TIFFANY BARNES CURRICULUM VITAE

Department of Computer Science
North Carolina State University
2401 EB3, 890 Oval Dr.
Raleigh, NC, 27695

Email: tmbarnes@ncsu.edu
URL: http://eliza.csc.ncsu.edu
Office: Venture IV

PROFESSIONAL EXPERIENCE

2017-Present	**Professor**, Computer Science, North Carolina State University
2012-17	**Associate Professor**, Computer Science, North Carolina State University
2010-12	**Associate Professor**, Computer Science, UNC Charlotte
2007-12	**Director**, Game Design and Development Program, UNC Charlotte
2004-10	**Assistant Professor**, Computer Science, UNC Charlotte
2002-07	**Instructor**, Discrete Math, Engineering Online, NC State University

EDUCATION

2003	**Ph.D.**, Computer Science, North Carolina State University *The Q-Matrix Method of Fault-Tolerant Teaching in Knowledge Assessment and Data Mining.* Chairs: Donald Bitzer, Mladen Vouk
1999	**M.S.**, Computer Science and Math, North Carolina State University
1995	**B.S.**, Computer Science and Math, North Carolina State University

HONORS AND AWARDS

2020	ACM Distinguished Member Award for Educational Contributions to Computing
2019	EDM 2019 Best Student Paper Award
2019	EDM 2019 Best Paper Nomination[1]
2017	ACM SIGCSE 2017 Exemplary Paper Award
2017	ACM ITiCSE 2017 Best Paper Nomination
2016	ACM ITiCSE 2016 Best Paper Nomination
2016	EDM 2016 Best Paper Nomination
2016	NCSU CSC Most Receptive Undergraduate Professor Outside of the Classroom
2016	National Center for Women in Information Technology (NCWIT) Undergraduate Research Mentoring Award
2015	RESPECT 2015 Exemplary Paper Award
2014	FDG 2014 Exemplary Paper Award
2013	FDG 2013 Best Paper Nomination
2012	UNCC CCI Essam El-Kwae Undergraduate Research Mentor Award
2011	AIED 2011 Best Paper Nomination
2011	UNCC CCI Essam El-Kwae Undergraduate Research Mentor Award
2010	ITS 2010 Best Student Paper Award, Intelligent Tutoring Systems
2010	UNCC CCI Essam El-Kwae Undergraduate Research Mentor Award
2009	NSF CAREER Award

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[1] Nominations at EDM, AIED, ITS, and FDG denote the top 2 to 7 papers in the conference each year.

2008   ITS 2008 Best Paper Nomination
2008   UNCC CCI Excellence in Undergraduate Teaching Award
2009   UNCC CCI Excellence in Undergraduate Teaching Award
2007   UNCC CCI Essam El-Kwae Undergraduate Research Mentor Award
2005   UNCC Summer Diversity Institute Invited Speaker
2005   UNCC Summer Diversity Institute Scholarship
1999   NCSU UGSA Outstanding Teaching Assistant Award
1999   NCSU Preparing the Professoriate Award
1998   NCSU Hewlett Initiative Graduate Fellow
1997   NCSU Hewlett Initiative Graduate Fellow

RESEARCH FUNDING

2020-22 *Analysis of a Simple, Low-cost Intervention's Impact on Retention of Women in Computer Science.* NSF-DUE #2021330; PI: Bita Akram; **Co-PI: Tiffany Barnes**, Thomason Price, Tzvetelina Battestilli; NSF-DUE 07/01/2020; $174,938.

2020-21 *Collaborative: The STARS Aligned: How the STARS Computing Corps Broadens Participation in Computing.* NSF-CNS #2023400; **PI: Tiffany Barnes;** Co-PI: Susan Fisk; 10/01/2020; $199,390.

2020-25 *Generalizing Data-Driven Technologies to Improve Individualized STEM Instruction by Intelligent Tutors.* NSF-DUE #2013502; PI: Min Chi; **Co-PI: Tiffany Barnes**, Thomason Price; 08/15/2020; $1,999,578.

2020-23 *Collaborative Research: Beyond CS Principles: Engaging Female High School Students in New Frontiers of Computing.* NSF-DRL #1949492; **PI: Tiffany Barnes**; 05/01/2020; $555,000.

2020-23 *REU Site: Socially Relevant Computing and Analytics.* NSF-IIS #1950607; **PI: Tiffany Barnes**; 03/01/2020; $405,000.

2019-22 *Intelligent Support for Creative, Open-ended Programming Projects. NSF*-IIS #1917885; PI: Thomason Price; **Co-PI: Tiffany Barnes**, Christopher Martens; 08/01/2019; $749,920.

2018-21 *Collaborative Research: Developing a Systemic, Scalable Model to Broaden Participation in Middle School Computer Science.* NSF-DRL #1837439; PI: Eric Wiebe; **Co-PI: Tiffany Barnes**, David Frye, Sharon Freeman; 12/01/2018; $497,176.

2018-21 *EAGER: Collaborative Research: Enhancing Impact of Broadening Participation in Computing Efforts through the STARS Cohort Conference Attendance Program.* NSF-CNS #1840686; PI: Tiffany Barnes; 10/01/2018; $63,432.

2018-21 *Developing Integrated Teaching Platforms to Enhance Blended Learning in STEM.* NSF-DUE #1821475; PI: Collin F. Lynch; **Co-PI: Tiffany Barnes**, Sarah Heckman; 10/01/2018; $597,529.

2018-19 *Bridge to Computing.* NCSU-internal Game-Changing Research Incentive Program. **PI: Tiffany Barnes;** $9,956.

2017-21 *Collaborative Research: Integrating computing in STEM: Designing, developing, and investigating a team-based professional development model for middle- and high-school teachers.* NSF-DRL #1742351; **PI: Tiffany Barnes**; 09/01/2017; $861,773.

2017-21 *Integrated Data-driven Technologies for Individualized Instruction in STEM Learning Environments.* NSF-DUE #1726550; PI: Min Chi; **Co-PI: Tiffany Barnes**; NSF-DUE 08/15/2017; $1,999,438.

2017-21   *REU Site: Socially Relevant Computing and Analytics.* NSF-IIS #1659745; **PI: Tiffany Barnes**; 03/15/2017; $359,997.

2017-20   *GRIP: Computer Science for All K-12 Students. NCSU-internal Game-Changing Research Incentive Program.* PI: Glenn Kleiman; **Co-PIs:** Eric Wiebe, James Lester, **Tiffany Barnes;** $224,878.

2017-19   *Scaling a Rigorous Computer Science Curriculum: A Supplement to the Beauty and Joy of Computing in New York City STEM-C MSP.* Education Development Corporation, (with NSF-DRL funding). **PI: Tiffany Barnes;** Co-PI: Glenn Kleiman; $568,967.

2016-21   *EXP: Data-Driven Support for Novice Programmers.* NSF-IIS #1623470; **PI: Tiffany Barnes**; Co-PI: Min Chi; 09/01/2016; $549,874.

2016-21   *Evaluation for Actionable Change: A Data-Driven Approach.* NSF-DGE #1544273; PI: Teomara Rutherford; **Co-PI: Tiffany Barnes**, Matthew Peterson, Collin F. Lynch, Allison Liu; 01/01/2016; $799,837.

2016   *NCWIT Undergraduate Research Mentoring Award.* National Center for Women in Information Technology-Gift. **PI: Tiffany Barnes;** $5,000.

2015-16   *Minecraft in STEM education: A Review.* Microsoft-Gift to NC State Engineering Foundation. **PI: Tiffany Barnes.** $6,500.

2015-21   *Track 2: CS10K: BJC-STARS: Scaling CS Principles through STARS community and leadership development.* NSF-CNS #1542922; **PI: Tiffany Barnes**; 10/01/2015; $599,999.

2014-18   *Educational Data Mining for Individualized Instruction in STEM Learning Environments.* NSF-DUE #1432156; PI: Min Chi; **Co-PI: Tiffany Barnes**; NSF-DUE 09/01/2014; $639,401.

2014-18   *Collaborative Research: Modeling Social Interaction and Performance in STEM Learning.* NSF-DRL #1418269; **PI: Tiffany Barnes**; 09/01/2014; $200,003.

2013-20   *Type I: Collaborative Research: FRABJOUS CS - Framing a Rigorous Approach to Beauty and Joy for Outreach to Underrepresented Students in Computing at Scale.* NSF-CNS #1346922; **PI: Tiffany Barnes**; 02/01/2013; $1,004,705.

2013-16   *REU Site: Interactive and Intelligent Media.* NSF-IIS #1262899; **PI: Tiffany Barnes**; 04/01/2013; $359,999.

2013-14   *CREU Charlotte: GameChanger: Promoting Health and Wellbeing with Games. Computing Research Association-Collaborative Research Experiences for Undergraduates.* **PI: Tiffany Barnes;** Co-PI: Jamie Payton; UNC Charlotte; $29,500 (transferred to co-PI per grant rules).

2012-15   *REU Site: Exploring Human Centered and Socially Relevant Interactive Technologies in Computer Vision, Visualization, Pervasive Computing, Serious Games, and Social Networks.* NSF-IIS #1156822; PI: Jamie Payton; **Co-PI: Tiffany Barnes**, Richard Souvenir; University of North Carolina at Charlotte; 03/01/2012; $343,658.

2011-17   *BPC-AE: Scaling the STARS Alliance: A National Community for Broadening Participation through Regional Partnerships.* NSF-CNS #1042468; PI: Jamie Payton; **Co-PI: Tiffany Barnes**, Heather Richter Lipford; UNC Charlotte; 01/01/2011; $4,049,367.

2011-12   *Type I: Collaborative Research: FRABJOUS CS - Framing a Rigorous Approach to Beauty and Joy for Outreach to Underrepresented Students in Computing at Scale.* NSF-CNS #1138588; **PI: Tiffany Barnes**; UNC Charlotte; 09/01/2011; $432,000.

2011-12 *Envision Charlotte: Growing Greener Game.* Duke Energy Corporation-Envision Charlotte. **PI: Tiffany Barnes;** Co-PIs: Michael Youngblood, Heather Lipford; UNC Charlotte; $190,604. (Supplemented by UNCC College of Computing and Informatics for additional $50,000).

2011-12 *Marine Ops: Developing a Game Prototype for Marine History. Donation* to UNC Charlotte CCI. PI: Tiffany Barnes; $10,000.

2011-12 *Math Fluency Data Collaborative.* Educause-Next Generation Learning Challenge. **PI: Tiffany Barnes;** UNC Charlotte; $104,907.

2011-12 *Computer Science Principles Pilot.* College Board. **PI: Tiffany Barnes;** $20,000.

2010-12 *Developing Smart Phone Applications for Earth Science Graduate Student Research Project at Stennis Space Center.* National Aeronautics and Space Administration-Graduate Student Research Project. **PI: Tiffany Barnes;** UNC Charlotte; $60,000.

2009-15 *CAREER: Educational Data Mining for Student Support in Interactive Learning Environments.* NSF-IIS #0845997; **PI: Tiffany Barnes**; UNC Charlotte; 07/01/2009; $646,982. ($237,770 subcontracted to NC State)

2009-12 *REU Site: Socially Relevant Computing Research: Visualization, Virtual Environments, Gaming, and Networking.* NSF-IIS #0851745; PI: Teresa Dahlberg; **Co-PI: Tiffany Barnes**; UNC Charlotte; 05/01/2009; $393,561.

