HONORS****External Grants**

National Science Foundation, PI, "Grounded Reasoning about Robot Capabilities for Law and Policy," SES 2024673

Start date September 15, 2020. 3 year grant. \$84,657 (Rhodes part) \$750,000 (total award).

National Science Foundation, Co-PI, "Mentoring Students to Success in STEM Fields," DUE 1564787

Start date August 15, 2016. 5 year grant. \$649,997 (total award).

Honorarium, Silicon Valley as an Innovation Ecosystem, ACM SAIL Seminar, 2016

Iowa College Foundation McElroy Student-Faculty Research Grant, 2015

Honorarium, SIGCSE Studio Based Learning Workshop, 2009

Internal Grants

Early Leave in Support of Long-Term Faculty Career Development, 2020

Faculty Development Endowment Grant, 2019, 2020

Hill Grant for Curricular Development and Pedagogical Innovation, 2020

Campbell R. McConnell Sabbatical Fellowship, 2017

Cornell College Summer Student-Faculty Collaborative Research Grant, 2012, 2013, 2014, 2015, 2016

McConnell Travel Grant, 2014, 2016

Gaarde-Morton Junior Faculty Award, 2015

Mellon Foundation Faculty Development in the Digital Liberal Arts Travel Grant, 2015

Mellon Foundation Interdisciplinary Course Development Grant, 2014

Honors

Phi Beta Kappa Society, 2004 – Present

Omicron Delta Kappa Society, 2004 – Present

Barry M. Goldwater Scholar, 2004 – 2005

SERVICE**Sewanee: The University of the South**

Mathematics and Computer Science Search Committee, 2023 – 2024

Rhodes College

Technology and Academic Space Committee, 2022 – 2023
Goldwater Selection Committee, 2019 – 2023
Undergraduate Research and Fellowships Committee, 2019 – 2022
Computer Science Search Committee, 2021, 2022

Cornell College

Department Chair, 2016 – 2017
Committee on Committees, 2016 – 2017
Rise Up First-Generation Student Mentor, 2015 – 2017
Committee on Academic Affairs, 2014 – 2016
Subcommittee on Academic Regulations, 2014 – 2016
Institutional Review Board, 2014 – 2016
Instructional Technology Advisory Committee, 2015 – 2016
E-portfolio Working Group, 2015 – 2016
Grants and Compliance Manager Search Committee, 2015 – 2016
Institutional Research and Assessment Advisory Committee, 2014 – 2015
Media Studies Task Force, 2014 – 2015
Business Analytics Search Committee, 2014 – 2015
Committee on Student Life, 2012 – 2014
Subcommittee on Student Engagement and Retention, 2012 – 2014
Student Symposium Committee, 2013 – 2014
Chemistry Search Committee, 2013 – 2014

Professional

Reviewer for ACM SIGGRAPH Conference on Computer Graphics and Interactive Techniques, 2017
Reviewer for ACM/IEEE International Conference on Human-Robot Interaction (HRI), 2015
Member of Association for Computing Machinery (ACM)
Member of ACM Special Interest Group on Computer Science Education (SIGCSE)
Member of Institute of Electrical and Electronics Engineers (IEEE)

SELECTED PUBLICATIONS

Refereed Conference Publications

- C1. Balali, S., Hudspeth, M., Afflerbach, I., Helgesen, H., McCurry, J., Al-Afia, W., Bruslind, K., Hays, K., Sowell, R., West, R., and Grimm, C., Development and evaluation of exploratory experiences to facilitate reasoning about robotic systems. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems* (Detroit, Michigan, October 1 - 5, 2023).
- C2. Balali, S., Afflerbach, I., Sowell, R., West, R., and Grimm, C., Towards improving user expectations of robots by leveraging their experience with computer vision apps. In *Proceedings of the 32nd IEEE International Conference on Robot and Human Interactive Communication* (Busan, Korea, August 28 - 31, 2023).
- C3. Hudspeth, M., Balali, S., Grimm, C., and Sowell, R., Effects of interfaces on human-robot trust: specifying and visualizing physical privacy zones. In *Proceedings of the IEEE International Conference on Robotics and Automation* (Philadelphia, Pennsylvania, May 23 - 27, 2022).
- C4. Klow, J., Proby, J., Rueben, M., Sowell, R., Grimm, C., and Smart, W., Privacy, utility, and cognitive load in remote presence systems. In *Proceedings of the 11th International Conference on Social Robotics* (Madrid, Spain, November 26 - 29, 2019).

