

**CONTACT INFORMATION**

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**EDUCATION**

Georgia Institute of Technology  
 Ph.D. in Human Centered Computing, December 2016  
 Dissertation: Replicating Experiments from Educational Psychology to Develop Insights into Computing Education: Cognitive Load as a Significant Problem in Learning Programming  
 Advisor: Mark Guzdial

Southern Polytechnic State University, Marietta, GA (now Kennesaw State University)  
 M.S., Computer Science, June 1995  
 Project: “Designing a Suite of Laboratory Experiences for an Introductory Course in Programming”

Tulane University, New Orleans, LA  
 B.S.E., *cum laude*, Computer Engineering, May 1987

**EMPLOYMENT HISTORY****Academic Positions**

University of Nebraska Omaha August, 2016 – present	Omaha, NE Assistant Professor
Georgia Institute of Technology August, 2011 – July, 2016	Atlanta, GA Graduate Research Assistant
Kennesaw State University (formerly Southern Polytechnic State University) August, 2006 – 2011 August, 2001 – May, 2016 January, 1996 – August, 2001 March, 1995 – June, 1995	Marietta, GA Undergraduate Coordinator, CS and SWE Assistant Professor Instructor Graduate Teaching Assistant
Tulane University Fall 1985 – Spring 1987	New Orleans, LA Teaching Assistant

**Industry Positions**

IBM Corporation July, 1987 – December, 1994	Atlanta, GA Staff Programmer
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Position allowed complete lifecycle experience: refining product requirements, defining product specifications, initial project design and support of ProductManager project, a large scale manufacturing product initially implemented on a mainframe and ported to an AS400. Additional tasks included education of IBM internal developers in object-oriented programming and specific ProductManager development tools and customer education for installation and customization of ProductManager. Final position was product support team lead.

## PUBLICATIONS

### Journals


- [1] Margulieux, L.E., **Morrison, B.B.**, Baker, F., & Ramilison, H.<sup>1</sup> (2020). Effect of Implementing Subgoals in Code.org's Intro to Programming Unit in Computer Science Principles, *ACM Transactions on Computing Education (in press)*.
- [2] Margulieux, L. E., **Morrison, B. B.**, & Decker, A. (2020). Reducing withdrawal and failure rates in introductory programming with subgoal labeled worked examples. *International Journal of STEM Education*, 7, 1-16.
- [3] **Morrison, B. B.**, Margulieux, L. E., & Decker, A. (2020). The curious case of loops. *Computer Science Education*, 1-28.
- [4] Preston, J. and **Morrison, B.**, Dec. 2009. Entertaining education –using games-based and service-oriented learning to improve STEM education. In *Transactions on Edutainment III* (pp. 70-81). Springer. Conference paper [25] selected for reprinting in journal as one of the top 5.
- [5] McCauley, R., Murphy, L., Westbrook, S., Haller, S., Zander, C., Fossum, T., Sanders, K., **Morrison, B.**, Richards, B., and Anderson, R. , July 2005. What do successful computer science students know? An integrative analysis using card-sort measures and content analysis to evaluate graduating students' knowledge of programming concepts. *Expert Systems*, 22(3), 147-159.
- [6] Sanders, K., Fincher, S., Bouvier, D., Lewandowski, G., **Morrison, B.**, Murphy, L., Petre, M., Richards, B., Tenenberg, J., Thomas, L., Anderson, Richard, Anderson, Ruth, Fitzgerald, S., Gutschow, A., Haller, S., Lister, R., McCauley, R., McTaggart, J., Prasad, D., Scott, T., Shinnars-Kennedy, D., Westbrook, S., and Zander, C., July 2005. A multi-institutional multinational study of programming concepts using card sort data. *Expert Systems*, 22(3), 121–128.