2009-10 *CREU Charlotte: SNAG: Social Networking and Games.* Computing Research Association-Collaborative Research Experiences for Undergraduates. **PI: Tiffany Barnes;** Co-PI: Teresa Dahlberg, Jamie Payton; UNC Charlotte; $29,500.

2008-13 *BPC-AE: The STARS Alliance: A Southeastern Partnership for Broadening Participation in Computing.* NSF-CNS #0739216; PI: Teresa Dahlberg; **Co-PI: Tiffany Barnes**; UNC Charlotte; 02/01/2008; $3,009,870.

2008-11 *Pilot: Game2Learn: Creative Computing Education.* NSF-IIS #0757521; **PI: Tiffany Barnes**; University of North Carolina at Charlotte; 06/15/2008; $216,000.

2007-10 *Collaborative Research: BPC-DP: Improving Minority Student Participation in the Computing Career Pipeline with Culturally Situated Design Tools.* NSF-CNS #0634342; **PI: Tiffany Barnes**; UNC Charlotte; 01/01/2007; $235,109.

2006-10 *BPC-A: The STARS Alliance: A Southeastern Partnership for Diverse Participation in Computing.* NSF-CNS #0540523; PI: Teresa Dahlberg; **Co-PI: Tiffany Barnes**; UNC Charlotte; 03/01/2006; $2,228,640.

2006-20 *Distributed REU and McNair support of Undergraduate Research Mentees.* 14 DREU projects, about 1-2 per year each year from 2006-20. Some were funded through the CRA/CDC, some through REU Sites, 1 through McNair Scholarship. **Research Advisor: Tiffany Barnes**. $84,000 ($6000 per student, 1-2 per year).

2006-07 *Establishment of Games+Learning Lab.* UNC Charlotte College of Computing and Informatics. **PI: Tiffany Barnes**; Co-PI: Michael Youngblood; $50,000.

MENTORING

Post-Doctoral Scholars Supervised
1. Behrooz Mostafavi, 2016-18.
2. Collin F. Lynch, 2014-15
3. Jennifer Albert, 2014-15.
4. Wanda Eugene, 2012-13.

Doctoral Students Supervised

1. Nicholas Lytle, *Strategies for Designing, Scaffolding, and Leading Open-Ended Programming Projects Within Core K-12 Classrooms,* 2020. **2021 Computing Innovation Fellow.**
2. Christa Cody, *Applied Analytics and Machine Learning to Improve and Inform Adaptive Assistance in a Tutoring System*, 2020.
3. Rui Zhi, *Design and Evaluation of Instructional Supports for Novice Programming Environments*, 2019.
4. Zhongxiu Aurora Peddycord-Liu, *Game Learning Analytics and Qualitative Methods for Actionable Change in a Curriculum-Integrated Educational Math Game*, 2018. **2018 NCSU CSC Graduate Research Award; 2016 EDM Best Paper Nominee; 2018 AIED Best Student Paper Nominee.**
5. Thomas W. Price, *Improving Novice Programming Environments through Data-driven Hints and Feedback*, 2018. **NSF Graduate Research Honorable Mention.**
6. Veronica Cateté, *A Framework for the Creation of Evaluation Support Materials for the Computer Science Principles Course, the Beauty and Joy of Computing*, 2018. **NSF Graduate Research Fellow; Microsoft Research PhD Fellow; 2017 ITiCSE Best Paper Nominee; 2016 ITiCSE Best Paper Nominee; 2018 NCSU CSC Outstanding Dissertation Award; 2018 NCSU CSC Graduate Student Leadership Award; 2019 Global Impacts Scholar.**
7. Andrew Hicks, *Improving Quality of User-Authored Puzzles In A Programming Game*, 2017. **NSF Graduate Research Fellow; 2016 EDM Best Paper Nominee.**
8. Behrooz Mostafavi, *Improving Individualized Instruction in a Logic Tutor using Data-driven Methods*, 2016.
9. Michael Eagle, *Data-Driven Methods for Deriving Insight from Educational Problem Solving Environments*, 2015. **NSF Graduate Research Honorable Mention.**
10. Acey Boyce, *Deep Gamification: Combining Game-based and Play-based Methods*, 2014. **NSF Graduate Research Honorable Mention.**
11. Matthew Johnson, *Visualizing interaction networks for educational software*, 2013.
12. Andrea Nickel, *Designing Better Exergames: Application of Flow Concepts and the FITT Principle to Full Body Exertion Games and Flexible Challenge Systems*, 2013.
13. Eve Powell, *A framework for the design and analysis of socially pervasive games*, 2012. **2008 NSF Graduate Research Fellow, 2007 GAANN Fellow.**
14. John Stamper, *Automatic generation of intelligent tutoring capabilities via educational data mining*, 2010. **2007 NSF EAPSI Fellow.**

Masters Students Supervised

1. Mehak Maniktala, *Modeling Social Interactions and Performance in STEM*, 2018.
2. Vikas Pidempally, *InVis: Visualizing Student Problem Solving*, 2015.
3. Vinay Sheshadri, *InVis: Visualizing Student Problem Solving*, 2014.
4. Stephen Schroeder, *Deep Thought and Lebanese Games*, 2014.
5. Amanda Chaffin, *Game2Learn: Building a compiler into a game engine to increase learning gains in computer science students*, 2009. 2009 GAANN Fellow.
6. Katelyn Doran, *Greener Challenge, Citizen Schools Game Curriculum*, 2012. **2010-2013 NASA Graduate Student Research Project Fellow, 2012 NSF Graduate Research Honorable Mention, MS 2012.**

7. Dustin Culler, *CSDT Community Games, Greener Challenge*, 2012.
8. Antoine Campbell, *CSDT Community Games, Greener Challenge*, 2012.
9. Rachel Brinkman, *Educational Data Mining and Games*, 2012.
10. Leena Joseph, *Educational Data Mining*, 2011.
11. Laura Hassey, *STARS Alliance Evaluation*, 2009.
12. Sandhya Charugulla, *CSDT Dance Tool Game Development*, 2009.
13. Su Hyung Cho, *CSDT Dance Tool Game Development*, 2009.
14. Isaac Moore, *Coding In-Game Requirements Engineering*, 2006.
15. Johnny Hopkins, *Networking for Game2Learn*, 2005.
16. Ted Carmichael, *Intelligent Tutoring for Nurse Training*, 2005.
17. Rathnakumar Ramanujam, *The Q-Matrix Method for Face Recognition*, *Modeling Protein Translation in Prokaryotes*, 2004-05.

100+ Undergraduate Research Students Supervised, 2005-2020

Awards of Mentored Students

Year	Award	Student
2020	Computing Innovations Postdoc Fellow	Nicholas Lytle
2017	NSF GRF Honorable Mention	Christa Cody
2017	NSF GRF Honorable Mention	Alexandra Milliken
2017	NCSU Equity for Women Award	Veronica Cateté
2016	NSF GRF Honorable Mention	Christa Cody
2016	NSF GRF Honorable Mention	Alexandra Milliken
2015	NSF GRF Honorable Mention	Thomas Price
2014	NSF Graduate Research Fellowship	Amy Shannon
2013	NSF Graduate Research Fellowship	Veronica Cateté
2012	Microsoft Graduate Women's Scholarship	Veronica Cateté
2012	NSF GRF Honorable Mention	Katelyn Doran
2011	NSF Graduate Research Fellowship	Andrew Hicks
2011	NSF Graduate Research Fellowship	Jordana Hodges
2011	NSF Graduate Research Fellowship	Samantha Finkelstein
2011	NSF GRF Honorable Mention	Acey Boyce
2010	NASA Graduate Student Research Project	Katelyn Doran
2009	Department of Homeland Security Fellow	Lane Harrison
2008	NSF Graduate Research Fellowship	Evie Powell
2008	NSF GRF Honorable Mention	Michael Eagle

ACM Undergraduate Student Research Competition awards for Mentored Students

Year	Award	Student
2017	ACM SRC Scholar @ SIGCSE	Meghana Subramanian
2009	ACM SRC 1st place @ Tapia	Katelyn Doran
2009	ACM SRC 3rd place @ Tapia	Samantha Finkelstein
2007	ACM SRC 1st place @ Tapia	Michael Eagle

PUBLICATIONS

Journal Articles

J1. Mehak Maniktala, Christa Cody, Tiffany Barnes, and Min Chi. Avoiding help avoidance: using interface design changes to promote unsolicited hint usage in an intelligent tutor. *International Journal of Artificial Intelligence in Education,* vol. 30, no. 4, (2020), pp. 637-667.

J2. Mehak Maniktala, Christa Cody, Amy Isvik, Nicholas Lytle, Min Chi, and Tiffany Barnes. Extending the hint factory for the assistance dilemma: A novel, data-driven HelpNeed predictor for proactive problem-solving help. *Journal of Educational Data Mining,* vol. 12, no. 4, (2020), pp. 24-65.

J3. Thomas W. Price, Yihuan Dong, Rui Zhi, Benjamin Paaßen, Nicholas Lytle, Veronica Cateté, and Tiffany Barnes. A comparison of the quality of data-driven programming hint generation algorithms. *International Journal of Artificial Intelligence in Education,* vol. 29, No. 3. (2019), pp. 368-395. Springer New York.

J4. Niki Gitinabard, Yiqiao Xu, Sarah Heckman, Tiffany Barnes, and Collin F. Lynch. How widely can prediction models be generalized? An analysis of performance prediction in Blended Courses. *IEEE Transactions on Learning Technologies*, vol. 12, no. 2, (April-June 2019), pp. 184-197.

J5. Nicki Washington, Tiffany Barnes, Jamie Payton, Sarah Dunton, Felesia Stukes, and Alan Peterfreund. RESPECT 2019: Yes, we still need to talk about diversity in computing. *Computing in Science and Engineering*, vol. 21, no. 1, (Jan.-Feb. 2019), pp. 79-83

J6. Shitian Shen, Behrooz Mostafavi, Tiffany Barnes, and Min Chi. Exploring induced pedagogical strategies through a Markov decision process framework: Lessons learned. *Journal of Educational Data Mining,* vol. 10, no. 3, (2018), pp. 27-68.

J7. Benjamin Paassen, Barbara Hammer, Thomas W. Price, Tiffany Barnes, Sebastian Gross, and Niels Pinkwart. The Continuous Hint Factory-Providing hints in vast and sparsely populated edit distance spaces. *Journal of Educational Data Mining,* vol. 10, no. 1, (2018), pp. 1-35.

J8. Elizabeth Rowe, Jodi Asbell-Clarke, Ryan S. Baker, Michael Eagle, Andrew G. Hicks, Tiffany M. Barnes, Rebecca A. Brown, and Teon Edwards. Assessing implicit science learning in digital games. *Computers in Human Behavior.* vol. 76, (2017), pp. 617-630.

J9. Zhongxiu Liu, Rui Zhi, Andrew Hicks, and Tiffany Barnes. Understanding problem solving behavior of 6–8 graders in a debugging game. *Computer Science Education,* vol. 27, no. 1, (2017), pp. 1-29.

J10. Behrooz Mostafavi and Tiffany Barnes. Evolution of an intelligent deductive logic tutor using data-driven elements. *International Journal of Artificial Intelligence in Education,* vol. 27, no. 1, (2017), pp. 5-36.

J11. Jamie Payton, Tiffany Barnes, Kim Buch, Audrey Rorrer, Huifang Zuo, Kinnis Gosha, Kristine Nagel, Nanette Napier, Ebe Randeree, and Larry Dennis. STARS Computing Corps: Enhancing engagement of underrepresented students and building community in computing. *Best of RESPECT, Part 2. Computing in Science and Engineering,* vol. 18, no. 3, (2016), pp. 44-57.

