Lauren E. Margulieux

Assistant Professor of Learning Technologies

lmargulieux@gsu.edu
404.413.8064
laurenmarg.com

Department of Learning Sciences
Georgia State University
Atlanta, GA 30302-3978

EDUCATION

Ph.D. in Engineering Psychology, Minor in Education, 2016
Georgia Institute of Technology
Committee: Richard Catrambone (chair), F. Durso, M. Guzdial, W. Newstetter, & W. Rogers
Dissertation: *Using Subgoal Learning and Self-Explanation to Improve Programming Education*

M.S. in Engineering Psychology, 2014
Georgia Institute of Technology
Committee: Richard Catrambone (chair), F. Durso, and M. Guzdial
Thesis: *Subgoal Labeled Instructional Text and Worked Examples in STEM Education*

B.A. in Psychology, 2010
Southwestern University
Summa Cum Laude

Texas A&M University, August 2007 – May 2008

PROFESSIONAL EXPERIENCE

Assistant Professor of Learning Technologies, Georgia State University	2016-present
Postdoctoral Scholar, Center for Teaching and Learning, Georgia Tech	2016
Graduate Teaching Assistant (Instructor of Record), Georgia Tech	2015-16
Graduate Research Assistant, Center for 21st Century Universities, Georgia Tech	2011-15
Human Factors Intern, Human Interfaces Inc.	2010-11
Peer Academic Mentor, Southwestern University	2009-10

Awards and Honors

John Henry "Fool's" Award at International Computing Education Research Conference, 2019
Spatial Encoding Strategy Theory: The Relationship between Spatial Skill and STEM Achievement

Recipient of Georgia State University's College of Ed. and Human Development's Recognizing Scholarly Excellence program: semester-long sabbatical during 4th year, 2019

Recipient of SIGCSE Technical Symposium Travel Grant: $850, 2019

Winner of the Emerald/HETL Education Outstanding Doctoral Research Award: $1500, 2017

Selected for Early Career Workshop at CSCL 2017, International Society for the Learning Sciences: $1000, 2017

Young Scientist Travel Award, Indiana University CogSci Program and NSF: $1000, 2016

Outstanding Graduate Student, School of Psychology, Georgia Tech: $500, 2016

Chair's Award for Best Paper at International Computing Education Research Conference, 2015
Subgoals, Context, and Worked Examples in Learning Computing Problem Solving

Outstanding Graduate Student Instructor Finalist, Georgia Tech, 2015
Course: Research Methods for Human Subjects Research

Foley Scholar Finalist, Georgia Tech, 2015

Presidential Scholarship, Georgia Tech: $2750 per semester, 2011-2015

Outstanding Psychology Student, Southwestern University, Spring 2010

Psi Chi Regional Research Award: $300, Spring 2010
Shy to "Fly": Testing the Effectiveness of Self-presentation Strategies of Shy Individuals

SCHOLARSHIP AND PROFESSIONAL DEVELOPMENT

Funding

External Grant Awards

NSF:EHR– Faculty Early Career Development Program (CAREER)
- Title: *Spreading Computational Literacy Equitably via Integration of Computing in Preservice Teacher Prep* (#1941642)
- Position: Principal Investigator
- Project dates: July 2020 – June 2025
- Budget: $489,631

US Department of Education – Teacher Quality Partnership
- Title: *NURTURE: Network for Urban and Rural Teachers United for Residency Engagement* (U336S190026)
- Other personnel: Benson, G. (PI), Ogletree, S., Patterson, D., and Feinberg, J. (Co-PIs)
- Position: Co-Principal Investigator
- Project dates: October 2019 – September 2026
- Budget: $7,038,676

NSF:CISE Technical Assistance Workshop for CSforAll:RPP Submission
- Title: *Technical Assistance Workshop on Researcher Practitioner Partnerships for CSforAll:RPP in Atlanta, Georgia* (#1945313)
- Other personnel: Calandra, B. (Co-PI)
- Position: Principal Investigator
- Project dates: October 2019 – June 2020
- Budget: $94,951

NSF:EHR - Improving Undergraduate STEM Education

- Title: *Developing and Assessing Subgoal Labels for Imperative Programming to Improve Student Learning Outcomes* (#1712231)
- Other personnel: Morrison, B. B. (PI, University of Nebraska Omaha), Decker, A. (Co-PI, University at Buffalo)
- Position: Co-Principal Investigator
- Project dates: August 2017 – July 2020
- Budget: $299,927

APF COGDOP Graduate Research Scholarship

- Title: *Subgoal-Oriented Instructional Text and Worked Examples in STEM Education*
- Position: Principal Investigator
- Project dates: January 2013 – January 2014
- Budget: $1000

Internal Grant Awards

Georgia State University, College of Ed. and Human Dev., Technology-Infusion Grants

- *Discipline-Inclusive Introduction to Computational Thinking Concepts and Activities,* collaborator: Caroline Sullivan, budget: $500, Spring 2019
- *Algebra with Bootstrap for the Secondary Mathematics Methods Course*, collaborator: Pier Junor Clarke, budget: $500, Spring 2019
- *Utilizing Pencil Code to Teach Computational Thinking for the Middle Childhood Science Methods Course,* collaborators: Natalie King and Patrick Enderle, budget: $500, Spring 2019

Proposals Under Review

NSF:CISE– EAGER

- Title: *Microcredentials for Integrating Computing Responsibly into Other Domains (MICRO)*
- Other personnel: Calandra, B. (PI, Georgia State), Cox, Bryan (Co-PI, Georgia Dept. of Ed), Abell, O. & Sykora, C. (Consultants, Intl Society for Technology in Education)
- Position: Co-Principal Investigator
- Project dates: June 2020 – May 2022
- Budget: $299,182

Publications

Refereed Journal Articles

Numbering system: J# = Journal article

Italics indicate student author

*[J11] **Margulieux, L. E.** (in press). Spatial Encoding Strategy theory: The relationship between spatial skill and STEM achievement. *ACM Inroads*.