- C5. Balali, S., Sowell, R., Smart, W., and Grimm, C., Privacy concerns in robot teleoperation: does personality influence what should be hidden? In *Proceedings of the 11th International Conference on Social Robotics* (Madrid, Spain, November 26 - 29, 2019).
- C6. Bowen-Biggs, L., Dazo, S., Zhang, Y., Hubers, A., Rueben, M., Sowell, R., Smart, W., and Grimm, C., A method for establishing correspondences between hand-drawn and sensor-generated maps. In *Proceedings of the 8th International Conference on Social Robotics* (Kansas City, Missouri, November 1 - 3, 2016).
- C7. Holloway, M., Sanandaji, A., Yates, D., Krigger, A., Sowell, R., West, R., and Grimm, C. Guided structure-aligned segmentation of volumetric data. In *Proceedings of the 11th International Symposium on Advances in Visual Computing* (Las Vegas, Nevada, December 14 - 16, 2015).
- C8. Hubers, A., Andrulis, E., Scott, L., Stirrat, T., Zhang, R., Sowell, R., Rueben, M., Grimm, C., and Smart, W. Using video manipulation to protect privacy in remote presence systems. In *Proceedings of the 7th International Conference on Social Robotics* (Paris, France, October 26 - 30, 2015).
- C9. Abraham, C., Low, D., Sowell, R., Gokhroo, G., Grimm, C., and Ju, T. VolumeViewer: a tool for examining the use of non-axial image planes in treatment planning. In *Proceedings of the 16th International Conference on the Use of Computers in Radiation Therapy* (Amsterdam, Netherlands, May 31 - June 3, 2010).
- C10. Sowell, R., Liu, L., Ju, T., Grimm, C., Abraham, C., Gokhroo, G., and Low, D. VolumeViewer: an interactive tool for fitting surfaces to volume data. In *Proceedings of the 6th Eurographics Symposium on Sketch-Based interfaces and Modeling* (New Orleans, Louisiana, August 01 - 02, 2009), 141-148.
- C11. Lien, J., Bayazit, O., Sowell, R., Rodriguez, S., and Amato, N. Shepherding behaviors. In *Proceedings of the IEEE International Conference on Robotics and Automation* (New Orleans, Louisiana, April 26 - May 4, 2004), 4159-4164.

Refereed Journal Publications

- J1. Kurtek, S., Su, J., Grimm, C., Vaughan, M., Sowell, R., and Srivastava, A. Statistical analysis of manual segmentations of structures in medical images. *Computer Vision and Image Understanding* 117, 9 (September 2013), 1036-1050.
- J2. Sowell, R., Gill, C., Chamberlain, R. D., Grimm, C., Goldman, K. J., and Tranel, M. The active-learning transformation: a case study in software development and systems software courses. *Journal of Computing Sciences in Colleges* 25, 5 (May 2010), 165-172.
- J3. Sowell, R., Chen, Y., Buhler, J., Goldman, S. A., Grimm, C., and Goldman, K. J. Experiences with active learning in CS 3. *Journal of Computing Sciences in Colleges* 25, 5 (May 2010), 173-179.

INVITED TALKS

- T1. "Meet the Robots: Managing human-robot interactions on the street and in the courtroom", October 2022, ScienceWriters2022, Memphis (TN).
- T2. "Protecting Privacy in Remote Telepresence Systems", April 2016, Coe College, Cedar Rapids (IA).
- T3. "Modeling Surfaces from Volume Data Using Nonparallel Contours", November 2010, The University of the South, Seawane (TN).

SOFTWARE PROJECTS

VolumeViewer – <http://volumeviewer.cse.wustl.edu>

An interactive tool for fitting surfaces to volume data. Collaboratively developed with Washington University School of Medicine. Executables and source code are freely available for download. Built using C++ and OpenGL.