J12. Jamie Payton, Tiffany Barnes, Audrey Rorrer, Kimberly Buch, and Kristine Nagel. Launching STARS Computing Corps: Engaging faculty and student leaders to broaden participation. *ACM Inroads,* vol. 7, no. 4, (2016), pp. 61-64.

J13. Tiffany Barnes and George K. Thiruvathukal. The need for research in broadening participation. *Communications of the ACM* 59, 3, (February 2016), pp. 33-34.

J14. Dan Garcia, Brian Harvey, and Tiffany Barnes. The beauty and joy of computing. *ACM Inroads* 6, no. 4 (2015), pp. 71-79.

J15. Jamie Payton, Tiffany Barnes, Kim Buch, Audrey Rorrer, and Huifang Zuo. The effects of integrating service learning into computer science: an inter-institutional longitudinal study. *Computer Science Education*, vol. 25, no. 3, (2015), pp. 311-324.

J16. Richard Burns, Wanda Eugene, Tiffany Barnes, Stephen Chandler, Megan Harwell, and Osarieme Omokaro. Reflections from a computational service learning trip to Haiti. *The Journal of Computing Sciences in Colleges*, vol. 29, no. 3, (2014), pp. 43-50.

J17. Karen Bean, Kim Buch, Teresa Dahlberg, Tiffany Barnes, and Audrey Rorrer. An innovative partnership between national and regional partnerships: STARS Meets McPIE. *Prism*, vol. 3, no. 2, (2014), pp. 119-130.

J18. John Stamper, Michael Eagle, Tiffany Barnes, and Marvin Croy. Experimental evaluation of automatic hint generation for a logic tutor. *International Journal of Artificial Intelligence in Education (IJAIED)*, vol. 22, no. 1-2, (2013), pp. 3-17.

J19. Lawrence Snyder, Tiffany Barnes, Dan Garcia, Jody Paul, and Beth Simon. The first five computer science principles pilots: summary and comparisons. *ACM Inroads*, vol. 3, no. 2, (June 2012), pp. 54-57.

J20. Tiffany Barnes. CS principles pilot at University of North Carolina at Charlotte. *ACM Inroads*, vol. 3, no. 2, (June 2012), pp. 64–66.

J21. Lawrence Snyder, Tiffany Barnes, Dan Garcia, Jody Paul, and Beth Simon. Analysis. *ACM Inroads*, vol. 3, no. 2, (June 2012), pp. 69–71.

J22. Sabarish V. Babu, Evan Suma, Larry F. Hodges, and Tiffany Barnes. Learning cultural conversational protocols with immersive interactive virtual humans. *The International Journal of Virtual Reality*, vol. 10, no. 4, (2011), pp. 25-35.

J23. Stamper, John, Tiffany Barnes, and Marvin Croy. Enhancing the automatic generation of hints with expert seeding. *International Journal of Artificial Intelligence in Education,* vol. 21, no. 1-2, (2011), pp. 153-167.

J24. Samantha L. Finkelstein, Andrea Nickel, Zachary Lipps, Tiffany Barnes, Zachary Wartell, and Evan A. Suma. 2011. Astrojumper: Motivating exercise with an immersive virtual reality exergame. *Presence,* vol. 20, no. 1, (2011), pp. 78-92.

J25. Teresa Dahlberg, Tiffany Barnes, Kim Buch, and Audrey Rorrer. The STARS Alliance: Viable strategies for attracting, retaining, supporting, and developing underrepresented students in computing. ACM *Transactions on Computing Education (TOCE),* vol. 11, no. 3, (2011), pp. 18.

J26. Dahlberg, Teresa, Tiffany Barnes, Kim Buch, and Karen Bean. Applying service learning to computer science: Attracting and engaging under-represented students. *Computer Science Education*, vol. 20, no. 3, (2010) pp. 169-180.

J27. Tiffany Barnes and John Stamper. 2010. Automatic hint generation for logic proof tutoring using historical data. *Journal of Educational Technology and Society, Special Issue on Intelligent Tutoring Systems*, vol. 13, no. 1, (2010), pp. 3-12.

J28. Tiffany Barnes, Teresa Dahlberg, Kim Buch, and Karen Bean. The STARS Leadership Corps: An innovative computer science learning community. *Learning Communities Journal,* vol. 1, (2009), pp. 5-18.

J29. Kera Bell-Watkins, Tiffany Barnes, and Nathan Thomas. Developing computing identity as a model for prioritizing dynamic K-12 computing curricular standards. *Journal of Computing Sciences in Colleges,* vol. 24, no. 3, (2009), pp. 125-131.

J30. Sarah B. Berenson, Maria A. Droujkova, Laurie O. Cavey, Nancy H. Smith, and Tiffany Barnes. Girls on track with information technology. *Meridian: A Middle School Computer Technologies Journal*, vol. 3, no. 1 (Winter 2000), 6 pages.

J31. Tiffany Barnes and Carla D. Savage. Efficient generation of graphical partitions. *Discrete Applied Mathematics*, vol. 78, (1997), pp. 17-26.

J32. Tiffany Barnes and Carla D. Savage. A recurrence for counting graphical partitions. *Electronic Journal of Combinatorics*, vol. 2 (1995), Article R11.

Book Chapters

B1. Michael Eagle, Behrooz Mostafavi, and Tiffany Barnes. 2016. Data-driven domain models for problem solving. In: Sottilare, R. A., Graesser, A. C., Hu, X., Olney, A., Nye, B., and Sinatra, A. M. (Eds.). (2016). *Design Recommendations for Intelligent Tutoring Systems: Volume 4-Domain Modeling,* (Vol. 4), pp. 137-145. US Army Research Laboratory.

B2. Tiffany Barnes and John Stamper. 2010. Using Markov decision processes for student problem-solving visualization and automatic hint generation. In: Romero, Cristobal, Sebastian Ventura, Mykola Pechenizkiy, and Ryan SJd Baker, eds. *Handbook of educational data mining*, pp. 467-480. CRC press.

B3. Tiffany Barnes. 2010. Novel derivation and application of skill matrices: The q-matrix method. In: Cristobal Romero, Sebastian Ventura, Mykola Pechenizkiy, and Ryan SJd Baker, eds. *Handbook of educational data mining*, pp. 159-172. CRC press.

B4. Tiffany Barnes, Sarah B. Berenson, and Mladen Vouk. 2006. On participation of women in information technology. In: Trauth, E. (ed.). *Encyclopedia of Gender and Information Technology*, pp. 976-982. Idea Group Publishing.

B5. Tiffany Barnes, Sarah B. Berenson, and Mladen Vouk. 2006. Young women and persistence in information technology, In: Trauth, E. (ed.). *Encyclopedia of Gender and Information Technology*, pp. 1325-1329. Idea Group Publishing.

Conference Publications

C1. Shuchi Grover, Veronica Cateté, Tiffany Barnes, Marnie Hill, Akos Ledeczi, and Brian Broll. 2020. FIRST principles to design for online, synchronous high school CS teacher training and curriculum co-design. *Koli Calling '20: Proceedings of the 20th Koli Calling International Conference on Computing Education Research*. Association for Computing Machinery, New York, NY, USA, Article 21, pp. 1–5.

C2. Veronica Cateté, Amy Isvik, and Tiffany Barnes. 2020. Infusing Computing: A scaffolding and teacher accessibility analysis of computing lessons designed by novices. *Koli Calling '20: Proceedings of the 20th Koli Calling International Conference on Computing Education Research*. Association for Computing Machinery, New York, NY, USA, Article 36, pp. 1–11.

C3. Veronica Cateté, Lauren Alvarez, Amy Isvik, Alexandra Milliken, Marnie Hill, and Tiffany Barnes. 2020. Aligning theory and practice in teacher professional development for computer science. *Koli Calling '20: Proceedings of the 20th Koli Calling International Conference on Computing Education Research*. Association for Computing Machinery, New York, NY, USA, Article 22, pp. 1–11.

C4. Niki Gitinabard, Ruth Okoilu Akintunde, Yiqiao Xu, Sarah Heckman, Tiffany Barnes, and Collin F. Lynch. 2020. Student teamwork on programming projects what can GitHub logs show us? *Proceedings of the 13th International Conference on Educational Data Mining (EDM 2020)*, pp. 409-416.

C5. Samiha Marwan, Ge Gao, Susan Fisk, Thomas W. Price, and Tiffany Barnes. 2020. Adaptive immediate feedback can improve novice programming engagement and intention to persist in computer science. *Proceedings of the 2020 ACM Conference on International Computing Education Research,* pp. 194-203.

C6. Amy Isvik, Veronica Cateté, Lauren Alvarez, Nicholas Lytle, and Tiffany Barnes. 2020. Exploring differences between student and teacher created Snap! projects. *Proceedings of the 2020 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, pp. 1-5. IEEE.

C7. Guojing Zhou, Yang, X., Hamoon Azizsoltani, Tiffany Barnes, and Min Chi 2020. Improving student-system interaction through data-driven explanations of hierarchical reinforcement learning induced pedagogical policies. *Proceedings of the 28th ACM Conference on User Modeling, Adaptation and Personalization,* pp. 284-292.

C8. Ausin, M. S., Mehak Maniktala, Tiffany Barnes, and Min Chi 2020. Exploring the impact of simple explanations and agency on batch deep reinforcement learning induced pedagogical policies. *Proceedings of the International Conference on Artificial Intelligence in Education,* pp. 472-485. Springer, Cham.

C9. Song Ju, Guojing Zhou, Tiffany Barnes, and Min Chi 2020. Pick the moment: Identifying critical pedagogical decisions using long-short term rewards. *Proceedings of the 13th International Conference on Educational Data Mining*, Paper #167, 11 pages.

C10. Amy Isvik, Veronica Cateté, and Tiffany Barnes 2020. Flames: A socially relevant computing summer internship for high school students. *Proceedings of the 2020 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, Vol. 1, pp. 1-4. IEEE.

C11. Nicholas Lytle, Alexandra Milliken, Veronica Cateté, and Tiffany Barnes 2020. Investigating different assignment designs to promote collaboration in block-based environments. *Proceedings of the 51st ACM Technical Symposium on Computer Science Education*, pp. 832-838.

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C110. John C. Stamper, Michael Eagle, Tiffany Barnes, and Marvin Croy. 2011. Experimental evaluation of automatic hint generation for a logic tutor. *Proceedings of the 15th International Conference on Artificial Intelligence in Education (AIED'11)*, Gautam Biswas, Susan Bull, Judy Kay, and Antonija Mitrovic (Eds.). Springer-Verlag, Berlin, Heidelberg, pp. 345-352. **BEST PAPER NOMINEE.**

C111. D. Scott McCrickard, DeMarcus Townsend, Woodrow W. Winchester III, Tiffany Barnes. 2011. Leveraging card-based collaborative activities as culturally situated design tools. *Proceedings of the 2011 International Conference on Human Computer Interactions (HCI'11)*, Orlando, FL, July 9-14, 2011, pp. 232-236.

C112. Acey Boyce, Katelyn Doran, Antoine Campbell, Shaun Pickford, Dustin Culler, and Tiffany Barnes. 2011. BeadLoom Game: adding competitive, user generated, and social features to increase motivation. *Proceedings of the 6th International Conference on Foundations of Digital Games (FDG '11)*. ACM, New York, NY, USA, pp. 139-146. (30% Acceptance rate).