*Reprint of paper awarded John Henry "Fool's" Award at ICER 2019

[J10] Kim, M. K., & **Margulieux, L. E.** (accepted). An exploratory study of learner changes during a short-term exposure to hybrid learning. *International Journal of Learning Technology*.

[J9] Morrison, B. B., **Margulieux, L. E.**, & Decker, A. (2020). The curious case of loops: When applying EdPsych principles to CS education (kind of) did not work. *Computer Science Education.* doi: 10.1080/08993408.2019.1707544

[J8] *Ketenci, T. A.*, Calandra, B., **Margulieux, L. E.**, & Cohen, J. (2019). Learner characteristics effect on outcomes in a K-12 computational problem-solving context. *Journal of Research on Technology in Education, 51*(1), 63-76. doi: 10.1080/15391523.2018.1553024

[J7] **Margulieux, L. E.**, *Ketenci, T. A.*, Decker, A. (2019). Review of measurements used in computing education research and suggestions for increasing standardization. *Computer Science Education, 29*(1), 49-78. doi: 10.1080/08993408.2018.1562145

[J6] **Margulieux, L. E.**, & Catrambone, R. (2019). Finding the best types of guidance for constructing self-explanations of subgoals in programming. *Journal of the Learning Sciences, 28*(1), 108-151. doi: 10.1080/10508406.2018.1491852

[J5] **Margulieux, L. E.**, Catrambone, R., & *Schaeffer, L. M.* (2018). Varying effects of subgoal labeled expository text in programming, chemistry, and statistics. *Instructional Science*, *46*(5), 707-722. doi: 10.1007/s11251-018-9451-7

[J4] **Margulieux, L. E.,** McCracken, W. M., & Catrambone, R. (2016). Mixing face-to-face and online learning: Instructional methods that affect learning. *Educational Research Review*, *19*, 104-118. doi: 10.1016/j.edurev.2016.07.001

[J3] **Margulieux, L. E.,** Chen, D., McDonald, J. D., Bujak, K. R., Gable, T. M., Darling, C. M., Schaeffer, L. M., & Barg-Walkow, L. H. (2016). Online collaboration applications evaluated by ease of use. *Ergonomics in Design, 24*(2), 21-30. doi: 10.1177/1064804615611273

[J2] **Margulieux, L. E.,** & Catrambone, R. (2016). Improving problem solving with subgoal labels in expository text and worked examples. *Learning and Instruction, 42*, 58-71. doi: 10.1016/j.learninstruc.2015.12.002

[J1] **Margulieux, L. E.,** Catrambone, R., & Guzdial, M. (2016). Employing subgoals in computer programming education. *Computer Science Education, 26*(1), 44-67. doi: 10.1080/08993408.2016.1144429

<u>Highly Competitive Conference Proceedings</u>

P# = Conference proceeding with acceptance rate below 40%

*[P16] **Margulieux, L. E.** (2019). Spatial Encoding Strategy theory: The relationship between spatial skill and STEM achievement. In *Proceedings of the Fifteenth Annual Conference on International Computing Education Research* (pp. 81-90). New York, NY: ACM. doi: 10.1145/3291279.3339414

*Awarded John Henry "Fool's" Award

[P15] Decker, A., **Margulieux, L. E.**, Morrison, B. B. (2019). Using the SOLO Taxonomy to understand subgoal labels effect on problem solving processes in CS1. In *Proceedings of*

the Fifteenth Annual Conference on International Computing Education Research (pp. 209-217). New York, NY: ACM. doi: 10.1145/3291279.3339405

[P14] **Margulieux, L. E.**, Morrison, B. B., & Decker, A. (2019). Design and pilot testing of subgoal labeled worked examples for five core concepts in CS1. In *ITiCSE '19: Innovation and Technology in Computer Science Education Proceedings* (pp. 548-553). New York, NY: ACM. doi: 10.1145/3304221.3319756

[P13] *Parker, M. C., Solomon, A., Pritchett, B., Illingworth, D.*, **Margulieux, L. E.**, & Guzdial, M. (2018). Socioeconomic status and computer science achievement: Spatial ability as a mediating variable in a novel model of understanding. In *Proceeding of the Fourteenth Annual Conference on International Computing Education Research* (pp. 97-105). New York, NY: ACM. doi: 10.1145/3230977.3230987

[P12] **Margulieux, L. E.**, & Catrambone, R. (2017). Using learners' self-explanations to guide initial problem solving. In *Proceeding of the Thirteenth Annual Conference on International Computing Education Research* (pp. 21-29). New York, NY: ACM. doi: 10.1145/3105726.3106168

[P11] Morrison, B. B., Decker, A., & **Margulieux, L. E.** (2016). Learning loops: A replication study illuminates impact of HS courses. In *Proceedings of the Twelfth Annual International Conference on International Computing Education Research* (pp. 221-230). New York, NY: ACM. doi: 10.1145/2960310.2960330

[P10] **Margulieux, L. E.**, & Catrambone, R. (2016). Using subgoal learning and self-explanation to improve programming education. In A. Papafragou, D. Grodner, D. Mirman, & J.C. Trueswell (Eds.), *Proceedings of the 38th Annual Conference of the Cognitive Science Society* (pp. 2009-2014). Austin, TX: Cognitive Science Society.

