

# AMBER WAGNER

<http://dramberwagner.com>

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## SUMMARY OF QUALIFICATIONS

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- Extensive experience teaching Computer Science concepts and leading Computer Science workshops from K-12 to undergraduate students in addition to K-12 teachers. Extremely passionate Computer Science Education advocate.
- Growing an undergraduate research program at Birmingham-Southern College encompassing Computer Science Education, Accessible Computing, and Human Computer Interaction.
- Corporate experience managing suite of 150 projects with oversight of 75 people impacting 30,000 end-users utilizing statistics to drive strategic initiatives.

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## EDUCATION

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**2010 - 2015**      **University of Alabama**      **Tuscaloosa, AL**

- Ph.D., Computer Science focus on Human Computer Interaction
- Dissertation: *Programming by Voice: A Hands-Free Approach for Motorically Challenged Children*
- Upsilon Pi Epsilon

**2007 - 2008**      **Kennesaw State University**      **Kennesaw, GA**

- M.S., Information Systems

**2000 - 2003**      **Kennesaw State University**      **Kennesaw, GA**

- B.S., Computer Science with Spanish Minor
- Graduated magna cum laude

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## PROFESSIONAL EXPERIENCE

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**Aug 2023 – Present**      **University of Alabama at Birmingham**      **Birmingham, AL**

*Assistant Professor*

- Teaching a 3-3 load with a heavy emphasis on undergraduate education.
- Transitioning research program centered on Computer Science Education and Accessible Computing.
- Departmental Service: ABET Accreditation, UAB Scholarship Committee, Diversity Committee, High School Programming Contest, Women in Tech.

**Mar 2017 – May 2023**      **Birmingham-Southern College**      **Birmingham, AL**

*Associate Professor and Director of Applied Computer Science*

- Designed and maintained the Applied Computer Science Bachelor of Science major/minor and Data Science minor programs while teaching a 3-1-3 load.
- Average Overall Teaching Effectiveness since Fall 2017: 1.25 (scale 1 to 5 with 1 being the best).
- Developed online Master's of Science in Data Science program to begin Fall 2023.
- Responsible for all program duties: annual assessment, adjunct hiring/oversight, equipment procurement, program maintenance, and recruitment and retention efforts (enrollment in Applied CS started at 0 (Fall 2017) to approximately 65 majors and minors (Fall 2022) out of just under 1,000 students on campus.
- Built undergraduate research program centered on Computer Science Education and Accessible Computing.
- Selected to participate in NSF Designing Empirical Education Research Studies (DEERS) Workshop (Summer 2017).
- Received \$5,000 award from Teach Access to embed accessibility content into existing courses (2018-2019).
- Selected to participate in NCWIT Learning Circle with \$10,000 in seed funds to increase the recruitment and retention of underrepresented groups in Computer Science.
- Served on IT Committee (2018-2020), Curriculum and Standards Committee (2020-2021), Reopening Academic Affairs Task Force (2020-2021), and First Year Experience Committee (2021-2022). Currently, serving on the Faculty Development Committee (2022-2023).

**Aug 2015 – Dec 2016 Kennesaw State University**

**Kennesaw, GA**

*Limited Term Assistant Professor*

- Taught a 4-4 load while working on research to extend dissertation work
- Founded Women in CS group at KSU, Object-Oriented Owls.
- Received \$9,950 gift from Google igniteCS for Object-Oriented Owls to work with Girls, Inc. from summer 2016 through spring 2017. Program teaches CS concepts to girls in grades 1-12.
- Selected to participate in the Center for Education Teaching and Leadership's Quick Starters Faculty Learning Community. This learning community focused on assisting new faculty with developing both teaching and research programs.
- ACMSE 2017 Conference Co-Chair and Program Chair: led the planning and organization of the 2017 conference.