C113. Acey Boyce, Antoine Campbell, Shaun Pickford, Dustin Culler, and Tiffany Barnes. 2011. Experimental evaluation of BeadLoom game: how adding game elements to an educational tool improves motivation and learning. *Proceedings of the 16th Annual Joint Conference on Innovation and Technology in Computer Science Education (ITiCSE '11)*. ACM, New York, NY, USA, pp. 243-247. (39% Acceptance rate).

C114. Katelyn Doran, Shaun Pickford, Cory Austin, Tory Walker and Tiffany Barnes. 2010. World of Workout: Towards pervasive, intrinsically motivated, mobile exergaming. *Proceedings of Meaningful Play 2010*, East Lansing, MI, USA, Oct. 21-23, 2010.

C115. Samantha L. Finkelstein, Eve Powell, Andrew Hicks, Katelyn Doran, Sandhya Rani Charugulla, and Tiffany Barnes. 2010. SNAG: using social networking games to increase student retention in computer science. *Proceedings of the15th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE '10)*. ACM, New York, NY, USA, pp. 142-146.

C116. Evie M. Powell, Samantha Finkelstein, Andrew Hicks, Thomas Phifer, Sandhya Charugulla, Christie Thornton, Tiffany Barnes, and Teresa Dahlberg. 2010. SNAG: social networking games to facilitate interaction. *CHI '10 Extended Abstracts on Human Factors in Computing Systems (CHI EA '10)*. ACM, New York, NY, USA, pp. 4249-4254.

C117. Samantha Finkelstein, Andrea Nickel, Tiffany Barnes, and Evan A. Suma. 2010. Astrojumper: motivating children with autism to exercise using a VR game. *CHI '10 Extended Abstracts on Human Factors in Computing Systems (CHI EA '10)*. ACM, New York, NY, USA, pp. 4189-4194.

C118. Amanda Chaffin and Tiffany Barnes. 2010. Lessons from a course on serious games research and prototyping. *Proceedings of the 5th International Conference on the Foundations of Digital Games (FDG '10)*. ACM, New York, NY, USA, pp. 32-39.

C119. Acey Boyce and Tiffany Barnes. 2010. BeadLoom Game: using game elements to increase motivation and learning. *Proceedings of the 5th International Conference on the Foundations of Digital Games (FDG '10)*. ACM, New York, NY, USA, pp. 25-31.

C120. Katelyn Doran, Acey Boyce, and Samantha Finkelstein. 2010. Reaching out with game design. *Proceedings of the 5th International Conference on the Foundations of Digital Games (FDG '10)*. ACM, New York, NY, USA, pp. 250-251.

C121. John Stamper, Tiffany Barnes, and Marvin Croy. 2010. Enhancing the automatic generation of hints with expert seeding. *Proceedings of the 10th International Conference on Intelligent Tutoring Systems - Volume Part II (ITS'10),* Vincent Aleven, Judy Kay, and Jack Mostow (Eds.), Vol. Part II. Springer-Verlag, Berlin, Heidelberg, pp. 31-40. **BEST STUDENT PAPER AWARD.**

C122. Amanda Chaffin, Katelyn Doran, Drew Hicks, and Tiffany Barnes. 2009. Experimental evaluation of teaching recursion in a video game. *Proceedings of the 2009 ACM SIGGRAPH Symposium on Video Games (Sandbox '09),* Stephen N. Spencer (Ed.). ACM, New York, NY, USA, pp. 79-86.

C123. John Stamper and Tiffany Barnes. 2009. Unsupervised MDP value selection for automating its capabilities. *Proceedings of the 2nd International Conference on Educational Data Mining (EDM 2009),* Cordoba, Spain, July 1-3, 2009, pp. 180-189.

C124. Michael Eagle and Tiffany Barnes. 2009. Evaluation of a game-based lab assignment. *Proceedings of the 4th International Conference on Foundations of Digital Games (FDG '09)*. ACM, New York, NY, USA, pp. 64-70.

C125. Michael Eagle and Tiffany Barnes. 2009. Experimental evaluation of an educational game for improved learning in introductory computing. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09)*. ACM, New York, NY, USA, pp. 321-325.

C126. Teresa Dahlberg, Tiffany Barnes, Audrey Rorrer, Cheryl Seals, Mia Lustria, and Lois Hawkes. 2008. The STARS Leadership Corps: Case studies in broadening participation in computing. *Proceedings of the 38th Annual Frontiers in Education Conference*, pp. F3F-10.

C127. John C. Stamper and Tiffany Barnes. 2008. The validity of providing automated hints in an ITS using an MDP. *Proceedings of the 23rd National Conference on Artificial Intelligence - Volume 3 (AAAI'08),* Anthony Cohn (Ed.), Vol. 3. AAAI Press, pp. 1830-1831. (student paper).

C128. Michael Eagle and Tiffany Barnes. 2008. Wu's castle: teaching arrays and loops in a game. *Proceedings of the 13th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE '08)*. ACM, New York, NY, USA, pp. 245-249.

C129. Tiffany Barnes and John Stamper. 2008. Toward Automatic Hint Generation for Logic Proof Tutoring Using Historical Student Data. *Proceedings of the 9th International Conference on Intelligent Tutoring Systems (ITS '08),* Beverley P. Woolf, Esma Ameur, Roger Nkambou, and Susanne Lajoie (Eds.). Springer-Verlag, Berlin, Heidelberg, pp. 373-382. **BEST PAPER NOMINEE.** (7 nominees)

C130. John Stamper, Lorrie Lehmann, Marvin Croy, and Tiffany Barnes. 2008. A pilot study on logic proof tutoring using hints generated from historical student data. *Proceedings of the 1st Annual International Conference on Educational Data Mining (EDM'08),* Montreal, CA, June 20-21, 2008, pp. 197-201.

C131. Tiffany Barnes, Eve Powell, Amanda Chaffin, and Heather Lipford. 2008. Game2Learn: improving the motivation of CS1 students. *Proceedings of the 3rd International Conference on Game Development in Computer Science Education (GDCSE '08).* ACM, New York, NY, USA, pp. 1-5.

C132. Teresa Dahlberg, Tiffany Barnes, Audrey Rorrer, Eve Powell, and Lauren Cairco. 2008. Improving retention and graduate recruitment through immersive research experiences for undergraduates. *Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education (SIGCSE '08).* ACM, New York, NY, USA, 466-470.

C133. Marvin Croy, Tiffany Barnes, and John Stamper. 2007. Towards an intelligent tutoring system for propositional proof construction. In: Philip Brey, Adam Briggle, and Katinka Waelbers (eds.), *Proceedings of the 2007 European Computing And Philosophy Conference,* IOS Publishers, Amsterdam, Netherlands, pp. 145-155.

C134. Teresa Dahlberg, Tiffany Barnes, and Audrey Rorrer. 2007. The STARS leadership model for broadening participation in computing. *Proceedings of the 37th International Conference on Frontiers in Education (FIE'07),* Milwaukee, WI, Oct 10-13, 2007.

C135. John C. Stamper, Tiffany Barnes, and Marvin Croy. 2007. Extracting student models for intelligent tutoring systems. *Proceedings of the 22nd National Conference on Artificial intelligence - Volume 2 (AAAI'07),* Anthony Cohn (Ed.), Vol. 2. AAAI Press 1900-1901. (student paper).

C136. Tiffany Barnes, Heather Richter, Eve Powell, Amanda Chaffin, and Alex Godwin. 2007. Game2Learn: building CS1 learning games for retention. *Proceedings of the 12th annual SIGCSE Conference on Innovation and Technology in Computer Science Education (ITiCSE '07).* ACM, New York, NY, USA, 121-125.

C137. Sabarish Babu, Evan Suma, Tiffany Barnes, and Larry Hodges. 2007. Can immersive virtual humans teach social conversational protocols? *Proceedings of the 2007 conference on Virtual Reality (VR'07).* IEEE, Charlotte, NC, March 10-14, 2007, 215-218.

C138. Sabarish Babu, Stephen Schmugge, Tiffany Barnes, and Larry F. Hodges. 2006. "What would you like to talk about?" an evaluation of social conversations with a virtual receptionist. *Proceedings of the 6th International Conference on Intelligent Virtual Agents (IVA'06),* Jonathan Gratch, Michael Young, Ruth Aylett, Daniel Ballin, and Patrick Olivier (Eds.). Springer-Verlag, Berlin, Heidelberg, 169-180.

C139. Tiffany Barnes. 2006. Evaluation of the q-matrix method in understanding student logic proofs. *Proceedings of the 19th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2006),* Melbourne Beach, FL, May 11-13, 2006.

C140. Sabarish Babu, Stephen Schmugge, Raj Inugala, Srinivasa Rao, Tiffany Barnes, and Larry F. Hodges. 2005. Marve: a prototype virtual human interface framework for studying human-virtual human interaction. *Lecture Notes in Computer Science,* Themis Panayiotopoulos, Jonathan Gratch, Ruth Aylett, Daniel Ballin, Patrick Olivier, and Thomas Rist (Eds.). Springer-Verlag, London, UK, pp. 120-133.

C141. Tiffany Barnes. 2005. Experimental analysis of the q-matrix method in automated knowledge assessment. *Proceedings of the IASTED International Conference on Computers and Advanced Technology in Education (CATE 2005).* Oranjestad, Aruba.

C142. Tiffany Barnes, Donald L. Bitzer, and Mladen A. Vouk. 2005. Experimental analysis of the q-matrix method in knowledge discovery. *Proceedings of the 15th International Conference on Foundations of Intelligent Systems (ISMIS'05),* Mohand-Said Hacid, Neil V. Murray, Zbigniew W. Raś, and Shusaku Tsumoto (Eds.). Springer-Verlag, Berlin, Heidelberg, pp. 603-611.

C143. Lalit Ponnala, Tiffany Barnes, Donald L. Bitzer, and Mladen A. Vouk. Ribosome tail ends as "signal detectors" for protein production in prokaryotes. Proceedings. *Eighth International Conference on Information Visualisation*, pp. 15-23. IEEE, 2004.

C144. Lalit Ponnala, Tiffany Barnes, Donald L. Bitzer, and Mladen A. Vouk. 2004. The search for the optimal ribosome 3'tail end in E. coli. *Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, vol. 2, pp. 2824-2827.

C145. Donald Bitzer and Tiffany Barnes. 2002. Evaluation of the q-matrix method of fault tolerant knowledge assessment. Proceedings *of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2002 (E-Learn '02),* Montreal, CA, Oct. 2002, pp. 1167-1170.

C146. Tiffany Barnes and Donald Bitzer. 2002. Fault tolerant teaching and automated knowledge assessment. *Proceedings of the 40th annual ACM Southeast Conference (ACMSE'02),* Raleigh, NC, April 27, 2002, pp. 125-132.

C147. Laurie Cavey and Tiffany Barnes. 2001. Mathematics teachers on track with technology - Problem-based mathematics teacher preparation. *Proceedings of the 12th International Conference of the Society for Information Technology and Teacher Education (SITE 2001),* Orlando, FL, March 8, 2001, pp. 1343-1347.

C148. Thomas A. Alspaugh, Annie I. Antón, Tiffany Barnes, and Bradford W. Mott. 1999. An integrated scenario management strategy. *Proceedings of the 4th IEEE international symposium on Requirements Engineering (RE '99).* IEEE Computer Society, Washington, DC, USA, pp. 142-149.