[P9] Schaeffer, L. M., **Margulieux, L. E.**, & Catrambone, R. (2016). Interaction of instructional materials order and subgoal labels on learning in programming. In A. Papafragou, D. Grodner, D. Mirman, & J.C. Trueswell (Eds.), *Proceedings of the 38th Annual Conference of the Cognitive Science Society* (pp. 271-276). Austin, TX: Cognitive Science Society.

[P8] **Margulieux, L. E.**, Morrison, B. B., Guzdial, M., & Catrambone, R. (2016). Training learners to self-explain: Designing instructions and examples to improve problem solving. In *Proceedings of Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016.* International Society of the Learning Sciences [online].

[P7] Morrison, B. B., **Margulieux, L. E.**, Ericson, B., & Guzdial, M. (2016). Subgoals help students solve Parsons problems. In *Proceedings of ACM's SIG Computer Science Education* (pp. 42-47). New York, NY: ACM. doi: 10.1145/2839509.2844617

*[P6] Morrison, B. B., **Margulieux, L. E.**, & Guzdial, M. (2015). Subgoals, context, and worked examples in learning computing problem solving. In *Proceedings of the Eleventh Annual International Conference on International Computing Education Research* (pp. 21-29). New York, NY: ACM. doi: 10.1145/2787622.2787733

*Awarded Chairs' Best Paper Award

[P5] **Margulieux, L. E.,** McCracken, W. M., & Catrambone, R. (2015). Mixing in-class and online learning: Content meta-analysis of outcomes for hybrid, blended, and flipped courses. In O. Lindwall, P. Hakkinen, T. Koschmann, P. Tchounikine, & S. Ludvigsen (Eds.) *Exploring the Material Conditions of Learning: The Computer Supported Collaborative Learning (CSCL) Conference* (pp. 220-227), *2*. Gothenburg, Sweden: The International Society of the Learning Sciences.

[P4] **Margulieux, L. E.** & Catrambone, R., (2014). Improving programming instruction with subgoal labeled instructional text. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.) *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 952-957). Austin, TX: Cognitive Science Society.

[P3] **Margulieux, L. E.** & Catrambone, R. (2014). Improving problem solving performance in computer-based learning environments through subgoal labels. In *Proceedings of the First ACM Conference on Learning @ Scale* (pp. 149-150). New York, NY: ACM. doi: 10.1145/2556325. 2567853

[P2] **Margulieux, L. E.**, Catrambone, R., & Guzdial, M. (2013). Subgoal labeled worked examples improve K-12 teacher performance in computer programming training. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.) *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 978-983). Austin, TX: Cognitive Science Society.

[P1] **Margulieux, L. E.**, Guzdial, M., & Catrambone, R. (2012). Subgoal-labeled instructional material improves performance and transfer in learning to develop mobile applications. In *Proceedings of the Ninth Annual International Conference on International Computing Education Research* (pp. 71-78). New York, NY: ACM. doi: 10.1145/2361276.2361291

Edited Books and Special Issues

Margulieux, L. E., & Morrison, B. B. (Eds.). (2019). Special Issue: Advancing Theory about the Novice Programmer. *Computer Science Education. 29*(2-3), 103-308.

Madden, A., **Margulieux, L. E.**, Goel, A. K., & Kadel, R. S. (Eds.). (2019). *Blended Learning in Practice: A Guide for Practitioners and Researchers.* Cambridge, MA: MIT Press.

Book Chapters Published in Edited Books

C# = Book chapter

[C7] **Margulieux, L. E.**, Dorn, B., & Searle, K. (2019). Learning Sciences for Computing Education. In S. Fincher & A. Robins (Eds.), *Handbook of Computing Education Research* (pp. 208-230). Cambridge, UK: Cambridge University Press.

[C6] Robins, A., **Margulieux, L. E.**, & Morrison, B. B. (2019). Cognitive Sciences for Computing Education. In S. Fincher & A. Robins (Eds.), *Handbook of Computing Education Research* (pp. 231-275). Cambridge, UK: Cambridge University Press.

[C5] **Margulieux, L. E.** (2019). Blended learning in an upper-level, required course on research methodology. In A. Madden, L. E. Margulieux, R. S. Kadel, & A. K. Goel (Eds.), *Blended Learning in Practice: A Guide for Practitioners and Researchers* (pp. 269-288). Cambridge, MA: MIT Press.

[C4] **Margulieux, L. E.**, & Kadel, R. S. (2019). Analyzing quantitative and qualitative data for blended learning. In A. Madden, L. E. Margulieux, R. S. Kadel, & A. K. Goel (Eds.), *Blended Learning in Practice: A Guide for Practitioners and Researchers* (pp. 193-212). Cambridge, MA: MIT Press.

[C3] Kadel, R. S., & **Margulieux, L. E.** (2019). Research methods in blended learning. In A. Madden, L. E. Margulieux, R. S. Kadel, & A. K. Goel (Eds.), *Blended Learning in Practice: A Guide for Practitioners and Researchers* (pp. 129-154). Cambridge, MA: MIT Press.

[C2] Schaeffer, L. M., **Margulieux, L. E.**, Chen, D., & Catrambone, R. (2016). Feedback via Educational Technology. In L. Lin & R. Atkinson (Eds.), *Educational Technologies: Challenges, Applications, and Learning Outcomes*. (Education in a Competitive and Globalizing World, pp. 59-72). New York, NY: Nova Science Publishers, Inc.

[C1] Durso, F. T., **Margulieux, L. E.**, & Blickensderfer, E. L. (2014). Human Factors. *Oxford Bibliographies Online: Psychology.* doi:10.1093/obo/9780199828340-0159

Manuscripts in Revision

Margulieux, L. E., & Catrambone, R. (revise and resubmit). Scaffolding initial problem solving with learners' own self explanations of subgoals. *Journal of Computing in Higher Education.*

Margulieux, L. E., Morrison, B. B., Franke, B., & *Ramilison, H.* (revise and resubmit). Subgoal redesign of Code.org's Intro to Programming unit in Computer Science Principles. *ACM Transactions on Computing Education*.