### Refereed Conference

- [7] Decker, A., Margulieux, L. E., & **Morrison, B. B.**, 2019. Using the SOLO Taxonomy to Understand Subgoal Labels Effect in CS1. In *Proceedings of the 2019 ACM Conference on International Computing Education Research (ICER '19)*. (pp. 209-217). New York, NY: ACM.
- [8] Margulieux, L. E., **Morrison, B. B.**, & Decker, A., 2019. Design and pilot testing of subgoal labeled worked examples for five core concepts in CS1. In *ITiCSE '19: Innovation and Technology in Computer Science Education Proceedings* (pp. 548-554). New York, NY: ACM.
- [9] **Morrison, B. B.**, Dorn, B., & Friend, M., 2019. Computational Thinking Bins: Outreach and More. *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*, 1018–1024.
- [10] Krutz, J.<sup>1</sup>, Siy, H., Dorn, B., & **Morrison, B. B.** (2019). Stepwise refinement in block-based programming. *Journal of Computing Sciences in Colleges*, 35(5), 91-100.
- [11] **Morrison, B.**, 2017. Dual Modality Code Explanations for Novices: Unexpected Results. In *Proceedings of the 2017 ACM Conference on International Computing Education Research (ICER '17)*. ACM, New York, NY, USA, 226-235. DOI=10.1145/3105726.3106191
- [12] **Morrison, B.**, Decker, A., and Margulieux, L., 2016. Learning Loops: A Replication Study Illuminated Impact of HS Courses. In *Proceedings of the twelfth annual International Conference on International Computing Education Research (ICER '16)*. ACM, New York, NY, USA, 21-29. DOI=10.1145/2960310.2960330

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<sup>1</sup> MS Student

- [13] Ericson, B. J., Rogers, K., Parker, M., **Morrison, B.**, & Guzdial, M., 2016. Identifying Design Principles for CS Teacher Ebooks Through Design-Based Research. *Proceedings of the 2016 ACM Conference on International Computing Education Research*, 191–200.
- [14] Margulieux, L., **Morrison, B.**, Guzdial, M., and Catrambone, R., 2016. Training Learners to Self-Explain: Designing Instructions and Examples to Improve Problem Solving. Submission to *Proceedings of ICLS '16*.
- [15] DiSalvo, B., Khanipour Roshan, P, **Morrison, B.**, 2016. Information Seeking Practices of Parents: Exploring Skills, Face Threats and Social Networks. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (New York, NY, USA, 2016), 623–634.
- [16] **Morrison, B.**, Margulieux, L., Ericson, B., and Guzdial, M., 2016. Subgoals Help Students Solve Parsons Problems. Accepted to *Proceedings of the 47th ACM technical symposium on Computer science education (SIGCSE '16)*.
- [17] Ericson, B., Guzdial, M., **Morrison, B.**, Parker, M., Moldavan, M., and Surasani, L., 2015. An eBook for Teachers Learning CS Principles. *ACM Inroads*. 6, 4 (Nov. 2015), 84–86.
- [18] Ericson, B., Moore, S., **Morrison, B.**, and Guzdial, M., 2015. Usability and Usage of Interactive Features in an Online Ebook for CS Teachers. In *Proceedings of WiPSCE '15*. ACM, New York, NY, USA.
-  [19] **Morrison, B.**, Margulieux, L., and Guzdial, M., 2015. Subgoals, Context, and Worked Examples in Learning Computing Problem Solving. In *Proceedings of the eleventh annual International Conference on International Computing Education Research (ICER '15)*. ACM, New York, NY, USA, 21-29. <http://doi.acm.org/10.1145/2787622.2787733>
- [20] Ericson, B., Guzdial, M. , and **Morrison, B.**, 2015. Analysis of Interactive Features Designed to Enhance Learning in an Ebook. In *Proceedings of the eleventh annual International Conference on International Computing Education Research (ICER '15)*. ACM, New York, NY, USA, 169-178. <http://doi.acm.org/10.1145/2787622.2787731>
- [21] **Morrison, B.**, Dorn, B., and Guzdial, M., 2014. Measuring cognitive load in introductory CS: adaptation of an instrument. In *Proceedings of the tenth annual conference on International computing education research (ICER '14)*. ACM, New York, NY, USA, 131-138. DOI=10.1145/2632320.2632348.
- [22] **Morrison, B.** and DiSalvo, B., 2014. Khan academy gamifies computer science. In *Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14)*. ACM, New York, NY, USA, 39-44. DOI=10.1145/2538862.2538946.
- [23] Korhonen, A., Naps, T., Boisvert, C., Crescenzi, P., Karavirta, V., Mannila, L., Miller, B., **Morrison, B.**, Rodger, S., Ross, R., Shaffer, C., 2013. User Requirements and Design Strategies for Open Source Interactive Computer Science eBooks, In *Proceedings of the ITiCSE working group reports conference on Innovation and technology in computer science education-working group reports (ITiCSE -WGR '13)*. ACM, New York, NY, USA, 53-72.
- [24] **Morrison, B.**, Ni, L., Guzdial, M., 2012. Adapting the disciplinary commons model for high school teachers: improving recruitment, creating community. In *Proceedings of the ninth annual international conference on International computing education research* (pp. 47-54). New York, NY, USA: ACM. doi:10.1145/2361276.2361287.
- [25] **Morrison, B.**, Clancy, M., McCartney, R., Richards, B., Sanders, K., 2011. Applying data structures in exams. In *Proceedings of the 42nd ACM Technical symposium on Computer science education* (pp. 353-358). New York, NY, USA: ACM. doi:10.1145/1953163.1953269.
- [26] Ni, L., Guzdial, M., Elliott Tew, A., **Morrison, B.**, Galanos, R., 2011. Building a community to support HS CS teachers: the disciplinary commons for computing educators. In *Proceedings of the 42nd ACM technical symposium on computer science education* (pp. 553-558). New York, NY, USA: ACM.