Workshop Publications

W1. Shabrina, Preya, Samiha Marwan, Min Chi, Thomas W. Price, and Tiffany Barnes. 2020. the impact of data-driven positive programming feedback: when it helps, what happens when it goes wrong, and how students respond. *CSEDM 2020: Educational Data Mining in Computer Science Education Workshop. CEUR-WS.*

W2. Samiha Marwan, Thomas W. Price, Min Chi, and Tiffany Barnes. 2020. Immediate data-driven positive feedback increases engagement on programming homework for novices. *CSEDM 2020: Educational Data Mining in Computer Science Education Workshop. CEUR-WS.*

W3. Veronica Cateté, Nicholas Lytle, Danielle Boulden, Madeline Hinckle, Eric Wiebe, and Tiffany Barnes. 2020. A block-based modeling curriculum for teaching middle grade science students about Covid-19. *Proceedings of the 15th Workshop on Primary and Secondary Computing Education*, pp. 1-2.

W4. Nicholas Lytle, Yihuan Dong, Veronica Cateté, Milliken, Alex, Amy Isvik, Tiffany Barnes. 2019. Position: scaffolded coding activities afforded by block-based environments. *Proceedings of the 2019 IEEE Blocks and Beyond Workshop (B&B),* pp. 5-7.

W5. Rachel Harred, Christa Cody, Mehak Maniktala, Preya Shabrina, Tiffany Barnes, Collin F. Lynch. 2019. How long is enough? predicting student outcomes with same-day gameplay data in an educational math game. *EDM (Workshops)*, pp. 60-68.

W6. Song Ju, Shitian Shen, Hamoon Azizsoltani, Tiffany Barnes, and Min Chi. 2019. Importance sampling to identify empirically valid policies and their critical decisions. *EDM (Workshops), pp.* 69-78.

W7. Nicholas Lytle, Nicholas, Veronica Cateté, Amy Isvik, Danielle Boulden, Yihuan Dong, Eric Wiebe, and Tiffany Barnes. 2019. From 'Use' to 'Choose': Scaffolding CT curricula and exploring student choices while programming (practical report). *Proceedings of the 14th Workshop in Primary and Secondary Computing Education, WiPSCE 2019,* Article 18, pp. 1-6.

W8. Veronica Cateté, Nicholas Lytle, Yihuan Dong, Danielle Boulden, Bita Akram, Jennifer Houchins, Tiffany Barnes, Eric Wiebe, James Lester, Bradford Mott, and Kristy Boyer. 2018. Infusing computational thinking into middle grade science classrooms: lessons learned. *Proceedings of the 13th Workshop in Primary and Secondary Computing Education (WiPSCE '18).* Association for Computing Machinery, New York, NY, USA, Article 21, pp. 1–6.

W9. Rui Zhi, Thomas W. Price, Nicholas Lytle, Yihuan Dong and Tiffany Barnes. 2018. Reducing the state space of programming problems through data-driven feature detection. *Educational Data Mining in Computer Science Education (CSEDM) Workshop at the International Conference on Educational Data Mining (EDM).*

W10. Thomas W. Price and Tiffany Barnes. 2017. Position paper: block-based programming should offer intelligent support for learners. *Blocks and Beyond Workshop at the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC).*

W11. Niki Gitinabard, Collin F. Lynch, Sarah Heckman, Tiffany Barnes. 2017. A social network analysis on blended courses. *Proceedings of the 3rd International Workshop on Graph-Based Educational Data Mining (GEDM)*, held in conjunction with the 10th International Conference on Educational Data Mining, Wuhan, China.

W12. Niki Gitinabard, Linting Xue, Collin F. Lynch, Sarah Heckman, Tiffany Barnes. 2017. Identifying student communities in blended courses. *Proceedings of the 3rd International Workshop on Graph-Based Educational Data Mining (GEDM)*, held in conjunction with the 10th International Conference on Educational Data Mining, Wuhan, China.

W13. Andrew Hicks, Veronica Cateté, Rui Zhi, Yihuan Dong, and Tiffany Barnes. 2015. BOTS: selecting next-steps from player traces in a puzzle game. *Proceedings of the 2nd International Workshop on Graph-Based Educational Data Mining (GEDM 2015). CEUR-WS.*

W14.   Rebecca Brown, Collin F. Lynch, Yuan Wang, Michael Eagle, Jennifer Albert, Tiffany Barnes, Ryan Baker, Y. Bergner, and Danielle McNamara. 2015. Communities of performance and communities of preference. *Proceedings of the Second International Workshop on Graph-Based Educational Data Mining (GEDM 2015). CEUR-WS.*

W15.   Thomas W. Price and Tiffany Barnes. 2015. An exploration of data-driven hint generation in an open-ended programming problem. *Proceedings of the Second International Workshop on Graph-Based Educational Data Mining (GEDM 2015). CEUR-WS.*

W16.   Collin Lynch, Thomas W. Price, Min Chi, and Tiffany Barnes. 2015. Using the Hint Factory to compare model-based tutoring systems. *Proceedings of the Second International Workshop on Graph-Based Educational Data Mining (GEDM 2015). CEUR-WS.* 2015.

W17.   Justis Peters, Sagar Jauhari, and Tiffany Barnes. 2014. Extracting temporal features using BCIpy. *Proceedings of the Workshop on Utilizing EEG Input in Intelligent Tutoring Systems*, held at Intelligent Tutoring Systems (ITS 2014). Honolulu, Hawaii, USA.

W18.   Behrooz Mostafavi and Tiffany Barnes. 2014. Evaluation of logic proof problem difficulty through student performance data. In: *EDM 2014 Extended Proceedings: Workshop Proceedings of the 7th International Conference on Educational Data Mining.* London, United Kingdom, June 4-7, 2014. Ed. by S. Gutierrez-Santos and O. C. Santos. CEUR-WS.

W19.   Veronica Cateté, Andrew Hicks, Tiffany Barnes, and Collin F. Lynch. 2014. Snag'em: graph data mining for a social networking game. *EDM 2014 Extended Proceedings: Workshop Proceedings of the 7th International Conference on Educational Data Mining.* London, United Kingdom, June 4-7, 2014. Ed. by S. Gutierrez-Santos and O. C. Santos. CEUR-WS.

W20.   Vinay Sheshadri, Collin F. Lynch, and Tiffany Barnes. 2014. InVis: An EDM tool for graphical rendering and analysis of student interaction data. *EDM 2014 Extended Proceedings: Workshop Proceedings of the 7th International Conference on Educational Data Mining.* London, United Kingdom, June 4-7, 2014. Ed. by S. Gutierrez-Santos and O. C. Santos. CEUR-WS.

W21.   Samantha Finkelstein, Tiffany Barnes, Zachary Wartell, and Evan Suma. 2013. Evaluation of the exertion and motivation factors of a virtual reality exercise game for children with autism. *Workshop on Virtual and Augmented Assistive Technology at IEEE Virtual Reality.*

W22.   Katelyn Doran, Acey Boyce, Andrew Hicks, Jamie Payton, and Tiffany Barnes. 2012. Creation of a game-based digital layer for increased museum engagement among digital natives. *Proceedings of the 2nd international workshop on Games and Software Engineering (GAS 2012) held at the International Conference on Software Engineering (ICSE 2012).* Zurich, Switzerland.

W23.   Wei Jin, Lorrie Lehmann, Matt Johnson, Michael Eagle, Behrooz Mostafavi, Tiffany Barnes, and John Stamper. 2011. Towards automatic hint generation for a data-driven novice programming tutor. *Proceedings of the KDD in ED Workshop at KDD 2011.*

W24.   Jamie Payton, Evie Powell, Andrea Nickel, Katelyn Doran, and Tiffany Barnes. 2011. GameChanger: a middleware for social exergames. *Proceedings of the 1st International Workshop on Games and Software Engineering (GAS '11).* ACM, New York, NY, USA, 36-39.

W25. Tiffany Barnes, and John Stamper. 2007. Toward the extraction of production rules for solving logic proofs. *Proceedings of the 13th International Conference on Artificial Intelligence in Education (AIED07), Educational Data Mining Workshop*, pp. 11-20.

W26. Tiffany Barnes, John Stamper, and Tara Madhyastha. 2006. Comparative analysis of concept derivation using the q-matrix method and facets**.** Proceedings *of the 21st National Conference on Artificial Intelligence Educational Data Mining Workshop (AAAI 2006)*, pp. 21-30.

W27. Tiffany Barnes. 2005. The Q-matrix method: Mining student response data for knowledge. *American Association for Artificial Intelligence 2005 Educational Data Mining Workshop*, pp. 1-8. Pittsburgh, PA: AAAI Press.

W28. Lalit Ponnala, Tiffany Barnes, Donald Bitzer, Mladen Vouk, and A. Stomp. 2004. A signal-processing based model for analyzing programmed frameshifts. *IEEE International Workshop of Genomic Signal Processing and Statistics,* New Port, RI.

Abstracts for Posters, Panels, Workshops, and Demo in Conference Proceedings

A1. Veronica Cateté, Dave Bell, Amy Isvik, Nicholas Lytle, Yihuan Dong, and Tiffany Barnes 2020. Bridge to Computing: An outreach program for at-risk young men. *Proceedings of the 2020 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)* (Vol. 1, pp. 1-2). IEEE.

A2. Danielle Boulden, Callie Edwards, Veronica Cateté, Nicholas Lytle, Tiffany Barnes, Eric Wiebe, and Dave Frye. 2020. Creating a school-wide CS/CT-focused STEM ecosystem to address access barriers. *Proceedings of the 2020 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT),* 2 pages. IEEE.

A3. Alexandra Milliken, Veronica Cateté, Amy Isvik, and Tiffany Barnes. 2020. Poster: Designing GradeSnap for block-based code. *Proceedings of the 2020 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 2 pages. IEEE. Poster.

A4. Hannah E. Chipman, Marnie Hill, and Tiffany Barnes. 2020. The AP Computer Science Principles exam: teacher reflections. *Proceedings of the 51st ACM Technical Symposium on Computer Science Education, SIGCSE 2020,* pp. 1421-1421.

A5. Mehak Maniktala and Tiffany Barnes. 2020. Deep Thought: an intelligent logic tutor for discrete math. *Proceedings of the 51st ACM Technical Symposium on Computer Science Education, SIGCSE 2020,* pp. 1418-1418. Demo.

A6. Michael Ball, Lauren Mock, Dan Garcia, Tiffany Barnes, Marnie Hill, Alexandra Milliken, Joshua Paley, Efrain Lopez, Jason Bohrer. 2020. The Beauty and Joy of Computing curriculum and teacher professional development. *Proceedings of the 51st ACM Technical Symposium on Computer Science Education, SIGCSE 2020*, pp. 1398-1398. Workshop.

A7. Yiqiao Xu, Niki Gitinabard, Collin F. Lynch, and Tiffany Barnes. What you say is relevant to how you make friends: measuring the effect of content on social connection. *Proceedings of the International Conference on Educational Data Mining, EDM 2019.* Poster.

A8. Eric Wiebe, Tiffany Barnes, Sharon Freeman, David Frye, Mary Lou Maher, Lijuan Cao, Mohsen Dorodchi, David Pugalee, Audrey S. Rorrer, Danielle Boulden. 2019. Developing a systemic, scalable model to broaden participation in middle school computer Science. *Proceedings of the 2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), pp.* 43832. IEEE. Poster.

A9. Lina Battestilli, Sarah Korkes, Olivia Smith, and Tiffany Barnes. 2019. Using Bloom's taxonomy to write effective programming questions for autograding tools. *Proceedings of the 50th ACM Technical Symposium on Computer Science Education. (SIGCSE 2019),* pp. 1260. Poster.

A10. Thomas W. Price and Tiffany Barnes. Showpiece: iSnap demonstration. *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC).* 2017.