Margulieux, L. E., Williams, K. Z., & Lawrence, G. D. (revise and resubmit). Teaching certificate redesign: Making a flexible preparing future faculty program. *To Improve the Academy.*

Manuscripts in Review

Margulieux, L. E., Calandra, B. D., Enderle, P., Junor Clarke, P., King, N., Many, J., Sullivan, C., & Zoss, M. (under review). Design of department-wide computing integration into pre-service teacher preparation programs. *International Conference of the Learning Sciences.*

Margulieux, L. E., Decker, A., Morrison, B. B. (under review). Reducing dropout and failure rates in introductory programming with subgoal labeled worked examples. *International Journal of STEM Education.*

Shapiro, R. B., Margulieux, L. E., Holbert, N., Searle, K., Tissenbaum, M., & DiSalvo, B. (under review). Expanding the field: How the Learning Sciences might further computing education research. *International Conference of the Learning Sciences*

Manuscripts in Preparation

Enderle, P. J., Margulieux, L. E., & King, N. S. (in prep). What's in a wave? Using modeling and computational thinking to enhance students' understanding of waves. *Science Teacher.*

Refereed Conference Proceedings

Margulieux, L. E., & Yadav, A. (accepted). Middle science computing integration with preservice teachers. *Society for Information Technology and Teacher Education.*

Decker, A., **Margulieux, L. E.**, & Morrison, B. B. (2019). Developing subgoal labels for imperative programming to improve student learning outcomes. In *Proceedings of the 2019 ASEE Annual Conference and Exposition*.

Lewis, C., Guzdial, M., **Margulieux, L. E.**, *Nelson, G.*, & Porter, L. (2019). Negotiating varied research goals in computing education research. In *Proceedings of the 50th ACM Technical Symposium on Computer Science Education* (pp. 500-501). New York, NY: ACM. doi: 10.1145/3287324.3287329

Morrison, B. B., Decker, A., & **Margulieux, L. E.** (2019). Using subgoal labeling in teaching CS1. In *Proceedings of the 50th ACM Technical Symposium on Computer Science Education* (pp. 1237). New York, NY: ACM. doi: 10.1145/3287324.3287540

Decker, A., Schneider, J., & **Margulieux, L. E.** (2018). How engineering and computing students demonstrate critical thinking during required co-op work experiences. In *Proceedings of the 2018 Frontiers in Education Conference.* doi: 10.1109/FIE.2018.8659164

Cohen, J., **Margulieux, L. E.**, Renken, M., Smith, S., & Jones, W. M. (2018). Maker Mindset: Measuring the Effect of Making. In Kay, J. and Luckin, R. (Eds.) *Rethinking Learning in the Digital Age: Making the Learning Science Count, 13th International Conference of the Learning Sciences (ICLS) Volume 3* (pp. 1505-1506). London, UK: International Society of the Learning Sciences.

Ericson, B., **Margulieux, L. E.**, & Rick, J. (2017). Solving Parsons problems versus fixing and writing code. Proceedings of *17th Koli Calling International Conference on Computing Education Research* (pp. 20-29). New York, NY: ACM. doi: 10.1145/3141880.3141895

Margulieux, L. E. (2017). Subgoal learning in online STEM instruction. In Smith, B. K., Borge, M., Mercier, E., and Lim, K. Y. (Eds.). *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017 Volume 1*. (pp. 932-933), Philadelphia, PA: International Society of the Learning Sciences.

Margulieux, L. E. & Catrambone, R. (2015). Varying effects of subgoal labeled procedural instructions in STEM learning [Abstract]. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society,* 2942.

Margulieux, L. E., Bujak, K. R., McCracken, W. M., & Majerich, D. (2014). Hybrid, blended, flipped, and inverted: Defining terms in a two-dimensional taxonomy [Online]. *Proceedings of the 12th Annual Conference of the Hawaii International Conference on Education* (pp. 2394-2402).

Desmond, P. A., **Margulieux, L. E.**, English, A. B., Burbey, A. L., & Matthews, G. (2010). Emotional intelligence and driver stress. In *Proceedings of the Human Factors and Ergonomics Society.*

Bollich, K. L., Mathis, S. E., Laas, W. L., Giuliano, T. A., & **Margulieux, L. E.** (2010). Perceived effectiveness of strategies for improving perceptions of shy individuals. In *Proceedings of the Association for Psychological Science*.

Unrefereed Publications

Margulieux, L. E., & Morrison, B. B. (2019). Guest editorial on special issue: Advancing theory about the novice programmer. *Computer Science Education. 29*(2-3), 103-105. doi: 10.1080/08993408.2019.1613091

Margulieux, L. E. (2018). Effects of Subgoal Labeled Expository Text Differ across Programming, Statistics, and Chemistry. *Annual Meeting of the American Education Research Association.*

Peek, M. E., Majerich, D. M., **Margulieux, L. E.**, Stephens, A. B., Braga, R. A., & Madden, A. (2015). Teaching college faculty to interconnect chemistry and biochemistry experiments via the "Threading Flavones" project. In *Proceedings of the Chemistry Education Research & Practice of the Gordon Research Conference*.

Margulieux, L. E. & Catrambone, R. (2014). Subgoal labels in worked examples, but not general text, aid statistics learning [Abstract]. *Abstracts of the Psychonomic Society*, *19*, 129.

Margulieux, L. E. & Catrambone, R. (2013). Multidimensional scaling for comparing problem solving knowledge to an ideal [Abstract]. *Abstracts of the Psychonomic Society*, *18*, 191.