- [27] Simon, B., Clancy, M., McCartney, R., **Morrison, B.**, Richards, B., & Sanders, K., 2010. Making sense of data structures exams. In *Proceedings of the Sixth international workshop on Computing education research* (pp. 97-106). New York, NY, USA: ACM.
- [28] Preston, J. and **Morrison, B.**, 2009. Entertaining Education – Using Games-based and Service-oriented Learning to Improve STEM Education, In *Proceedings of The 4th International Conference on E-Learning and Games (Edutainment 2009)*, Banff, Canada, August, 2009.
- [29] Simon, B., Hanks, B., McCauley, R., **Morrison, B.**, Murphy, L., and Zander, C., 2009. For me, programming is ... In *Proceedings of the fifth international workshop on Computing education research workshop* (pp. 105-116). New York, NY, USA: ACM.
- [30] **Morrison, B. B.** and Preston, J. A., 2009. Engagement: gaming throughout the curriculum. In *Proceedings of the 40th ACM technical symposium on Computer science education* (pp. 342-346). New York, NY, USA: ACM.
- [31] Sanders, K., Richards, B., Moström, J. E., Almstrum, V., Edwards, S., Fincher, S., Gunion, K., Hall, M., Hanks, B., Lonergan, S., McCartney, R., **Morrison, B.**, Spacco, J., and Thomas, L., 2008. DCER: sharing empirical computer science education data. In *Proceedings of the Fourth international Workshop on Computing Education Research* (pp. 137-148). New York, NY, USA: ACM.
- [32] Murphy, L., Richards, B., McCauley, R., **Morrison, B.**, Westbrook, S., and Fossum, T., 2006. Women catch up: gender differences in learning programming concepts. In *Proceedings of the 37<sup>th</sup> SIGCSE technical symposium on Computer science education* (pp. 17-21). New York, NY, USA: ACM.
- [33] Murphy, L., McCauley, R., Westbrook, S., Fossum, T., Haller, S., **Morrison, B.B.**, Richards, B., Sanders, K., Zander, C., and Anderson, R.E., 2005. A multi-institutional investigation of computer science seniors' knowledge of programming concepts. In *Proceedings of the 36<sup>th</sup> SIGCSE technical symposium on Computer science education* (pp. 510-514). New York, NY, USA: ACM.
- [34] Lister, R., Box, I., **Morrison, B.**, Tenenberg, J., and Westbrook, S., 2004 The dimensions of variation in the teaching of data structures. In *Proceedings of the 9th annual SIGCSE conference on Innovation and technology in computer science education* (pp. 92-96). New York, NY, USA:ACM.

### Book Chapters

- [35] Robins, A., Margulieux, L., and **Morrison, B.**, 2018. Cognitive sciences for computing education. In S. A. Fincher & A. V. Robins (Eds.), *The Cambridge Handbook of Computing Educating Research*.
- [36] Preston, J., & **Morrison, B.**, 2009. Entertaining education –using games-based and service-oriented learning to improve STEM education. In *Learning by Playing. Game-based Education System Design and Development: 4th International Conference on E-learning, Edutainment 2009, Banff, Canada, August 9-11, 2009, Proceedings*. Z. Pan, A. D. Cheok, W. Müller, & M. Chang (Eds.), (pp. 70–81). Berlin, Heidelberg: Springer-Verlag. Identical to [2] and [25].