A11. Tiffany Barnes, Ann Gates, Kim McLeod, Cheryl Seals, Sheila Castaneda, Mark Guzdial, Jamie Payton, Jeff Forbes, Richard Ladner, Beth Quinn. 2015. Panel: BPC Fireside Chat. *Research in Equity and Sustained Participation in Engineering, Computing and Technology (RESPECT 2015).*

A12. Thomas W. Price, Veronica Cateté, Jennifer Albert, and Tiffany Barnes. 2015. Determining the impact of teacher professional development on perceived ability to teach a computer science principles course. *Proceedings of the International Computing Education Research Conference,* Omaha, Nebraska. Poster.

A13. Zhongxiu Liu and Tiffany Barnes. 2015. Building compiler-student friendship. *Proceedings of the 17th International Conference on Artificial Intelligence on Education.* Madrid, Spain. Doctoral Consortium.

A14. Thomas W. Price and Tiffany Barnes. 2015. creating data-driven feedback for novices in goal-driven programming projects. *Proceedings of the International Conference on Artificial Intelligence in Education (AIED 2015).* Doctoral Consortium.

A15. Behrooz Mostafavi, Guojing Zhou, Collin F. Lynch, Min Chi, and Tiffany Barnes. 2015. Data-driven worked examples improve retention and completion in a logic tutor. *Proceedings of the International Conference on Artificial Intelligence in Education (AIED 2015).* Poster.

A16. Michael Eagle, Tiffany Barnes. 2015. Exploring missing behavior with region-level interaction network coverage. *Proceedings of the International Conference on Artificial Intelligence in Education (AIED 2015),* pp 831-835. Poster.

A17. Michael Eagle, Rebecca Brown, Tiffany Barnes, Elizabeth Rowe, Jodi Asbell-Clarke, and Teon Edwards. Exploring problem-solving behavior in an optics game. *Proceedings of the 8th International Conference on Educational Data Mining (EDM 2015),* pp. 584-585. Madrid, Spain. 2015.

A18. Rebecca Brown, Collin F. Lynch, Michael Eagle, Jennifer Albert, Tiffany Barnes, Ryan Baker, Yoav Bergner, and Danielle McNamara. 2015. Good communities and bad communities: Does membership affect performance? *Proceedings of the 8th International Conference on Educational Data Mining (EDM 2015),* Madrid, Spain, 2015, pp. 612-613. Poster.

A19. Thomas W. Price, Collin F. Lynch, Tiffany Barnes, and Min Chi. An Improved data-driven hint selection algorithm for probability tutors. *Proceedings of the 8th International Conference on Educational Data Mining (EDM 2015),* pp. 610-611. Madrid, Spain. 2015.

A20. Jennifer Albert, Barry Peddycord III, and Tiffany Barnes. 2015. Evaluating Scratch programs to assess computational thinking in a science lesson. *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE), Kansas City, MO.* Poster.

A21. Tiffany Barnes, Veronica Cateté, Andrew Hicks, and Barry Peddycord. 2014. Making games and apps in introductory computer science. *Proceedings of the 45th ACM Technical Symposium on Computer Science Education (SIGCSE 2014).* ACM, New York, NY, USA, pp. 739-739.

A22. Behrooz Mostafavi, Michael Eagle and Tiffany Barnes. 2014. Evaluation of a problem selection system for a logic proof tutor. *Proceedings of the International Conference on Intelligent Tutoring Systems (ITS2014),* Honolulu, Hawaii.

A23. Acey Boyce, Amy Shannon, Chitra Gadwal, and Tiffany Barnes. 2013. BeadLoom Game. *Game Festival @ ACM Foundations of Digital Games 2013 (FDG 2013*), Chania, Greece.

A24. Michael Eagle, and Tiffany Barnes. 2013. Evaluation of automatically generated hint feedback. *Educational Data Mining (EDM 2013)*, pp. 372-374. Young Researcher Track paper.

A25. Behrooz Mostafavi, Tiffany Barnes. 2013. Determining problem selection for a logic proof tutor. *Educational Data Mining (EDM 2013)*, pp. 387-389. Young Researcher Track paper.

A26. Brian Harvey, Daniel D. Garcia, Tiffany Barnes, Nathaniel Titterton, Daniel Armendariz, Luke Segars, Eugene Lemon, Sean Morris, Josh Paley. 2013. SNAP! (build your own blocks). *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2013),* pp. 759.

A27. Daniel D. Garcia, Brian Harvey, Tiffany Barnes, Nathaniel Titterton, Daniel Armendariz, Luke Segars, Eugene Lemon, Sean Morris, Josh Paley: AP CS principles and the beauty and joy of computing curriculum . *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2013),* pp. 761.

A28. Tiffany Barnes, Acey Kreisler Boyce, Veronica Cateté, Katelyn Doran, Andrew Hicks, Leslie Keller: Augmenting introductory computer science classes with GameMaker and mobile apps . *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2013),* pp. 767.

A29. Maybellin Burgos, Mykel Pendergrass, Andrea Nickel, Jamie Payton and Tiffany Barnes. 2012. Sweet Harvest: an exergame for increasing flexibility and warming up for intense exercise. *Meaningful Play 2012*, East Lansing, Michigan. Poster.

A30. Andrea Nickel, Hugh Kinsey, Heidi Haack, Mykel Pendergrass, and Tiffany Barnes. 2012. Interval training with Astrojumper. *Proceedings of the IEEE International Conference on Virtual Reality (IEEE VR 2012),* pp. 161-162. Poster.

A31. Daniel D. Garcia, Brian Harvey, Tiffany Barnes, Luke Segars, Eugene Lemon, Sean Morris, Josh Paley. 2012. AP CS principles and the beauty and joy of computing curriculum. *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2012),* pp. 660. Workshop.

A32. Acey Boyce, Katie Doran, Antoine Campbell, Shaun Pickford, Dustin Culler, and Tiffany Barnes. 2011. Social user generated content's effect on creativity in educational games. *ACM Creativity and Cognition*, Atlanta GA, Nov. 3-6, 2011, pp. 317-318. Poster.

A33. Matthew W. Johnson. 2011. Defining solution boundaries for EDM Vis. *Proceedings of the 15th International Conference on Artificial intelligence in Education (AIED'11),* Gautam Biswas, Susan Bull, Judy Kay, and Antonija Mitrovic (Eds.). Springer-Verlag, Berlin, Heidelberg, pp. 603-605.

A34. Matt Johnson, Michael Eagle, Leena Joseph, and Tiffany Barnes. 2011. The EDM Vis Tool. *Proceedings of the 2011 International Conference on Educational Data Mining (EDM 2011),* pp. 349-350. Demo.

A35.   Owen L. Astrachan, Tiffany Barnes, Daniel D. Garcia, Jody Paul, Beth Simon, Larry Snyder. 2011. CS Principles: piloting a new course at national scale. *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2011)*. pp. 397-398.

A36.   John C. Stamper, Tiffany Barnes, and Marvin J. Croy. 2010. Using a Bayesian knowledge base for hint selection on domain specific problems. *Proceedings of the 3rd International Conference on Educational Data Mining (EDM '10)*. Pittsburgh, PA, USA. Poster.

A37.   Behrooz Mostafavi and Tiffany Barnes. 2010. Towards the creation of a data-driven programming tutor. *Proceedings of the 2010 International Conference on Intelligent Tutoring Systems (2),* pp. 239-241.

A38.   Matthew Johnson and Tiffany Barnes. 2010. Visualizing educational data from logic tutors. *Proceedings of the 2010 International Conference on Intelligent Tutoring Systems (2),* pp. 233-235.

A39.   Andrea Nickel and Tiffany Barnes. 2010. Games for CS education: computer-supported collaborative learning and multiplayer games. *Proceedings of the 5th ACM International Conference on Foundations of Digital Games (FDG 2010)*. Monterey, CA, USA, pp. 274-276.

A40.   Matthew Johnson and Tiffany Barnes. 2010 EDM Visualization Tool: watching students learn. *Proceedings of the 2010 International Conference on Educational Data Mining* (*EDM 2010)*, pp. 297-298.

A41.   Reynold Bailey, Guy-Alain Amoussou, Tiffany Barnes, Hans-Peter Bischof, Thomas L. Naps: Relevant real-world undergraduate research problems: lessons from the NSF-REU trenches. *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE 2010),* pp. 62-63.

A42.   John Stamper and Tiffany Barnes. 2009. Utility in hint generation: Selection of hints from a corpus of student work. Proceedings *of the 2009 conference on Artificial Intelligence in Education: Building Learning Systems that Care: From Knowledge Representation to Affective Modelling*, Vania Dimitrova, Riichiro Mizoguchi, Benedict du Boulay, and Art Graesser (Eds.). IOS Press, Amsterdam, The Netherlands, The Netherlands, pp. 749-751. Poster.

A43.   Tiffany Barnes, Teresa Dahlberg, and Karen Bean. 2009. Workshop: How to start a STARS Leadership Corps to improve retention and recruiting in computing. *Tapia Celebration of Diversity in Computing*, Portland, OR.

A44.   Samantha Finkelstein, Andrea Nickel, Lane Harrison, Evan Suma, and Tiffany Barnes. 2009. cMotion: a new game design to teach emotion recognition and programming logic to children using virtual humans. *Proceedings of the IEEE International Conference on IEEE Virtual Reality.* Lafayette, LA, pp. 267-268.

A45.   Ursula Wolz, Tiffany Barnes, Jessica Bayliss, and Jamie Cromack. 2009. Girls do like playing and creating games. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09)*. Chattanooga, TN, pp. 199-200.

A46.   Tiffany Barnes, Dan Cliburn, Brian Ladd. 2009. Workshop: introduction to game development. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09),* Chattanooga, TN.

A47.   Brian Ladd, Tiffany Barnes, and Dan Cliburn. 2009. Workshop: advanced game courses in computer science: getting beyond square one with Torque. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09),* Chattanooga, TN.

A48.   Tiffany Barnes. 2009. BoF: Sustaining efforts to broaden participation in computing. *Proceedings of the 40th ACM Technical Symposium on Computer Science Education (SIGCSE '09),* Chattanooga, TN.

A49.   Tiffany Barnes and Teresa Dahlberg. 2007. BoF: Evaluating Diversity Initiatives to Broadening Participation in Computing, *Tapia Celebration of Diversity in Computing*, Orlando, FL.

A50.   Tiffany Barnes and Teresa Dahlberg. 2007. Innovation in broadening participation in computing: STARS Leadership Corps. Panel at *Tapia Celebration of Diversity in Computing*, Orlando, FL.

A51.   Teresa Dahlberg, Tiffany Barnes, Kristy Boyer, Cheryl Seals, Mia Lustria, Andrea Lawrence, and Julie Strothman. 2007. Developing student leaders to invent the future. Panel at *Grace Hopper Celebration of Women in Computing*, Orlando, FL.

A52.   Ursula Wolz, Tiffany Barnes, Ian Parberry, and Michael Wick. 2006. Digital gaming as a vehicle for learning. Proceedings *of the 37th SIGCSE Technical Symposium on Computer Science Education* (SIGCSE '06). ACM, New York, NY, USA, pp. 394-395.

A53.   Tiffany Barnes and Teresa Dahlberg. 2006. The STARS Alliance: experiences in broadening participation in computing. *Grace Hopper Celebration*, San Diego, CA.

A54.   Esteban Clua, Bruno Feijó, Jason Schwartz, Maria das Graças, Ken Perlin, Romero Tori, and Tiffany Barnes. 2006. Games and interactivity in computer science education. *ACM SIGGRAPH 2006*, Boston, MA.