Margulieux, L. E., Catrambone, R., & Guzdial, M. (2012). Subgoals improve performance in computer programming construction tasks [CD]. *Proceedings of the EARLI SIG 6&7 Conference* (pp. 60-62).

Margulieux, L. E., Giuliano, T. A., Bollich, K. L., Mathis, S. E., & Laas, W. L. (2010). Introverted but not shy: A new perspective on the measurement of introversion. In *Proceedings of the Southwestern Psychological Association*.

Mathis, S. E., Laas, W. L., Bollich, K. L., Giuliano, T. A., & **Margulieux, L. E.** (2010). Shy to "fly": Testing the effectiveness of self-presentation strategies of shy individuals. In *Proceedings of the Southwestern Psychological Association*.

Presentations

Invited Talks

Margulieux, L. E., & Goel, A. (2019). *Blended learning in practice.* Presentation to the Provost Teaching and Learning Fellows, Center for Teaching and Learning, Georgia Institute of Technology, Atlanta, GA.

Margulieux, L. E. (2019). *Mixing face-to-face and online learning: Instructional methods that affect learning.* Presentation to the Cognitive Science Seminar Series, Psychology Department, Georgia State University, Atlanta, GA.

Margulieux, L. E. (2018). Helping computer science students, especially online learners, become better problem solvers. Presentation at the GVU Brown Bag Series, Georgia Institute of Technology, Atlanta, GA.

Margulieux, L. E. (2017). *Mixing face-to-face and online learning: Instructional methods that affect learning.* Presentation to the College of Information Science and Technology, University of Nebraska Omaha, Omaha, NE.

Margulieux, L. E. (2014). *Mixing face-to-face and online learning: Instructional methods that affect learning.* Presentation at the C21U Seminar Series, Atlanta, GA. https://www.youtube.com/watch?v=fd0o96s3Utc

Margulieux, L. E. (2013). Hybrid, blended, flipped, and inverted classrooms: What do they mean and why do they matter? Presentation at the GVU Brown Bag Series, Georgia Institute of Technology, Atlanta, GA.

Workshops and Panels

Decker, A., Morrison, B. B., & Margulieux, L. E. (2020). *Using Subgoal Labeling in Teaching Introductory Programming*. Workshop at Consortium for Computing Sciences in Colleges – Northeastern Conference.

DeLyser, L. A., Baskin, J., Childs, J., & Margulieux, L. E., (2019). *Finding a Home for Computer Science in Colleges of Education.* Panel at the CSforAll Summit, Salt Lake City, UT.

Margulieux, L. E., Kadel, R., & Goel, A. (2019). *Blended Learning in Practice.* Panel hosted by the Center for 21st Century Universities, Georgia Institute of Technology, Atlanta, GA.

Morrison, B. B., Decker, A., & Margulieux, L. E. (2019). *Using Subgoal Labeling in Teaching CS1*. Workshop at 50th ACM Technical Symposium on Computer Science Education.

Conference Presentations as Presenting Author

Margulieux, L. E. (2019, August). *Spatial Encoding Strategy theory: The relationship between spatial skill and STEM achievement*. Paper presented at the Fifteenth Annual International Conference on International Computing Education Research. Toronto, Canada.

Margulieux, L. E., Decker, A., & Morrison, B. B. (2019, April). *Subgoal labels effect on problem solving processes in CS1*. Poster presented at the Computer Science + Learning Sciences Symposium at Northwestern University. Evanston, IL.

Lewis, C., Guzdial, M., Margulieux, L. E., *Nelson, G.*, & Porter, L. (2019, February). *Negotiating varied research goals in computing education research*. Panel presented at the 50th SIGCSE Technical Symposium. Minneapolis, MN.

Morrison, B. B., Decker, A., & Margulieux, L. E. (2019, February). *Using subgoal labeling in teaching CS1*. Workshop presented at the 50th SIGCSE Technical Symposium. Minneapolis, MN.

Cohen, J., Margulieux, L. E., Renken, M., Smith, S., & Jones, W. M. (2018, June). *Maker Mindset: Measuring the Effect of Making.* Poster presented at International Conference of the Learning Sciences. London, UK.

Margulieux, L. E. (2018, April). *Effects of subgoal labeled expository text differ across STEM domains.* Paper presented at the Annual Meeting of the American Education Research Association. New York, NY.

Margulieux, L. E., & Catrambone, R. (2017, August). *Using learners' self-explanations to guide initial problem solving.* Paper presented at the Thirteenth Annual International Conference on International Computing Education Research. Tacoma, WA.

Margulieux, L. E., & Catrambone, R. (2016, August). *Using subgoal learning and self-explanation to improve programming education.* Paper presented at the 38th Annual Conference of the Cognitive Science Society. Philadelphia, PA.

Schaeffer, L. M., Margulieux, L. E., & Catrambone, R. (2016, August). *Interaction of instructional materials order and subgoal labels on learning in programming.* Poster presented at the 38th Annual Conference of the Cognitive Science Society. Philadelphia, PA.

Margulieux, L. E., Morrison, B. B., Guzdial, M., & Catrambone, R. (2016, June). *Training learners to self-explain: Designing instructions and examples to improve problem solving.* Paper presented at the International Conference of the Learning Sciences. Singapore.

Margulieux, L. E. & Catrambone, R. (2015, July). *Varying effects of subgoal labeled procedural instructions in STEM learning.* Poster presented at the 37th Annual Meeting of the Cognitive Science Society. Pasadena, CA.

Margulieux, L. E., McCracken, W. M., & Catrambone, R. (2015, June). *Mixing in-class and online learning: Content meta-analysis of outcomes for hybrid, blended, and flipped courses.* Paper presented at the 11th International Conference on Computer Supported Collaborative Learning. Gothenburg, Sweden.