**Aug 2011 – Aug 2015 University of Alabama**

**Tuscaloosa, AL**

*Research Assistant*

- Researched the semi-automation of a process to map a graphical user interface to a vocal user interface for any application. Specific application is in the area of "Programming by Voice" with adaptation to initial programming environments (e.g., Scratch) that allow children with physical disabilities an opportunity to learn computer programming through a vocal interface. Work was supported by NSF grant IIS-1117940 with previous support from a Google Research Award.
- Responsible for the annual grant renewal documentation in addition to the annual IRB renewal process.
- Planned and led two Computer Science Fun Days for children with disabilities. The activities aimed to share the joy of computing with 10-15 year old students, funded by Computer Science Collaboration Project Mini-Grant (\$1,000).
- Founded and served as President of the League of Women Coders (a Women in CS group), Fall 2014 – Spring 2015.

*Teaching Assistant*

- Assisted in teaching a pilot course for the AP College Board (CSP) regarding fundamental Computer Science topics utilizing Berkeley's Snap! and Android App Inventor. Duties: grading, creating and delivering lectures, and tutoring students.

**Aug 2007 – Jan 2011 Kennesaw State University**

**Kennesaw, GA**

*Associate Director, Technology Planning and Strategy*

- Led team devoted to initializing strategic initiatives while overseeing management of all IT projects.
- Utilized statistical software to strengthen reporting infrastructure (SAS, SPSS, Excel).
- Utilized strong knowledge of systems infrastructure and administration to cross-develop optimal solutions for the University on Active Directory, Exchange, Windows, Unix, and Mac environments.
- Developed ad-hoc applications to streamline, automate, and standardize system interactions.
- Designed and developed project management foundation for IT, utilizing and distributing innovative reporting, tracking, and project management fundamentals. Responsible for ensuring all projects were on time, on budget and delivered desired results.
- Developed reporting format to increase project communication between sections within the department and with upper administration.

*Technology Trainer*

- Trained faculty, staff, and students on Word, Excel, PowerPoint, Publisher, and Dreamweaver.
- Drove outreach strategy through class offerings, marketing initiatives, technology mediums, and user experience.

### *Camp Instructor*

- Taught VB.NET to a high school summer camp (CyberTech) for four weeks (two sessions).
- Developed curriculum for and taught a two-week middle school camp including: Pico Robots, Lego Mindstorms, Alice, and Scratch.
- During the Fall 2007 Semester, I developed curriculum for and taught Java to high school students in preparation for the AP Computer Science course through collaboration with Georgia Tech.

**Oct 2008 - Jan 2009 University of Alabama at Birmingham (UAB)**

**Birmingham, AL**

### *Assistant Alice Instructor*

- Assisted other UAB personnel in teaching Alice to two high school classes.
- Following the lesson, assisted students one-on-one to reinforce concepts taught.

**Jan 2006 - June 2008 Alabama School of Fine Arts**

**Birmingham, AL**

### *Database Administrator/Programmer*

- Managed Student Database including all necessary reporting (STI).
- Designed, developed, and maintained yearly online registration application and online admissions application (ASP.NET with VB.NET, MS Access).
- Delivered ad-hoc database applications (e.g., attendance letter, GPA automated reporting (MS Access)).

**Aug 2004 - May 2007 Alabama School of Fine Arts**

**Birmingham, AL**

### *Computer Science Instructor*

- Taught numerous levels of computer programming from beginner to college level including AP Computer Science AB and Computer Applications.
- Served on three committees: Technology Committee, Professional Development Committee, and BRAVO Committee.
- Led professional development sessions in teaching teachers how to integrate technology into curriculum. I used the technology currently in their classroom and introduced the latest in educational technology.
- Participated in/attended workshops including: AP Summer Institutes and workshops to increase awareness of technology education in Alabama.
- Took students to programming competitions at the University of Alabama at Birmingham. Received first place in 2007.