### Referred Conferences - Abstract Reviewed

- [37] Decker, A., Margulieux, L. E., & **Morrison, B. B.**, 2019. Developing subgoal labels for imperative programming to improve student learning outcomes. 2019 ASEE Annual Conference and Exposition.

- [38] Afzali, F. M.<sup>2</sup>, & **Morrison, B. B.**, 2018. Cellphone Usage in Academia: The Problem and Solutions. *Companion of the 2018 ACM Conference on Computer Supported Cooperative Work and Social Computing*, 325–328.
- [39] DiSalvo, B. and **Morrison, B.**, August 2013. A Critique of “Gamification” in Khan Academy. *Digital Games Research Association conference proceedings*.
- [40] Bernal-Thomas, B., **Morrison, B.**, March 2002. Ventures into Capturing Effort in Programming. In *2002 ASEE Southeast Section conference proceedings*.
- [41] Bernal-Thomas, B., **Morrison, B.**, March 2001. The Educational Quest of Capturing Effort in Programming. In *2001 ASEE Southeast Section conference proceedings*.

### Technical Reports and Other Manuscripts

- [42] **Morrison, B. B.**, Craig, M., & Quinn, B. A. (2020). EngageCSEdu Programming assignments: identifying red flags. *ACM Inroads*, 11(2), 6-7.
- [43] Craig, M., & **Morrison, B.** (2020). EngageCSEdu How should we assess assignments?. *ACM Inroads*, 11(1), 17-19.
- [44] **Morrison, B. B.**, & Craig, M. (2019). EngageCSEdu: Our Vision for the New EngageCSEdu e-Journal. *ACM Inroads*, 10(2), 8–9. <https://doi.org/10.1145/3317045>
- [45] **Morrison, B. B.** 2018. My SIGCSE: Reflections of a Computing Educator. *ACM Inroads*, 9(4), 92–92. <https://doi.org/10.1145/3230688>
- [46] Mark Guzdial and **Briana Morrison**, 2016. Growing computer science education into a STEM education discipline. *Commun. ACM* 59, 11 (October 2016), 31-33. DOI: <https://doi.org/10.1145/3000612>
- [47] **Briana B. Morrison**, 2015. Computer Science Is Different!: Educational Psychology Experiments Do Not Reliably Replicate in Programming Domain. In *Proceedings of the eleventh annual International Conference on International Computing Education Research (ICER '15)*. ACM, New York, NY, USA, 267-268. <http://doi.acm.org/10.1145/2787622.2787744>
- [48] Morrison, B. B., 2015. Position Paper: Assessing Knowledge in Blocks-based and Text-based Programming Languages. *Proceedings of the 2015 IEEE Blocks and Beyond Workshop (Blocks and Beyond)*, 1–3. <https://doi.org/10.1109/BLOCKS.2015.7368988>
- [49] Pileggi, H., **Morrison, B.**, Bruckman, A., 2014. *Deliberate Barriers to User Participation on MetaFilter* (Technical Report No. GT-IC-14-01: <http://hdl.handle.net/1853/50776>). Georgia Institute of Technology.
- [50] **Morrison, B.**, 2013. Using cognitive load theory to improve the efficiency of learning to program. In *Proceedings of the ninth annual international ACM conference on International computing education research (ICER '13)*. ACM, New York, NY, USA, 183-184. <http://doi.acm.org/10.1145/2493394.2493425>
- [51] Alvarado, C., **Morrison, B.**, Ericson, B., Guzdial, M., Miller, B., & Ranum, D. L., 2012. *Performance and use evaluation of an electronic book for introductory Python programming* (Technical Report No. <http://hdl.handle.net/1853/45044>). Georgia Institute of Technology.

### AWARDS

- Foley Scholars Finalist (2015)
- ICER Chairs’ Best Paper Award (2015)
- CTE Communications Fellow (2009-2010)
- SPSU Outstanding Faculty Award (2002, 2007)
- Listed in *Who's Who Among America's Teachers 1998, 2002, 2007*
- Outstanding Southern Polytechnic Woman (Spring 2003)

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<sup>2</sup> PhD Student

- CTE Fellow for Bloom's Assessment (2006-2007)
- CTE Fellow for Assessment Series (2004-2005)