A55.   Ingles, B. 2006. The future of Java game development. *Proceedings of the ACM Southeast Conference, (ACMSE 2006)*. Melbourne, FL. (Undergraduate Advisee paper).

Dissertation

Tiffany Barnes. The Q-Matrix Method of Fault-Tolerant Teaching in Knowledge Assessment and Data Mining, North Carolina State University, Raleigh, NC, 2003.

Other Publications

O1. Hengxuan Li, Collin F. Lynch, and Tiffany Barnes. Early Prediction of Course Grades: Models and Feature Selection. *arXiv preprint arXiv:1812.00843,* (2018).

O2. Tiffany Barnes and Dan Garcia. SIGCSE symposium 2018 report. *SIGCSE Bulletin,* vol. 50, no. 2, pp. 2-3.

O3. Richard Ladner and Tiffany Barnes. An interview with Access Computing. *SIGCSE Bulletin,* vol. 50, no. 1, pp. 9-11.

O4. Tiffany Barnes and Dan Garcia. 2018. SIGCSE symposium 2018 preview. *SIGCSE Bulletin,* vol. 50, no. 1, pp. 3-6.

O5. Tiffany Barnes. 2017. Broadening access to computer science education. *SIGCSE Bulletin,* vol. 49, no*. 4,* pp. 11-12.

O6. Tiffany Barnes. 2017. CS for all, equity, and responsibility. *SIGCSE Bulletin,* vol. 49, no. 2, p.18.

O7. Tiffany Barnes. 2017. Broadening participation opportunities in 2017. *SIGCSE Bulletin*, vol. 49, no. 1, pp. 10-11.

O8. Peter Brusilovsky, Mike Sharples, Gustavo R. Alves, Tiffany Barnes, Sherry Y. Chen, Carol. H. C. Chu, Hendrik Drachsler, Seiji Isotani, Euan Lindsay, Xavier Ochoa, Mykola Pechenizkiy, Ma. Mercedes T. Rodrigo, Cristóbal Romero, Sergey A. Sosnovsky, Stefaan Ternier, Katrien Verbert. 2016. Editorial: A message from the editorial team and an introduction to the January-March 2016 issue. *IEEE Transactions on Learning Technologies (TLT),* vol. 9, no. 1, pp. 1-4.

O9. Tiffany Barnes, Oliver Bown, Michael Buro, Michael Cook, Arne Eigenfeldt, Héctor Muñoz-Avila, Santiago Ontañón, Philippe Pasquier, Noriko Tomuro, R Michael Young, Alexander Zook. 2015. Reports of the Workshops Held at the Tenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment *AI Magazine,* vol. 36, no.1, pp. 99-102.

O10. Tiffany Barnes, George K. Thiruvathukal. Broadening participation and RESPECT: join our new professional organization and conference! *SIGCSE Bulletin* vol. 47, no. 1, p. 7 (2015).

O11. Lisa C. Kaczmarczyk, Tiffany Barnes. SIGCSE BP: enrollments and diversity at odds? *SIGCSE Bulletin,* vol. 47, no. 2, p. 8 (2015).

O12. Tiffany Barnes. SIGCSE BP: broadening participation gets RESPECT. *SIGCSE Bulletin,* vol. 47, no. 3, p. 8 (2015).

O13. Tiffany Barnes, Mark Guzdial. Highlights of broadening participation research at RESPECT'15. *SIGCSE Bulletin, vol. 47,* no. 4, p. 3 (2015).

O14. Tiffany Barnes, Sue Fitzgerald. November 2013 special projects grant awards. *SIGCSE Bulletin,* vol. 46, no. 1, p. 9 (2014).

O15. Tiffany Barnes. CS Ed week showcase at UNC Charlotte. *SIGCSE Bulletin*, vol. 44, no. 1, p. 7 (2012).

PRESENTATIONS

Invited Talks and Keynotes – National and International

K1. Keynote Speaker. SnapCon, July 2020.

K2. Keynote Speaker. Educational Data Mining Conference, July 2018.

K3. Keynote Speaker. Making a difference for most students, most of the time. Learning Analytics Summer Institute, Harvard University, Cambridge, MA, July 2014.

K4. Keynote Speaker. ACMSE Conference, Kennesaw State University, March 2014.

K5. Keynote Speaker. Alice Symposium, Duke University, Durham, NC, June 2013.

K6. Keynote Speaker. STARS Celebration, Hampton, VA, August 2012.

K7. Keynote Speaker. Big South Undergraduate Research Symposium (BigSURS 2012), Winthrop, SC, April 2012.

K8. Tiffany Barnes, Anne McLaughlin, Amos Zeeberg, James Bower, Lucy Bradshaw (March 2010). With great power comes great responsibility: The future of video games. Invited Speaker for South by Southwest (SXSW2010) Interactive panel, Austin, TX, March 2010.

K9. Tiffany Barnes (October 2009). Game2Learn: Creating and evaluating educational games for computing. SIGCSE Invited speaker for the 25th Annual Eastern Conference of the Consortium for Computing in Small Colleges, Villanova, PA, October 2009.

K10. Tiffany Barnes (April 2005). Technology in education. Invited speaker for the National Academies' Board on Higher Education and Workforce meeting on the use of technology in science and engineering (S&E) education. Washington, DC. April 2005.

Presentations at Professional Meetings

1. Tiffany Barnes. Training for Research Experiences for Undergraduates – Finding Funding for Undergraduate Research. STARS Celebration 2012. Hampton, VA, August 2012.
2. Tiffany Barnes. Training for Research Experiences for Undergraduates – How to Mentor Undergraduate Research. STARS Celebration 2012. Hampton, VA, August 2012.
3. Tiffany Barnes. Workshop: Teaching AP CS Principles with Scratch, GameMaker, and AppInventor. STARS Celebration 2012. Hampton, VA, August 2012.
4. Tiffany Barnes. Funding for graduate school: writing proposals for graduate research fellowships. STARS Celebration 2012. Hampton, VA, August 2012.
5. Matt Johnson and Tiffany Barnes. Demonstration of InVis. Educational Data Mining, EDM 2012. Chania, Greece, June 2012.
6. Tiffany Barnes, Kim Buch, and Audrey Rorrer. Workshop: Evaluation Training for Academic Liaisons and Evaluator Assistants. STARS Celebration 2009. Tallahassee, FL, August 2009.
7. Tiffany Barnes and Ron Eglash. Workshop: CSDTs for Outreach. STARS Celebration 2009. Tallahassee, FL, August 2009.
8. Ron Eglash, Tiffany Barnes, and Colleen Lewis. Conducting Middle and High School Outreach with Culturally Situated Design Tools. STARS Celebration 2009. Tallahassee, FL, August 2009.
9. Tiffany Barnes, Kim Buch, and Audrey Rorrer. The Impact of the STARS Alliance: A Comprehensive Overview of Results. STARS Celebration 2009. Tallahassee, FL, August 2009.
10. Tiffany Barnes, Cheryl Seals, Michael Eagle, and Kristy Boyer. CRA-W Faculty Mentoring – Managing your Advisor: Advising your Students. STARS Celebration 2009. Tallahassee, FL, August 2009.
11. Tiffany Barnes. Opportunities in Game Development and Research. STARS Celebration 2009. Tallahassee, FL, August 2009.
12. Marvin Croy, Tiffany Barnes, and John Stamper. 2008. "Generating Helpful Hints for Propositional Proof Construction." Presented at the 2008 European Computing and Philosophy Conference, Montpelier, France, June 2008.
13. Dennis Black, and Tiffany Barnes. The Director's Notebook. Conference of the Association for Theater in Higher Education. August 2007.
14. Lalit Ponnala, Tiffany Barnes, Donald Bitzer, and Mladen Vouk. The search for the optimal 3' ribosome tail in E. coli. Poster presented at the Biomedical Engineering Review, UNCCH, Chapel Hill, N.C. April 2004.
15. Knight, V., Laurie Cavey, Tiffany Barnes, and Nancy Smith. Girls on Track: Middle grade girls modeling community problems - An experiment in progress. Presented at the Joint Mathematics Meetings of AMS-MAA-MER, Washington D.C. January 2000.

TEACHING

North Carolina State University
1. Discrete Math (CSC 226): Fall 2012-2019, Spring 2021.
2. Distance Education Discrete Math course: Spring, Summer, and Fall 2002-2007.
3. Beauty and Joy of Computing (CSC 110): Fall 2019.
4. Serious Games (CSC 495): Spring 2015.
5. Introduction to Computers and Their Uses: (CSC 200): Spring 2014.

6. Educational Data Mining (CSC 495): Fall 2013
7. Interdisciplinary Game Based Learning Design (CSC 495/591): Spring 2013, Spring 2015.

University of North Carolina at Charlotte
1. Beauty and Joy of Computing (ITCS 1203): Fall 2011, Spring 2011.
2. Introduction to Cognitive Science: Spring 2011.
3. Serious Games Prototyping and Evaluation (ITCS4010/5010): Fall 2011, Fall 2009.
4. Advanced Game Design and Development (ITCS 4231/5231): Spring 2012, Spring 2009, Fall 2006, Fall 2005, Spring 2005.
5. Introduction to Game Design and Development (ITCS 4230/5230): Fall 2010, Fall 2008.
6. Intelligent Tutoring Systems (ITCS 6159/8159): Fall 2007, Spring 2006, Fall 2004.
7. Introduction to Computer Science (CICS 1214): Spring 2007.
8. Logic and Algorithms (ITCS 2175): Fall 2011, Fall 2009, Spring 2009, Spring 2008, Fall 2007, Fall 2006.
9. Senior Project I-II (ITCS 4650/4651): 2004 – 2013.

PROFESSIONAL SERVICE

Journal Associate Editorship
1. Associate Editor 2016-Present
IEEE Transactions on Learning Technologies
Editor: Mark J.W. Lee (2019-Present); Peter Brusilovsky (prior)
2. Associate Editor 2008-2010
Journal of Educational Data Mining
Editor: Kalina Yacef, Co-Associate Editors: Ryan Baker, Joseph Beck

Journal Special Issues Edited
1. Special Issue on the "Best of RESPECT", Sep-Oct 2020
Computers in Science and Engineering
Co-Guest Editors: Jamie Payton, Nicki Washington, Felesia Stukes, Alan Peterfreund
2. Special Issue on AI in Computer Science Education, 2017
International Journal of AI in Education
Co-Guest Editors: Nguyen-Thinh Le, Kristy Boyer, Sharon I-Han Hsiao, Sergey Sosnovsky
3. Special Issue on "Best of Respect, Volume II." May-June 2016
Computers in Science and Engineering
Co-Guest Editors: Jamie Payton, George Thiruvathukal, Kristy Boyer, Jeff Forbes
4. Special Issue on "Best of Respect, Volume I." Mar-Apr 2016
Computers in Science and Engineering
Co-Guest Editors: Jamie Payton, George Thiruvathukal, Kristy Boyer, Jeff Forbes
5. Special Issue on Serious Games 2009
IEEE Computer Graphics and Applications
Co-Guest Editors: L. Miguel Encarnação, Chris Shaw
6. Special Issue on Serious Games 2009
IEEE Computing Now
Co-Guest Editors: L. Miguel Encarnação, Chris Shaw

Edited Proceedings

P1. Christina Gardner-McCune, Nicki Washington, Tiffany Barnes, Jamie Payton. 2020. *Proceedings of the* 2020 *Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT).*

P2. Jamie Payton, Tiffany Barnes, Nicki Washington, Felesia Stukes, Alan Peterfreund. 2019. *Proceedings of the 2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT).*

P3. Tiffany Barnes, Dan Garcia, Manuel Perez-Quiñones, and Elizabeth Hawthorne. 2018. *Proceedings of the 2018 ACM SIGCSE Technical Symposium on Computer Science Education,* Baltimore, MD, USA, Feb 21-24, 2018. ACM 2018.