## FUNDING

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- NCWIT Learning Circle, PI (\$10,000), 2019-2020
- Teach Access, PI (\$5,000), 2018-2019
- ACM SIGCSE Special Projects, PI (\$1,060), 2017-2018
- NSF INCLUDES, Senior Personnel (~\$250,000), 2016-2017
- CRA-W CREU Program, Faculty Advisor (\$13,500), 2016-2017 + \$12,000 Summer Extension 2017
- Google igniteCS, Faculty Advisor (\$9,950), 2016
- Computer Science Collaboration Mini-Grant (\$1,000), 2011
- Assisted in writing NSF Grant 1117940 as part of my PhD proposal (\$331,524.00), 2011

## JOURNAL PAPERS

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- **Amber Wagner** and Jeff Gray, "An empirical evaluation of a vocal user interface for programming by voice," *International Journal of Information Technologies and Systems Approach* (Special Issue on Human-Computer Interaction, Carina Gonzalez, ed.), vol. 8, no. 2, May 2015, pp. 47-63.
- Ferosh Jacob, **Amber Wagner**, Prateek Bahri, Susan Vrbsky, and Jeff Gray, "Simplifying the development and deployment of mapreduce algorithms," *International Journal of Next-Generation Computing* (Special Issue on Cloud Computing Yugyung Lee and Praveen Rao, eds.), vol. 2, no. 2, 2011, pp. 123-142.

## PEER REVIEWED PAPERS, EXTENDED ABSTRACTS, AND REVIEWS

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- Chloe Dunmire, **Amber Wagner**. Modeling Particle Randomness: A Pseudorandom Number Generator. *ACM Southeast Conference (ACMSE)*. Virtual Event. April 2023.
- **Amber Wagner**. Applied Computer Science at Birmingham-Southern College. Curricular Innovations for Computing Education in the Liberal Arts Panel, SIGCSE Pre-Symposium Event, March 2021.
- **Amber Wagner**. Early childhood resource review: Kindercoding Unplugged: Screen-Free Activities for Beginners. National Science Teaching Association, *Science and Children*, v. 58, issue 5, May/June 2021. <https://www.nsta.org/science-and-children/science-and-children-mayjune-2021/kindercoding-unplugged>.
- Zirui Wang, **Amber Wagner**. Evaluating a tactile approach to programming Scratch. *ACM Southeast Conference (ACMSE)*. Kennesaw, GA, April 2019.
- **Amber Wagner**. Myna: Empowering motorically challenged students to program by voice. *ACM SIGCSE Conference on Computer Science Education, Student Research Competition*. Atlanta, GA, March 2014.  
**2<sup>nd</sup> Place Winner in Graduate Category**
- **Amber Wagner**. Automation of VUI to GUI mapping. *ACM SIGCHI Conference on Human Factors in Computing Systems, Doctoral Consortium*. Paris, France, April 2013.
- **Amber Wagner**, Jeff Gray, Jonathan Corley, David Wolber. Using App Inventor in a K-12 summer camp. *ACM SIGCSE Conference on Computer Science Education*. Denver, CO, March 2013.
- **Amber Wagner**, Ramaraju Rudraraju, Srinivasa Datla, Avishek Banerjee, Mandar Sudame, and Jeff Gray, Programming by voice: A hands-free approach for motorically challenged children, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Austin, TX, May 2012, pp. 2087-2092.
- **Amber Krug**, Pamila Dembla, Improving data quality via increasing the usability of the interface, *Global Information Technology Management Association (GITMA) World Conference*, Atlanta, GA, June 2008.