## GRANTS

- NSA, 2020 GenCyber: Teacher Program with Matt Hale (PI), Robin Ghandi, and Brian Dorn, \$84,747.
- NSA, 2020 GenCyber: Student Program with Matt Hale (PI), Robin Ghandi, and Brian Dorn, \$99,720.
- ACM, 2020, Website for the History of SIGCSE's Conferences (PI), \$4000.
- NSA, 2019 GenCyber: Student Program with Matt Hale (PI) and Robin Ghandi. \$99,336.
- NSF 1712231, IUSE: Collaborative Research: Developing and Assessing Subgoal Labels for Imperative Programming to Improve Student Learning Outcomes (2017 – 2020) with Lauren Margulies, Georgia State University and Adrienne Decker, Rochester Institute of Technology. \$299,927
- NSA, 2018 GenCyber (2018) with Matt Hale (PI) and Robin Ghandi. \$110,853.
- Google CS4MS (2017), with Michelle Friend (PI) and Brian Dorn, "CS Education Roadshow, Opportunities and Pathways", \$35,000
- NSF 1711386, RET: Wearable Research for Inservice STEM Teachers (WRIST), (2017-2020) with Jon Youn (PI), \$598,539
- NRI (2017-2019) "Using Eye Tracking to Measure the Cognitive Load of Learning Programming", \$290,995
- SPSU Faculty Mini-Grant (2009-2010), with Jon Preston, "In Depth Assessment of Using Games as a Context for Learning Programming" and "Games for Learning to Improve Instruction to Enhance Student Success in STEM", \$15,000
- SPSU Faculty Mini-Grant (2009-2010), with Jon Preston, "Oceanography, Economics and Tech Fair", Partnership with Marietta Center for Advanced Economics \$5000
- SPSU Faculty Scholarship Grant (June 2008), \$5000, "Implementing Closed Labs for Gaming"
- DCCE sub-award grant from Georgia Tech (September, 2009 – August, 2011), \$15,682
- CRA-W Grant to attend SIGCSE 2005

## SERVICE

### Service to the Profession

- ACM Education Board member, July 7, 2020 – June 30, 2022
- Participated in NSF panel review, March 2020
- AP CS A Syllabus Audit Reviewer, October 2019 - present
- ACM-W North America Committee member, Sept 2019 - present
- EngageCSEdu co-Editor-in-Chief, January 2019 - present
- AP CSA Development Committee member, July 2018 - present
- ACM Ed Council Appointed Member, August 2017 – July 2020
- External reviewer for three promotion packets
- SIGCSE Board Elected Member-At-Large, July 2016 – June 2019
- Participated in NSF panel review, December 2017
- AP CSA Reader, 2015, 2017, 2018, 2019, 2020
- CS Praxis Test Question Writer, 2017-2018
- *Transactions on Computing Education* Associate Editor, September 2017 – present
- Facebook Infrastructure Symposium, Guest Speaker, (June 20, 2017)
- AP CS1 Focus Group, February 2017

- AP CSP Standard Setting, June 2016
- CAC Program Evaluator for ABET Accreditation visit, Fall 2007
- Judge at ACM regional programming contest (Fall 1998 and Fall 2000)
- Served as an ETS (Education Testing Service) Pre-Test site for the AP Computer Science Test to allow pre-testing of future Computer Science AP questions. (Fall 2000)

### Conferences

- Education & Family Track Associate Chair, *ACM CHI Conference* (Fall 2020)
- CS Education Track Chair, *ACM Southeast Conference*, (Spring 2019)
- Social Media and Publicity Chair, *SIGCSE Technical Symposium* March 2015
- Pre-Conference Event Liaison, *SIGCSE Technical Symposium* March 2012
- Student Volunteer Co-Chair, *SIGCSE Technical Symposium* March 2010 and March 2011

### Service to the community

- FBLA Games Judge (2016- 2019)
- CSTA Professional Development Day at UNO, Organizer, August 2018
- Outreach to Westside Middle School, Turtlestitch lesson (2018)
- Outreach to Hillside Elementary School, Turtlestitch lesson (2018)
- FutureCity judge (2007-2011)
- Presenter for Girl Scout Earth Day celebration (Spring 2008)
- Judge for simulation and presentation sessions for Future City (February 2007)
- Speaker at St. Joseph Catholic School Career Day (spring 2006)
- Supervisor of events at regional High School Science Olympiad competition. Compute This! event in Spring 2006, Practical Data Gathering event in Spring 2004, Compute This! event in Spring 2003, Surf the Net event in Spring 2002, and Using the Web event in Spring 2001
- Speaker for Boy Scouts Day of Merit for computer badge (Spring 1999 and Spring 2000)

