

**Journal and Book
Publications**

- C Burch, R Carr, S Krumke, M Marathe, C Phillips, E Sundberg. “A decomposition-based pseudoapproximation algorithm for network flow inhibition,” in *Network Interdiction and Stochastic Integer Programming*, D L Woodruff (ed), Kluwer Academic Press, 2002, pages 51–68.
- C Burch. “Logisim: A graphical system for logic circuit design and simulation.” *Journal on Educational Resources in Computing* 2:1, 2002, pages 5–16.
- A Blum, C Burch. “On-line learning and the metrical task system problem.” *Machine Learning* 39:1, 2000, pages 35–58.

**Refereed
Conference
Presentations**

- C Burch. “Jigsaw, a Programming Environment for Java in CS1.” *Consortium for Computing Sciences in Colleges: Mid-South Conference*, April 2009. Appeared in *Journal of Computing Sciences in Colleges*, May 2009, 24:5, pages 37–43.
- C Burch, L Ziegler. “Science of Computing Suite (SOCS): Resources for a breadth-first introduction.” *SIGCSE Technical Symposium on Computer Science Education*, 2004, pages 437–441.
- C Burch, L Ziegler. “Science of Computing Suite (SOCS): Resources for a breadth-first introduction.” *SIGCSE Technical Symposium on Computer Science Education*, 2004, pages 437–441.
- A Blum, C Burch, A Kalai. “Finely-competitive paging.” *IEEE Foundations of Computer Science*, 1999, pages 450–457.
- A Blum, C Burch, J Langford. “On learning monotone Boolean functions.” *IEEE Foundations of Computer Science*, 1998, pages 408–415.
- A Blum, C Burch. “On-line learning and the metrical task system problem.” *ACM Conference on Computational Learning Theory*, 1997, pages 45–53.
- Y Bartal, A Blum, C Burch, A Tomkins. “A $\text{polylog}(n)$ -competitive algorithm for metrical task systems.” *ACM Symposium on Theory of Computing*, 1997, pages 711–719.

**Other
Conference
Presentations**

- C Burch. “Electric Bugle — A Nifty Assignment.” *Consortium for Computing Sciences in Colleges: Mid-South Conference*, April 2011. Appeared in *Journal of Computing Sciences in Colleges*, May 2011, 26:5, pages 38–39.
- C Burch. “Logisim and circuit simulation: Future directions.” Birds-of-a-feather discussion. *SIGCSE Technical Symposium on Computer Science Education*, March 2011, page 706.
- M Brown, C Burch, C Hu, M Nooner. “CS0: Why, What and How? — Panel Discussion.” *Consortium for Computing Sciences in Colleges: Mid-South Conference*, March 2010. Appeared in *Journal of Computing Sciences in Colleges*, May 2010, 26:5, pages 79–81.
- C Burch. “Django, A Web Framework Using Python — Tutorial.” *Consortium for Computing Sciences in Colleges: Mid-South Conference*, March 2010. Appeared in *Journal of Computing Sciences in Colleges*, May 2010, 25:5, pages 154–155.
- C Burch. “Object-Oriented Space Physics — A Nifty Assignment.” *Consortium for Computing Sciences in Colleges: Mid-South Conference*, March 2010. Appeared in *Journal of Computing Sciences in Colleges*, May 2011, 26:5, pages 150–151.
- C Burch. “Introducing computer science in a summer program.” *National Educational Computing Conference*, 2001.

**Invited
Presentations**

- PyArkansas Conference*, “Python for Programmers,” Oct 10.
- PyArkansas Conference*, “Python for Programmers,” Nov 09.
- Faculty Colloquium*, “Logisim and open-source software,” Mar 08.
- Penn. Governor’s School for the Sciences 25th anniversary*, “Simulating Circuits with Logisim,” Jul 07.
- Carnegie Mellon Computer Science, Distinguished Lecture Series, Feb 01.