## PEER REVIEWED POSTERS AND SUBMITTED ABSTRACTS

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- **Amber Wagner**, Zirui Wang. Talking and listening to blocks. *Symposium on Disability Rights, UAB Institute for Human Rights*. Birmingham, AL, February 2019.
- Daniela Marghitu, **Amber Wagner**. Building Bridges: How the Southeast is Increasing the Representation of Students with Disabilities in STEM. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education*. Seattle, WA, March 2017.
- **Amber Wagner**, Jeff Gray, Daniela Marghitu, Andreas Stefik. Raising the awareness of accessibility needs in block languages. *ACM SIGCSE Conference on Computer Science Education*. Memphis, TN, March 2016.
- **Amber Wagner**, Jeff Gray. Accessible design. *Southeast Women In Computing Conference*. Atlanta, GA, November 2015.
- **Amber Wagner**, Jake Trower, Jeff Gray. Improving the accessibility of block-based languages. *Blocks and Beyond*. Atlanta, GA, October 2015.
- **Amber Wagner**, Jeff Gray. Observations of first learners with different capabilities. *ACM SIGCSE Conference on Computer Science Education*. Atlanta, GA, March 2014.
- Jeff Gray, Mary Boehm, Carol Crawford, Kathleen Haynie, Sheryl Packman, Deepa Muralidhar, Jeff Baker, Roy Black, Sandy Falgout, Leella Holt, Albert Lily, Gina McCarley, James Morse, Jennie Rountree, Jill Westerlund, Carol Yarbrough, Mokter Hossain, Jonathan Corley, **Amber Wagner**, Cassidy Lamm. Model for statewide deployment of CS Principles courses. *ACM SIGCSE Conference on Computer Science Education*. Atlanta, GA, March 2014.
- **Amber Wagner**, Jeff Gray. An empirical evaluation of Myna – A vocal user interface. *Southeast Women In Computing Conference*. Guntersville, AL, November 2013.
- **Amber Wagner**. Myna: Empowering motorically challenged students to program by voice. *Southeast Women In Computing Conference*. Guntersville, AL, November 2013.
- **Amber Wagner**. Creating a vocal user interface for initial programming environments. *2013 UA Systems Scholars Institute*. Huntsville, AL, May 2013.

- **Amber Wagner**, Jeff Gray Creating a VUI for initial programming environments. *ACM Mid-Southeast*, Gatlinburg, TN, November 2012. **1<sup>st</sup> Place Winner - Doctoral Research Award**

## INVITED TALKS

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- Association for Teaching and Curriculum Panel (Jessica Pincham King, Alan Litsey, Stephanie Hansard, Amber Wagner): “Coming Down from the Hill and Engaging Beyond the Gates” – September 2019
- University of Mississippi: “Increasing the Accessibility of Block Programming Languages” – February 2018
- University of Nevada, Las Vegas: “Myna: A Hands-Free Approach for Block Programming” – May 2017

## STUDENT PEER REVIEWED POSTERS AND SUBMITTED ABSTRACTS

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- Josh Fryer. Wheelchair Driving the Mountains. *ACM MidSoutheast 2022*, Gatlinburg, TN, November 2022. **Awarded 3<sup>rd</sup> Place, Undergraduate**
- Serena Ivery. Clearing the Cobwebs: The Benefits of Identifying Online Human Trafficking using a Web Crawler. *ACM MidSoutheast 2022*, Gatlinburg, TN, November 2022.
- Gia Subedi. Mirroring an Arm: Creating a Locally Programmed Prosthetic Limb. *ACM MidSoutheast 2022*, Gatlinburg, TN, November 2022.
- Nicole Villavicencio-Garduño. Hopper’s Fables, Chapter Two. *ACM MidSoutheast 2022*, Gatlinburg, TN, November 2022.
- Zirui Wang. Using Touch and Sound to Program Scratch. *Proceedings of the 2019 ACM SIGCSE Technical Symposium on Computer Science Education, Student Research Competition*. Minneapolis, MN, February 2019. **Awarded 2<sup>nd</sup> Place, Undergraduate**
- Zirui Wang, Amber Wagner. CodeBox64, A Tactile Input Approach to Scratch for Students with Visual Impairments. *ACM MidSoutheast 2018*, Gatlinburg, TN, November 2018.
- Deja Jackson, Cindi Simmons, Kate Zelaya, Erica Pantoja, **Amber Wagner**. Hopper’s Fables: A Mathematical Storytelling Adventure. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education*. Seattle, WA, March 2017.
- Max Paulk, **Amber Wagner**. CodeBox64: A Tactile Input Modality for Block Programming. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education*. Seattle, WA, March 2017.
- Zane Johnston. One Size Doesn’t Fit All. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education, Student Research Competition*. Seattle, WA, March 2017.