Margulieux, L. E. & Catrambone, R. (2014, November). *Subgoal labels in worked examples, but not general text, aid statistics learning*. Poster presented at the 55th Annual Meeting of the Psychonomic Society. Long Beach, CA.

Margulieux, L. E. & Catrambone, R. (2014, March). *Improving problem solving performance in computer-based learning environments through subgoal labels.* Poster presented at the 1st ACM Conference on Learning @ Scale. Atlanta, GA.

Margulieux, L. E. & Catrambone, R. (2013, November). *Multidimensional scaling for comparing problem solving knowledge to an ideal*. Poster presented at the 54th Annual Meeting of the Psychonomic Society. Toronto, Canada.

Margulieux, L. E., Catrambone, R., & Guzdial M. (2013, August). *Subgoal labeled worked examples improve K-12 teacher performance in computer programming training*. Paper presented at the 35th Annual Conference of the Cognitive Science Society. Berlin, Germany.

Margulieux, L. E., & Catrambone R. (2013, June). *Teaching subgoals to improve problem solving in engineering*. Poster presented the 2013 ASEE Annual Conference and Exposition. Atlanta, GA.

Margulieux, L. E., Catrambone, R., & Guzdial, M. (2012, September). *Subgoals improve performance in computer programming construction tasks*. Poster presented at the meeting of European Association for Research on Learning and Instruction SIG Learning and Instruction with Computers. Bari, Italy.

Margulieux, L. E., Giuliano, T. A., Bollich, K. L., Mathis, S. E., & Laas, W. L. (2010, April). *Introverted but not shy: A new perspective on the measurement of introversion.* Poster presented at the meeting of Southwestern Psychological Association. Dallas, TX.

TEACHING AND ADVISING

Teaching

Courses Taught

Digital and Information Literacy, LT 7500, Georgia State
Theoretical and Cognitive Foundations of the Learning Sciences, LT 8100, Georgia State
Doctoral Research Seminar, LT 9850, Georgia State
Computer Skills for the Information Age, LT 2010, Georgia State
Critique of Education Research, LT 9900, Georgia State
Instructional Design, LT 7100, Georgia State
Engineering Psychology, PSY 2014, Georgia Tech
*****Research Methods, PSY 2015, Georgia Tech
*****Nominated for Outstanding Graduate Student Instructor
Introduction to Psychology, PSY 1011 (co-instructor), Georgia Tech

Courses Created

LT 8100 Theoretical and Cognitive Foundations of the Learning Sciences
****LT 7500** Digital and Information Literacy
****LT 7501** Computational Thinking and Human-Computer Interaction
****LT 7502** Computer Science Instructional Methods
****LT 7503** Computer Science Concepts for Teachers
**Part of the Computer Science Teacher Endorsement

Textbook

Calandra, B. D., & **Margulieux, L. E.** (2017). *Digital Skills for the Knowledge Economy, 3rd edition*. Dubuque, IA: Kendall Hunt.

Calandra, B. D., & **Margulieux, L. E.** (2020). *Digital Skills for the Knowledge Economy, 4th edition*. Dubuque, IA: Kendall Hunt.

Advising

Doctoral Committees * Committee Chair

Completed

Solomon Betanga, Mathematics Education, Dissertation passed November 2018
The effects of mathematical modeling instruction on precalculus students' performance and attitudes toward rational functions

Ryan Cheek, Learning Technologies, Dissertation passed October 2018
An examination of pre-major health student's readiness for interprofessional education at a technical college

Aysegul Gok, Learning Technologies, Dissertation passed July 2018

Examining game-like design elements and student engagement in an online asynchronous course for undergraduate university students

***Julian Allen**, Learning Technologies, Dissertation passed April 2018
Faculty approaches to active learning: Barriers, affordances, and adoption

Merrin Oliver, Educational Psychology, Dissertation passed April 2017
Investigating individual differences in the conceptual change of biology misconceptions using computer-based explanation activities

In Progress

***Bryan Cox**, Learning Technologies, Comprehensive exam passed February 2019

***Reeny Madathany**, Learning Technologies, Comprehensive exam stage

Aaron Rafter, Learning Technologies, Prospectus stage

Eric Sembrat, Learning Technologies, Prospectus passed April 2019

Bronne Dytoc, Learning Technologies, Prospectus stage

Michael Maxwell, Learning Technologies, Comprehensive exam passed May 2019

Charles Hampton, Learning Technologies, Comprehensive exam passed October 2018

Julia Huprich, Learning Technologies, Prospectus passed October 2019

Tia Forbes, Learning Technologies, Comprehensive exam stage

Mentoring

Doctoral Advisor, 3 current students, 1 PhD graduate	2016 – present
Undergrad Research Assistant Manager, PSET Lab, Georgia Tech	2012-16
Undergraduate Senior Thesis Advisor, Georgia Tech	2013-14
Grand Challenges Group Facilitator, Georgia Tech	2013-14
Peer Academic Mentor, Content Writer, Southwestern University	2009-10

SERVICE

National and Professional Community

Program Committee, ICER Conference	2018-present
Guest Editor, Special Issue on Advancing Theory about the Novice Programmer, *Computer Science Education*	2018-19
Mentor, Doctorial Consortium at the ICER Conference	2019
Advisory Board Member, *Acquainting Metro Atlanta Youth with STEM* National Science Foundation, Innovative Technology Experiences for Students and Teachers (ITEST) program, PI: Brendan Calandra	2017-18

Invitation-only National Meetings

CSforAll Knowledge Forum, sponsored by CSforAll	2018
Finding a Home for Computing in Schools of Ed, sponsored by CSforAll	2017, 2018