**Undergraduate
Research
Mentored**

- S Morgan, senior thesis, *Pedestrian Evacuation Simulation*, 2010.
- C Christopher, senior thesis, *Two Algorithms for Correcting Common Bad Programming Practices Using Jigsaw*, 2009.
- G Potter, senior thesis, *Computer Graphics: Particle Systems*, 2009.
- C Schulze, senior thesis, *Simulation and Comparison of Traffic Control Algorithm*, 2009. Student presented at Hendrix-Rhodes-Sewanee Symposium, 2009.
- J Utecht, senior thesis, *Modeling Large Scale Erosion*, 2009.
- J Franklin, senior thesis, *Wire Realignment in Toves*, 2008.
- A Thomas, senior thesis, *Art and Computers*, 2008.
- L Kaufman, senior thesis, *Robot Path Planning*, 2007.
- J Keahey, senior thesis, *Robot Localization*, 2007. Student presented paper at Hendrix-Rhodes-Sewanee conference.
- N Bledsoe, internship, *Function Approximation in Reinforcement Learning*, 2005. Student poster at Hendrix Honors Day.
- T Durnan, senior thesis, *Learning-Based Artificial Intelligence Applied to a Strategic Bidding Card Game*, 2004.
- N Dalbec, senior project, *Incorporating Clicking into a Visually Controlled Mouse*, 2004.
- C Marsh, senior thesis, *Applying Reinforcement Learning to a Continuous Situation*, 2003. Student presented paper at NCUR 2003.
- B Franek, senior thesis, *Computer Vision: Image Analysis and Recognition*, 2002.
- R Schafer, senior thesis, *Protecting Brand Image: A Web Based Trademark Surveillance Application*, 2002.
- N Charboneau, senior thesis, *Voice Interactive Events Calendar at the College of Saint Benedict/Saint John's University: A Feasibility Study Using VXML*, 2001. Student presented paper at NCUR 2001.

**Course
Material**

- Logisim*, open-source software: logic circuit simulator, www.cburch.com/logisim/, 2001–11.
- “Introduction to parallel & distributed algorithms,” open chapter, www.toves.org/books/distalg/, 2009.
- Jigsaw*, open-source software: beginners' Java IDE, www.cburch.com/jigsaw/, 2005–08.
- Programming via Java*, open textbook, www.toves.org/books/java/.
- aas*, open-source software: ARM simulation, www.toves.org/aas/, 2008.
- Programming via PHP*, open textbook, www.toves.org/books/php/.
- Data & Procedure*, open textbook, www.toves.org/books/data/.
- The Science of Computing*, textbook, www.cburch.com/socs/.
- Automaton Simulator*, open-source software, DFA/NFA/Turing Machine builder, www.cburch.com/proj/autosim/

Grants	C Burch, <i>Summer Software Development Odyssey</i> , internal grant, Feb 2008. \$5,000 awarded.
	C Burch, G Ferrer, A Wright, <i>Laboratory for robotics and embedded systems</i> , Hewlett-Packard, Feb 2007. Denied.
	C Burch, R Hesse, J Holey, <i>Increasing retention in computer science and mathematics</i> , National Science Foundation, Feb 2003. Denied.
	L Ziegler, C Burch, <i>A Java programming workshop for computer science</i> , CSB/SJU Professional Development Fund, Feb 2000. \$8,000 awarded.
Courses Taught	CSCI 115 Computing and the Internet, S07, F07
Hendrix	CSCI 135/PHYS 135 Robotics exploration studio, F09
	CSCI 150 Foundations of computer science II, F06, S07, F07, F08, S09, F09, S10
	CSCI 151 Foundations of computer science II, F04, S05, F05, S06, F07, F08
	CSCI 230 Computing systems organization, S06, S07, S08, F08, S10
	CSCI 280 Algorithms and problem-solving paradigms, S09
	CSCI 330 Computer architecture, F06
	CSCI 340 Database systems, S06, S08, S10
	CSCI 360 Survey of programming languages, F04
	CSCI 490 Advanced topics: Computer graphics, S05
	LBST 101 Explorations, F09
	MATH 240 Discrete mathematics, F05
	MATH/CSCI 497 Senior seminar, F06, S08
CSB/SJU	CSCI 150 Introduction to the science of computing, F00, S01, F02, F03
	CSCI 160 Problem solving, programming, and computers, F01, S02
	CSCI 210 Levels of architecture, languages, and applications, F02, S03, S04
	CSCI 276 Artificial intelligence, Jan 01
	CSCI 340 Organization of programming languages, S01, S03
	CSCI 341 Compiler theory, S01
	CSCI 350 Operating systems, F01
	CORE 100 First-year symposium, F03
	CORE 101 First-year symposium, S04
Penn. Gov.'s School for the Sciences	Computer science core course, 97, 98, 99, 00, 01, 02
	Computer science team projects, 00, 02
	Machine learning elective, 01, 02
Carnegie Mellon (teaching assistant)	15–211 Fundamental data structures and algorithms, S96, F97
	15–251 Great theoretical ideas in computer science, S99
	15–451 Algorithm design and analysis, F98