## HONORS AND AWARDS

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- Awarded the Bob Whetstone Faculty Development Award for Birmingham-Southern College - 2020
- Awarded Birmingham-Southern College President’s Service Award - 2020
- Awarded KSU Career Planning and Development Faculty Award - 2017
- Selected to participate in Designing Empirical Education Research Studies (DEERS) Workshop – 2017-2018
- Travel award for attending conference on education (SIGCSE) from CETL, KSU – 2015-2016 (\$1,000.00)
- Selected to participate in CETL Quick Starters Faculty Learning Community, KSU – 2015-2016 (\$1,000.00)
- Microsoft Student Research Competition, 2<sup>nd</sup> Place Winner, Graduate Category – March 2014
- Travel award for SIGCSE conference (2014) due to Student Research Competition participation (\$500.00)
- Research and Creative Activity Fellowship, University of Alabama – 2013-2014
- University of Alabama 3 Minute Thesis finalist – Fall 2013
- Travel award for Doctoral Consortium participant at SIGCHI 2013 (\$1,930.00)
- Committee on the Status of Women in Computing Research (CRA-W) Travel Award (\$1,529.91)
- ACM Mid-Southeast, 1<sup>st</sup> Place Doctoral Research Award winner – November 2012
- Outstanding Service by a Graduate Student, College of Engineering, University of Alabama – Jan. 2012

## SERVICE

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- Reviewer: SIGCSE 2014, SIGCSE 2015, SIGCSE 2016, SIGCSE 2017, SIGCSE 2018, SIGCSE 2019, SIGCSE 2020, SIGCSE 2023
- NCWIT Academic Alliance Co-Chair 2019-2022, Engagement Committee Co-Chair 2018-2019
- Grace Hopper Celebration Student Scholarship Reviewer – April 2022
- Alabama School of Fine Arts Senior Symposium Judge – April 2018, April 2022
- Reviewer: National Science Foundation Panel 2022
- Grace Hopper Celebration Mentoring Circles Committee Member 2019
- ACM SE 2019 Program Committee Member
- Grace Hopper Celebration Faculty Scholarship Reviewer – 2018
- NCWIT Seed Fund Reviewer – 2018
- Invited panelist for Computing Research Association for Women’s (CRA-W) Collaborative Research Experiences for Undergraduates (CREU) program - 2017
- Reviewer: Blocks & Beyond Workshop 2017
- ACM Southeast 2017 Conference Co-Chair – April 2017
- Middle and High School Hour of Code Instructor – December 2014
- STEM Entrepreneurship Academy speaker – Summer 2014
- Graduate Student Association Computer Science Representative – Spring 2014
- Founded the League of Women Coders (LWC) organization at the University of Alabama – Spring 2014
- Upsilon Pi Epsilon officer – Spring 2014
- University of Alabama Robotics Competition – April 2011, April 2014
- SIGCSE 2014 Student Volunteer – March 2014
- High School Robotics Workshop, Northridge High School, Tuscaloosa – Spring 2013, Spring 2014
- 4H Computer Science Talk – July 2013
- United Cerebral Palsy Summer Camp, Birmingham, AL – Summer 2013
- University of Alabama High School CS Summer Camps – June 2011, July 2012, July 2013
- Google CS4HS Teacher Workshop – July 2011, June 2012, June 2013
- ACM Mid-Southeast Judge – November 2012
- Best Robotics Marketing Judge – October 2012
- Co-Reviewer: OOPSLA 2011, MODELS 2011
- Statewide Teacher Robotics Workshop – November 2011
- After School Robotics Club, Tuscaloosa, AL – Fall 2011
- TSA Middle School Video Game Competition Judge – March 2011

## MEMBERSHIPS

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- ACM Computer Science Teachers Association – 2006
- ACM – 2011; ACM W – 2012
- NCWIT Academic Alliance Member – 2017