### Service to University

- CS Education Graduate Program Committee, Committee Member (2016 – present)
- IS&T Advisory Committee, Committee Member (2020 – 2021)
- IS&T Academic Committee, Committee Member (2018 – 2020)
- IS&T Advisory Committee, Committee Member (2017 – 2018)
- Bioinformatics Graduate Program Committee, Committee Member (2016- 2018)
- Coordinated and executed UNO hosted reception for CSTA National Conference (Summer 2018)
- Grace Hopper Celebration, Attendee and Faculty Sponsor for 6 students (Fall 2017)
- Canvas Task Force, Committee Member (September 2016 – May 2017)
- Secretary to the Faculty, Fall 2007 – 2009
- Supervised PLSAMP Student Scholars (3 in summer 2008, 1 in summer 2007)
- Student Marshal for Fall 2007, Spring 2008, Fall 2008 graduations
- Taught morning session and developed and taught afternoon lab for High School Teachers in Science and Math Workshop, June 2007
- Organized, directed, and taught Media Manipulation and Computer Gaming Workshop for High School Girls, June 2007
- Member (AY2006 to present) of Undergraduate Curriculum Committee.
- Presentation to campus on assessment methodology for SACS
- Co-Faculty advisor for student ACM-W (Computing Women) chapter which has included: (Fall 2001 to 2005)

- Chair (AY2004) and member (AY2003 to 2005) of Student Status Committee which also included a rewrite of the P&P for the committee.
- Faculty advisor for student ACM chapter which has included: (Fall 1996 to Spring 2001)

### **Service to the Department**

- CS Graduate Program Committee, Committee Member (2018 – 2019)
- Merit Pay Committee, Committee Member (Spring 2018).
- CS1/CS2 Evaluation Committee, Committee Member (2016 – present)
- Led effort to update BSCS and BACS curriculum enhancements, accomplished all curriculum tasks resulting from accreditation effort input
- CS Undergraduate Coordinator (Summer 2006 to present)
- Head of accreditation self-study for CS department (Fall 2003 to Spring 2006)
- Lead for Industry Advisory Board meetings held twice a year
- Course coordinator for CS 1002, CS 3424, and CS 4894 (Fall 2003 to present)
- Member of Outstanding Undergraduate committee (Fall 1996 to present)
- Member of Undergraduate Curriculum restructuring committee (Fall 2001)
- Chair of Undergraduate Curriculum review committee (Spring 2001)
- Technical advisor for instructional technology ad-hoc committee (Spring 2000)
- Member of faculty search committee (Fall 1999 and Spring 2000)
- Chair of the Curriculum Committee for Programming which involved defining course content and book selection for all programming centered courses within Computer Science (Fall 1998 to 2001)

## **CURRICULUM DEVELOPMENT**

### **New courses developed**

- Developed and taught CS Graduate level Special Topics course, Online Communities (Spring 2020).
- Two Independent Study courses at UNO, both graduate level
- Co-developed revised CIST 1400 course to implement as a flipped class with required lab and Peer Instruction (Fall 2017 – Fall 2018)
- Supervisor of 1 master's thesis
- Supervisor of 1 PhD student
- Redesigned and developed CSE 1002 Introduction to the Computing Disciplines in Spring of 2013.
- Developed Gaming-Based CSE 1301 offering in Fall of 2008, including developed of 10 closed labs.
- Developed CS 4894 Computer Science Capstone course and taught it for the first time Fall of 2003, including assessment of the course. Course is a team based project course.
- Developed and implemented closed labs for the following courses:
  - CS 3424 – Data Structures to give students exposure to more data structures than could be covered in class, experience with the new language, and more exposure to the Standard Template Library. Developed 13 original labs. (Fall 2002)
  - CS 1302 - Computer Science II to allow students more experience with object-oriented programming. Developed 12 original labs. (Fall 2001)
  - CS 1301 - Computer Science I to allow students to gain hands-on knowledge and experimentation with programming in a structured environment, also allowing increased comprehension of the material and encouraging critical thinking skills in a laboratory environment. Also included introduction of PSP (Personal Software Process). (Fall 2000)