Departmental Activities Hendrix	<p><i>Linux network administrator</i>, 05–present.</p> <p><i>Programming team coach</i>, 05–10.</p> <p><i>Department chair</i> (mathematics & computer science), 08–10.</p> <p><i>Mathematics faculty search committee</i>, chair, 09–10.</p> <p><i>Computer Science faculty search committee</i>, chair, 07–08.</p> <p><i>Summer Software Development Odyssey</i>, Summer 08.</p> <p><i>Advanced Placement Computer Science grader</i>, Summer 05, 06, 07.</p> <p><i>Computer Science Faculty-Student Book Discussions</i>, leader S05, F05.</p>
CSB/SJU	<p><i>Programming Team</i>, coach 02–04.</p> <p><i>Computer Gaming Club</i>, advisor 02–04.</p> <p><i>Web page designer</i>, 01–04.</p> <p><i>Computer Science Club</i>, advisor 01–02.</p>
College Activities Hendrix	<p><i>Service trip leader</i>, New Orleans W11</p> <p><i>Committee on Curriculum</i>, member 05–10.</p> <p><i>Service trip leader</i>, Navajo Reservation S09</p> <p><i>Chemistry faculty search committee</i>, 06–07.</p> <p><i>Faculty Salary Task Force</i>, member 05–06.</p> <p><i>Tuesday Talks</i>, S06.</p> <p><i>Service trip leader</i>, San Francisco Tenderloin S06</p> <p><i>Service trip leader</i>, Pascagoula hurricane relief F05</p> <p><i>Friday Discussions</i>, Panel on mathematics and religion, S05.</p>
CSB/SJU	<p><i>Faculty Development and Research Committee</i>, member 03–04.</p> <p><i>Committee on Academic Computing</i>, member 02–03.</p>
Awards	<p><i>Distinguished Service Award</i>, Pennsylvania Governor’s School for the Sciences, July 00.</p> <p><i>School of Computer Science Dissertation Award</i>, awarded to top two dissertations from CMU’s computer science college, 99–00.</p> <p><i>National Science Foundation Graduate Fellowship</i>, 96–99.</p>
Conference Service	<p><i>CCSC:Mid-South</i>, nifty assignments chair, reviewer, Conway, AR, Apr 11.</p> <p><i>CCSC:Mid-South</i>, nifty assignments chair, reviewer, Searcy, AR, Mar 10.</p> <p><i>CCSC:Mid-South</i>, student papers chair, reviewer, Martin, TN, Apr 09.</p> <p><i>Applied Research in Information Technology</i> (by Acxiom), reviewer, Conway, AR, Feb 09.</p> <p><i>CCSC:Mid-South</i>, student papers chair, Russellville, AR, Apr 08.</p> <p><i>JETT</i> (workshop for AP teachers), lead organizer, Hendrix College, Aug 05.</p> <p><i>JETT</i> (workshop for AP teachers), lead organizer, Hendrix College, Aug 04.</p>

**Conferences
Attended**

CCSC: Mid-South, Conway AR, Apr 11.
SIGCSE Tech. Symposium on Computer Science Education, Dallas TX, Apr 11.
CCSC: Mid-South, Searcy AR, Mar 10.
MAA-AMS Joint Mathematics Meeting, San Francisco CA, Jan 10.
CCSC: Mid-South, Martin TN, Mar 09.
CCSC: Mid-South, Russellville AR, Mar 08.
MAA-AMS Joint Mathematics Meeting, San Diego CA, Jan 08.
MAA-AMS Joint Mathematics Meeting, New Orleans LA, Jan 07.
SIGCSE Tech. Symposium on Computer Science Education, Houston TX, Mar 06.
SIGCSE Tech. Symposium on Computer Science Education, St Louis MO, Feb 05.
SIGCSE Tech. Symposium on Computer Science Education, Norfolk VA, Mar 04.
Collegium, Collegeville MN, Jun 03.
Midwest Instruction and Computing Symposium, Duluth MN, Apr 03.
Sharing Stories of Vocation, Pepperdine University CA, Oct 02.
National Educational Computing Conference, El Paso TX, Jun 02.
SIGCSE Tech. Symposium on Computer Science Education, Covington KY, Feb 02.
IEEE Symposium on Foundations of Computer Science, New York NY, Oct 99.
IEEE Symposium on Foundations of Computer Science, Palo Alto CA, Nov 98.
ACM Symposium on Theory of Computing, Dallas TX, May 98.
ACM Conference on Computational Learning Theory, Nashville TN, July 97.
SIGCSE Tech. Symposium on Computer Science Education, San Jose CA, Feb 97.