Reviewer

NSF Review Panel (March 2018, February 2019, March 2020)
Computers & Education (Journal)
Computer Science Education (Journal)
Transactions on Computing Education (Journal)
Journal of College Science Teaching (Journal)
PLOS One (Journal)
International Conference of the Learning Sciences (Conference)
ACM Southeast (Conference)
ACM SIG Computer Human Interaction (Conference)

State and Local Community

Member, CS Advisory Council, Georgia Department of Education	2018-present
Guest speaker, GTRI Explorers' Guild, 5-hour professional development workshop about computational thinking and computing integration	2019
Member, Georgia K-8 CS Standards Implementation Team, leader of the Middle School Computer Science I course	2019
Contributor, Three-Year Strategic Planning Session organized by Georgia Department of Education and CS4GA	2019
Panelist, Future Workforce Conference hosted by honorCode	2018
Writer, Development team for K-8 Georgia Standards of Excellence for Computer Science organized by Georgia Department of Education	2018
Contributor, State-level Planning Meeting for computing education, sponsored by Code.org	2017

Department, College, and University

Program Coordinator, Computer Science Teacher Endorsement	2018-present
Program Coordinator, Instructional Design and Technology Ph.D.	2018-present
Chair, Tenure-Track Faculty Search Committee, Dept. of Learning Sciences	2019, 2020
Tech Fee Committee, Review proposals for distributing tech fee funds	2018, 2019
Proposal Writer, Next Gen. Faculty Initiative, Learning Sciences Center Co-authors: Brendan Calandra (principal), Maggie Renken	2016, 2017

Professional Memberships

American Educational Research Association, Division C – Learning and Instruction

Association for Computing Machinery, SIG Computer Science Education

International Society of the Learning Sciences

INDUSTRY EXPERIENCE

Human Interfaces, Inc., Austin, Texas, Intern — August 2010 – July 2011

- Tested software and hardware using Human Factors methodologies
- Analyzed results by coding qualitative data and using SPSS for quantitative data
- Wrote and peer reviewed reports about methodology and results to deliver to clients
- Designed website with interdisciplinary team http://www.austintechinsights.com/home.shtml

VISIBILITY AND MEDIA COVERAGE

Personal website: laurenmarg.com, includes pages for Research and Papers, Teaching, and Blog

- All-time views at end of 2019 = 15,670, All-time visitors = 8281 from 134 countries
- 2019 views = 8102, 2019 visitors = 4715 from 113 countries

Publication Reference	Coverage
CAREER	CADRE (2020, January). Computer science and computational thinking. *CADRE Newsletter Spotlights.* http://cadrek12.org/computer-science-and-computational-thinking
P5	Joo, J., & Spies, R. R. (2019, November). Aligning many campuses and instructors around a common adaptive learning courseware in introductory statistics. *ITHAKA S+R Research Report*. https://sr.ithaka.org/publications/adaptive-learning-courseware-introductory-statistics/
C5	Haggans, M. (2019, September). Changing learning: Changing campus. *Campus Matters.* https://campusmatters.net/changing-learning-changing-campus/
Blog	Guzdial, M. (2019, September). What's generally good for you vs what meets a need: Balancing explicit instruction vs problem/project-based learning in computer science classes. *Computing Education Research Blog.* https://computinged.wordpress.com/2019/09/16/whats-good-for-you-vs-what-fixes-you-balancing-explicit-instruction-vs-problemproject-based-learning-in-computer-science-classes/
Blog	Scholar (2019, August). What programming concept do I use? *Universitiez.* https://universitiez.xyz/2019/08/02/what-programming-concept-do-i-use/
P16	Meister, H. (2019, August). Lauren Margulieux wins John Henry "Fool's" Award. https://education.gsu.edu/2019/08/23/lauran-margulieux-wins-john-henry-fools-award/
P16	Ko, A. (2019, August). ACM ICER 2019 trip report: Leveling up on theory, statistics, and significance. *Bits and Behavior*. https://medium.com/bits-and-behavior/acm-icer-2019-trip-report-leveling-up-on-theory-statistics-and-significance-876b6d74148d
P16	Guzdial, M. (2019, August). Social studies teachers programming, when high schools choose to teach CS, and new models of cognition and intelligence in programming: An ICER 2019 Preview. *Computing Education Research Blog.* https://computinged.wordpress.com/2019/08/12/social-studies-teachers-