- Developed new curriculums for the following courses:
  - CS 3424 – Data Structures to incorporate students learning a new language (Java to C++) and to incorporate the Standard Template Library into the course. (Fall 2002)
- Directed thirteen senior projects :
  - “Member Management System” (Fall 2001)
  - “Web Site & Usability Study” (Fall 2001)
  - “On-line Franchise Management System” (Spring 2001)
  - “Teacher’s Assistant Grader” (Spring 2001)
  - "An Online PSP Record Keeping System" (Fall 2000)
  - "Java Pluggable Servers" (Spring 2000)
  - "Vehicle Maintenance Record Keeper" (Spring 2000)
  - "Beckler's Carpet Floor Covering Project" (joint project by 2 students) (Spring 2000)
  - "Planetoids: An Excuse to Learn Win32/DirectDraw" (Fall 1999)
  - "The Dante's Down the Hatch Java Web Site Project" (Spring 1998)
  - "Writing Database Frontends: Microsoft Foundation Classes and Open Database Connectivity" (Spring 1998)
  - "Converting Microsoft Access Database to a Scalable SQL Database using ODBC" (Spring 1998)
- Member of 7 additional senior project committees
- Member of 18 master's project committees

## **COURSES TAUGHT**

### **UNO Semester:**

CIST 1400 – Computer Science I  
 CSCI 2240 - C Programming  
 CSTE 8020 – Exploring Computer Science for Teachers  
 CSTE 8030 – Computer Science Principles for Teachers  
 CSTE 8040 – Object Oriented Programming for Teachers  
 CSCI 8980 – CS Special Topics: Online Communities

### **SPSU Semester:**

SPSU 1001 – Hitchhiker’s Guide to SPSU  
 1002 – Introduction to Computing Disciplines  
 1301 - Computer Science I (Java, C#, C++, Pascal)  
 1302 - Computer Science II (Java, C#, C++, Pascal)  
 2/3 642 – Professional Practices and Ethics  
 3423 - Data Structures and Algorithm Analysis (C++, Pascal)  
 3424 – Data Structures (C++)  
 3903 – Special Topic on Program Extension and Maintenance  
 4413 – Analysis of Algorithms  
 4893/4 – Computer Science Capstone  
 4990 – Graduation Seminar  
 5003 – Accelerated Introduction to Programming  
 5022 – Advanced Java Programming  
 5123 – Advanced Programming and Data Structures

### **Quarter:**

101 - Introduction to Computers  
 105 - Programming Principles I  
 200 - Introduction to Programming with C  
 205 - Programming Principles II  
 305 - Data Structures  
 362 - Applications Programming in C++

## INVITED TALKS

- Invited talk, “Reducing Cognitive Load in Introductory Computer Science through the Use of Subgoal Labels” for Raspberry Pi Research Foundation Seminar Series, June 30, 2020
- Invited talk, “Using Subgoal Labels to Reduce Cognitive Load in Learning Programming” at UNO STEM DBER Speaker Series, October 18, 2019
- Invited talk, “Using Subgoal Labels to Reduce Cognitive Load in Learning Programming” at Delft Technical University, September 25, 2019
- Invited talk, “Using Subgoal Labels to Reduce Cognitive Load in Learning Programming” at Glasgow University, September 23, 2019
- Invited talk, “Subgoal Labels: Reducing Cognitive Load in Intro CS” at Kennesaw State University, January 23, 2019
- “The High Cognitive Load of Learning to Program: Recent Trends in CS Education Research,” AP CS A Reading, June 2016, Kansas City, MO.
- Invited presentation at Georgia Institute of Technology College of Computing Doctoral Students “Teaching Institutions”, Fall 2009