P4. Xiangen Hu, Tiffany Barnes, Arnon Hershkovitz and Luc Paquette. 2017. *Proceedings of the 10th International Conference on Educational Data Mining,* Wuhan, China, June 28-July 2, 2017.

P5. Michael E. Caspersen, Stephen H. Edwards, Tiffany Barnes, and Daniel D. Garcia. 2017. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education,* Seattle, WA, USA, March 8-11, 2017. ACM 2017, ISBN 978-1-4503-4698-6.

P6. Jamie Payton, Tiffany Barnes, Adrienne Decker, Kurt Eiselt, and George Thiruvathukal. *Proceedings of the Second International Conference on Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT 2016),* Atlanta, GA, USA, August 11-13, 2016.

P7. Tiffany Barnes, Min Chi, and Mingyu Feng. *Proceedings of the 9th International Conference on Educational Data* Mining, EDM 2016, Raleigh, North Carolina, USA, June 29 - July 2, 2016.

P8. Tiffany Barnes, George Thiruvathukal, Kristy Boyer, Jeff Forbes, and Jamie Payton. *Proceedings of the First International Conference on Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT 2015),* Charlotte, NC, USA, August 13-15, 2015.

P9. Collin F. Lynch and Tiffany Barnes. *Proceedings of the 2nd International Workshop on Graph-based Educational Data Mining (GEDM 2015).* Held at EDM 2015.

P10. Collin F. Lynch and Tiffany Barnes. *Proceedings of the 1st International Workshop on Graph-based Educational Data Mining (GEDM 2014).* Held at EDM 2014.

P11. Michael Mateas, Tiffany Barnes, and Ian Bogost. 2014. *Proceedings of the 9th International Conference on the Foundations of Digital Games, FDG 2014,* Liberty of the Seas, Caribbean, April 3-7, 2014. Society for the Advancement of the Science of Digital Games 2014, ISBN 978-0-9913982-2-5.

P12. Tiffany Barnes, Michel C. Desmarais, Cristóbal Romero, and Sebastián Ventura. 2009. *Proceedings of the 2nd International Conference on Educational Data Mining.* Educational Data Mining - EDM 2009, Cordoba, Spain, July 1-3, 2009. www.educationaldatamining.org 2009, ISBN 978-84-613-2308-1.

P13. Ryan Shaun Joazeiro de Baker, Tiffany Barnes, and Joseph E. Beck. 2008. *Proceedings of the 2nd International Conference on Educational Data Mining (EDM 2008)* Montreal, Québec, Canada, June 20-21, 2008.

P14. Cecily Heiner, Neil Hefferman, and Tiffany Barnes. 2007. *Educational Data Mining Workshop.* Held at AIED 2007.

P15. Wolfgang Achtner, Esma Aïmeur, Sarabjot Singh Anand, Doug Appelt, Naveen Ashish, Tiffany Barnes, Joseph E. Beck, M. Bernardine Dias, Prashant Doshi, Chris Drummond,

William Elazmeh, Ariel Felner, Dayne Freitag, Hector Geffner, Christopher W. Geib, Richard Goodwin, Robert C. Holte, Frank Hutter, Fair Isaac, Nathalie Japkowicz, Gal A. Kaminka, Sven Koenig, Michail G. Lagoudakis, David B. Leake, Lundy Lewis, Hugo Liu, Ted Metzler, Rada Mihalcea, Bamshad Mobasher, Pascal Poupart, David V. Pynadath, Thomas Roth-Berghofer, Wheeler Ruml, Stefan Schulz, Sven Schwarz, Stephanie Seneff, Amit P. Sheth, Ron Sun, Michael Thielscher, Afzal Upal, Jason D. Williams, Steve Young, Dmitry Zelenko: Reports on the Twenty-First National Conference on Artificial Intelligence (AAAI-06) Workshop Program. *AI Magazine 27(4):* 92-102 (2006).

Organization of International Conferences and Workshops
- SIGCSE
  - General Co-Chair: ACM SIGSCE 2018
  - Program Co-Chair: ACM SIGCSE 2017
- Educational Data Mining (EDM)
  - General Co-Chair: EDM 2008, EDM 2016, 2017
  - Co-Chair, Graph-based Educational Data Mining Workshop GEDM 2014-15
  - Doctoral Consortium Co-Chair: Educational Data Mining, EDM 2013
  - Program Chair: Educational Data Mining EDM 2009
  - Co-Founder of Educational Data Mining Conference in 2008
  - Co-Chair: Educational Data Mining Workshop (AIED 2008)
  - Co-Chair: Educational Data Mining Workshop (AAAI 2006)
- STARS Celebration of Diversity in Computing (Annual conference of STARS)
  - General Co-Chair: STARS 2006-2009, 2015, 2016, 2017, 2020
  - General Chair: STARS 2011
  - Steering Committee: STARS Celebration 2006-Present
  - Co-Founder of STARS Celebration in 2006
- Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)
  - General Co-Chair: RESPECT 2015, 2016, 2019
  - Steering Committee: RESPECT 2015-Present
  - Co-Founder of RESPECT in 2015
- Games
  - Program Co-Chair: Foundations of Digital Games, FDG 2014
  - Doctoral Consortium Chair: ACM Foundations of Digital Games FDG 2012
  - Program Track Chair: ACM Foundations of Digital Games FDG 2009
  - Steering Committee: ACM Game Development in Computer Science Education, 2008, 2009

Conference Program Committee Membership
- General
  - Association of Computing Machinery (ACM) Southeast Conference ACMSE 2007
- Computer Science Education
  - ACM Special Interest Group on Computer Science Education Symposium SIGCSE 2006-Present
  - ACM Innovation and Technology in Computer Science Education ITiCSE 2009-10

- Equity, Diversity, and Inclusion in Computing
  - Grace Hopper Celebration of Women in Computing GHC 2006, 2009
  - Research on Sustained Participation in Engineering, Computing, and Technology RESPECT 2015-Present
  - STARS Celebration of Diversity in Computing 2006-Present
- Human-Computer Interaction
  - ACM Intelligent User Interfaces IUI 2012
  - ACM CHI Conference on Human-Computer Interaction (CHI) 2007, 2011
- AI, AI in education, Educational Data Mining
  - Artificial Intelligence in Education AIED 2007-Present
  - Educational Data Mining EDM 2008-Present
  - Learning Analytics and Knowledge LAK Senior PC 2019
  - Learning Analytics (LAK) 2016, 2017, 2019, 2020
  - ACM Learning @ Scale, 2016, 2017
  - The Sixth Symposium on Educational Advances in Artificial Intelligence EAAI-2016
  - Learning at Scale L@S 2016
  - Intelligent Tutoring Systems ITS 2010-2018
  - Florida Artificial Intelligence Research Society (FLAIRS) 2007-2012
  - Educational Data Mining Workshop at AAAI 2005
- Games
  - ACM Academic Days on Game Development in Computer Science Education 2008
  - Academic Days on Game Development in Computer Science Education 2007
  - ACM Foundations of Digital Games 2009-2014, DiGRA/FDG 2016
  - DiGRA 2020 PC
- 5th Workshop on Intelligent Support for Learning in Groups ISLG 2016

Journal and Book Chapter Reviewing
- *Journal of Educational Data Mining* 2011-12, 2015-20
- *International Journal of Artificial Intelligence in Education* 2011, 2015-20
- *Learning Analytics* 2012
- *Presence* 2010
- *International Journal of Human-Computer Studies* 2010, 2011, 2013
- *Handbook of Educational Data Mining,* 2009
- *IEEE Transactions on Computational Intelligence and AI in Games,* 2009 and 2010
- *Applied Psychological Measurement* 2008-2012
- *IEEE Computer,* BPC column, 2008
- *Psychometrika* 2007
- *IEEE Systems, Man, and Cybernetics,* 2008
- *International Journal on Learning Technology*, 2008
- *Journal of Game Development,* Jan 2007
- *Journal of Computer Programming,* Aug 2006
- *Communications of the ACM,* 2006
- *Journal of Intelligent Information Systems,* 2005, 2006, 2009
- IEEE *Engineering in Medicine and Biology Magazine, Special Issue Bioinformatics* 2005

National and International Grant Reviewing (Total: 10 panels)
- Grant Reviewer, National Science Foundation, 2005, 2006, 2008 (2 panels), 2010, 2011, 2013, 2015, 2018 (2 P=panels).
- Kuwait National Grant Reviewer, 2012

Professional Leadership and Affiliations
- Co-Chair, IEEE Computer Society Special Technical Community on Broadening Participation (STCBP) 2015-Present
- International Artificial Intelligence in Education Society Board 2016-2019
- International Educational Data Mining Society Executive Steering Committee 2008-Present, 2020 President-Elect (Term 2021-2024)
- STARS Executive Steering Committee 2010-Present
- ACM Special Interest Group on Computer Science Education (SIGCSE) Board At-Large Member June 2010-2016
- Member: ACM, AI in Education, International Educational Data Mining Society

Advisory Boards
- 2013-2014 NSF CE21 project at University of Delaware
- 2009-2011 College Board - Advanced Placement Course in Computer Science Principles
- 2013 NSF REESE - Empirical Research Project on STEM learning in formal and informal settings, PIs: Art Graesser, Sidney D'Mello, Andrew Olney

UNIVERSITY SERVICE

NC State University Service
- NC State Park Scholars Mentor, 2017-2018, 2018-2019, Reviewer /Interviewer 2012
- Planning for Digital Games Research Center, 2012-2013
- Mentor Rings Mentor 2016-2018 for 10 junior faculty
- Diversity Fellow, 2018, to promote diversity in graduate programs

NC State University – College of Engineering Service
- Faculty Advancement Roundtable, 2016-Present

NC State University – Department of Computer Science Service
- Chair, Strategic Planning Committee, 2016-Present
- Member, Strategic Planning Committee, 2015-2016
- Global Game Jam Coordinator, January 2013, 2014, 2015, 2016
- Peer Evaluator, CSC Peer Teaching Evaluation Program, 2016, 2012
- Mentor for 4 junior faculty, 2014-present

UNC Charlotte College of Computing and Informatics Committees, Centers and Institutes
- ACM Peer Tutoring Program Director, 2010-11
- Education Strategy Committee, 2010-12
- College Strategic Planning, 2009-12
- Visualization Center, 2005-12
- Diversity in Information Technology Institute, 2004-12

- Chair, College Retreat Follow-up Recommendations Committee, 2005
- Diversity Committee, 2004-06
- Marketing Committee, 2004-05
- Parliamentarian for College Faculty Meetings, 2005-06

UNC Charlotte Departmental Committees
- Member, UNCC CS Departmental Review Committee, 2010-2012
- Member, UNCC Computer Science Full Professor Recruiting Committee, 2010-12
- Chair, Computer Science Undergraduate Committee, 2010-11
- Chair, Computer Science Awards Committee, 2006-09
- Computer Science Peer review of teaching committee, 2007-08
- Chair, Computer Science Faculty Search Committee, 2005-06: Recruited and hired 4 new faculty members. Responsible for recruiting all six candidates invited for interviews.
- Bioinformatics Faculty Search Committee, 2004-05
- Bioinformatics Curriculum Development Committee, 2004-05