## WORKSHOPS, PANELS, ETC.

- McGill, M., Berry, M., DeLyser, L. A., & **Morrison, B.**, 2019. Resources for Researching and Teaching Computing Education in Primary and Secondary Schools: What Exists and What is Still Needed. *Proceedings of the 2019 ACM Conference on Innovation and Technology in Computer Science Education*, 231–232. <https://doi.org/10.1145/3304221.3325541>
- **Morrison, B. B.**, Decker, A., & Margulieux, L. E., 2019. Using subgoal labeling in teaching CS1. In *Proceedings of the 50th ACM Technical Symposium on Computer Science Education* (pp. 1237). New York, NY: ACM.
- McDaniel, M., Cigas, J., **Morrison, B. B.**, & Walker, H., 2019. CS Education Then and Now: Recollections and Reflections. *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*, 181–182. <https://doi.org/10.1145/3287324.3287328>
- Galanos, R., Gallagher, T., & **Morrison, B.**, 2019. An Afternoon with an AP Computer Science A Exam Reader. *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*, 1242–1242. <https://doi.org/10.1145/3287324.3287549>
- **Morrison, B. B.**, & Decker, A. (2018). Using Subgoals to Improve Student Performance in CS1: (Abstract Only). *Proceedings of the 49th ACM Technical Symposium on Computer Science Education*, 1066–1066. <https://doi.org/10.1145/3159450.3162185>
- **Morrison, B. B.**, Guzdial, M., Lee, C., Porter, L., & Simon, B. (2017). Evidence Based Teaching Practices in CS (Abstract Only). *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education*, 741–741. <https://doi.org/10.1145/3017680.3017833>
- **Morrison, B. B.** (2016). CS Ed PhD Students Unite! (Abstract Only). *Proceedings of the 47th ACM Technical Symposium on Computing Science Education*, 704–704. <https://doi.org/10.1145/2839509.2850488>
- Jesse M. Heines, Jeff L. Popyack, **Briana Morrison**, Kate Lockwood, and Doug Baldwin. 2015. Panel on Flipped Classrooms. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education (SIGCSE '15)*. ACM, New York, NY, USA, 174-175. <http://doi.acm.org/10.1145/2676723.2677328>
- Facilitated a Birds of a Feather group “Gaming” at *SIGCSE Symposium* (March 2009)
- Jonas Boustedt, Robert McCartney, Josh Tenenber, Titus Winters, Stephen Edwards, **Briana B. Morrison**, David R. Musicant, Ian Utting, and Carol Zander. 2007. It seemed like a good idea at the time. *SIGCSE Bull.* 39, 1 (March 2007), 346-347. <http://doi.acm.org/10.1145/1227504.1227432>

- **Morrison, B.**, 2007. Real world assessment strategies that work!. *J. Comput. Sci. Coll.* 23, 2 (December 2007), 173-173.
- Facilitated a Birds of a Feather group “Assessment – Tricks of the Trade” at *SIGCSE Symposium* (March 2006)

### **REVIEWER/REFEREE/EVALUATOR**

- Reviewer for ICER (Fall 2016 – present)
- Reviewer for ACM SIGCSE Conference (Special Interest Group of Computer Science Education) (Fall 1998 - present)
- Reviewer for ITiCSE (Fall 2000 – present)
- Reviewer for Computer Science Education journal (Spring 2005 to present)
- Reviewer for ACM Transactions on Computing Education (2016 – present)
- Reviewer for NCWIT Academic Alliance Undergraduate Research Mentoring Award-2020
- Reviewer for Grace Hopper Conference Scholarships (2008 to 2015)
- Reviewer for 6th International Conference on Cybernetics and Information Technologies, Systems and Applications: CITSA (2009)
- Reviewer for Journal on Educational Resources in Computing (JERIC) Spring 2007
- Reviewer for Northeast Small College Conference (Fall 1998 – Fall 2001)

### **WORKSHOPS, ETC. ATTENDED**

- Applied and participated in Qualitative Research Methods NSF funded workshop (fall 2009-present)
- Applied and participated in Disciplinary Commons for Computing Educators (DCCE) AY 2008-2009
- Participant in Georgia Institute of Technology Computer Science Education Reading Seminar, (2008-present)
- Attended CSTA / SIGCSE Roadshow Workshop (Spring 2008)
- Attended NSF sponsored Enhancement Workshop for Integrating Visualizations into Computer Science Education. (August 2005).
- Attended CRA-W Managing the Academic Career for Faculty Women at Undergraduate Computer Science and Engineering Institutions Workshop (February 2005)
- Attended ABET Accreditation workshop. (November 2003)
- Attended “Bootstrapping Research in CS Education” NSF sponsored working in Tacoma, Washington in June, 2002 and June, 2003. Two year commitment with research project done during school year.
- Participated in the Java Power Tools (JPT) NSF Workshop at Northeastern University (July 2001) to introduce Java based lab experiments for introductory programming assignments

### **PROFESSIONAL MEMBERSHIPS**

- Member of the Association for Computing Machinery (ACM)
- Member of ACM SIGCSE (Special Interest Group for Computer Science Education)
- Member NCWIT
- Member ACM-W