	programming-when-high-schools-choose-to-teach-cs-and-new-models-of-cognition-and-intelligence-in-programming-an-icer-2019-preview/
Blog	Thompson, A. C. (2019, August). What programming concept do I use? *Computer Science Teacher*. http://blog.acthompson.net/2019/08/what-programming-concept-do-i-use.html
Multiple	Wilson, G. (2019, May). Teaching tech together: How to create and deliver lessons that work and build a teaching community around them. http://teachtogether.tech/
NSF IUSE	STEM for All Video Showcase (2019, May). Using subgoal labels to improve learning outcomes in CS1. Showcase sponsored by NSF. https://stemforall2019.videohall.com/presentations/1391
Madden et al., 2019	Aiello, B. (2019, April). MIT Press publishes collected volume of Georgia Tech blended learning research. Georgia Tech School of Interactive Computing. https://ic.gatech.edu/news/620597/mit-press-publishes-collected-volume-georgia-tech-blended-learning-research
Blog	Wilson, G. (2019, February). Making it work in practice. *Third-bit.com*. http://third-bit.com/2019/02/25/making-it-work-in-practice.html
J2 & P2	Scholten, C. (2018, December). Subgoal Labeling (Part 3) and CS Ed Week. *Set Another Goal.* https://setanothergoal.blogspot.com/2018/12/subgoal-labeling-part-3-and-cs-ed-week.html
J2 & P2	Scholten, C. (2018, December). Subgoal labeling – revisited. *Set Another Goal.* https://setanothergoal.blogspot.com/2018/12/subgoal-labeling-revisited.html
Blog	Lee, A. (2018, November). Laptops, What is it Good for? https://www.hastac.org/blogs/swagm0n3yyolo/2018/11/30/laptops-what-it-good
Blog	Musto, P. (2018, September). Does using technology in the classroom help college students? *Voice of America*. https://learningenglish.voanews.com/a/does-using-technology-in-the-classroom-help-or-harm-college-students/4591704.html
J2 & P2	Scholten, C. (2018, September). CS teaching strategies – subgoal labeled worked examples. *Set Another Goal.* http://setanothergoal.blogspot.com/2018/09/cs-teaching-strategies-subgoal-labeled.html
Blog	Guzdial, M. (2018, September). Applying diSessa's Knowledge in Pieces framework to understanding the notional machine. *Computing Education Blog.* https://computinged.wordpress.com/2018/09/14/applying-disessas-knowledge-in-pieces-framework-to-understanding-the-notional-machine/
P13	Guzdial, M. (2018, August). Adaptive Parsons problems, and the role of SES and gesture in learning computing: ICER 2018 preview. *Computing Education Blog.* https://computinged.wordpress.com/2018/08/10/adaptive-parsons-problems-and-the-role-of-ses-and-gesture-in-learning-computing-icer-2018-preview/

Blog	Guzdial, M. (2018, August). How computing education researchers and learning scientists might better collaborate. *Computing Education Blog.* https://computinged.wordpress.com/2018/08/12/how-computing-education-researchers-and-learning-scientists-might-better-collaborate/
J6	Promoted June 2018 on Journal of the Learning Sciences' social media accounts, @JLearnSciences (Twitter) and @JrnlLearningSciences (Facebook).
J5	Guzdial, M. (2018, March). How CS differs from other STEM disciplines: Varying effects of subgoal labeled expository text in programming, chemistry, and statistics. *Computing Education Blog.* https://computinged.wordpress.com/2018/03/16/how-cs-differs-from-other-stem-disciplines-varying-effects-of-subgoal-labeled-expository-text-in-programming-chemistry-and-statistics/
J2 & J5	Rouhi, A. M. (2018, March). Easy as 1, 2, 3! Really?: Studies point to smarter way to learn procedures, solve problems. Georgia Tech College of Sciences. https://www.cos.gatech.edu/hg/item/603373. Featured in *Science Bulletin*, phys.org.
Blog	McKnight, C. (2018, February). OPINION: All zero-tech policies are absurd. *Technician*. http://www.technicianonline.com/opinion/article_0cb13a70-0ba7-11e8-a657-6f8582b87067.html In reference to http://c21u.gatech.edu/blog/case-laptops-classroom
Dissertation	Miller, C. (2017, November). Margulieux Examines How Students Use Subgoals, Feedback To Improve Programming Knowledge, Skills. *Research & Innovation: Research in GSU's CEHD.* https://news.gsu.edu/2017/11/13/margulieux-examines-students-use-subgoals-feedback-improve-programming-knowledge-skills/
Ericson et al., 2017	Guzdial, M. (2017, November). Parsons Problems have same Learning Gains as Writing or Fixing code, in less time: Koli Calling 2017 Preview. *Computing Education Blog.* https://computinged.wordpress.com/2017/11/17/parsons-problems-have-same-learning-gains-as-writing-or-fixing-code-in-less-time-koli-calling-2017-preview/
NSF IUSE	MAGIC Center (2017, August). Professor awarded an NSF grant: Looking for better ways to teach introductory computing. https://magic.rit.edu/?p=2490#more-2490
NSF IUSE	Rucker, A. (2017, August). NSF Awards IS&T Research Grant to Improve Computer Science Education. www.unomaha.edu/college-of-information-science-and-technology/news/2017/08/
Dissertation	Rouhi, A. M. (2017, June). Lauren Margulieux is recognized for best Ph.D. research. Georgia Tech College of Sciences. https://www.cos.gatech.edu/hg/item /592492
Dissertation	Parkinson, S. (2017, May). 2016 Emerald/HETL Education Outstanding Doctoral Research Award. http://www.emeraldgrouppublishing.com/research/awards/hetl.htm

P11	Guzdial, M. (2016, September). Learning curves, given vs. generated subgoal labels, replicating a US study in India, and frames vs. text: More ICER 2016 trip reports. *Computing Education Blog.* https://computinged.wordpress.com/2016/09/16/learning-curves-given-vs-generated-replicating-from-us-to-india-and-frames-vs-text-more-icer-2016-trip-reports/
P11	Guzdial, M. (2016, September). Preview ICER 2016: Ebooks design-based research and replications in assessment and cognitive load studies. *Computing Education Blog.* https://computinged.wordpress.com/2016/09/02/preview-icer-2016-ebooks-design-based-research-and-replications-in-assessment-and-cognitive-load-studies/
J3	IANS (2016, May). Download these free web apps to multi-task better. Featured in *Yahoo!News, The Times of India, The Economic Times, The Statesman, Business Standard, Zee News, The Free Press Journal, Three Novices, Udaipur Kiran, Download Jozz, Vishva Times, LA Indian, Seattle Indian, Can India.*
J3	Calishain, T. (2016, May). Thursday buzz: May 26, 2016. *Research Buzz.* https://researchbuzz.me/2016/05/26/congress-gov-satellite-imagery-texas-floods-more-thursday-buzz-may-26-2016/ and https://rbfirehose.com/2016/05/25/research-the-usability-of-online-collaborative-apps/
J3	Smith, L. (2016, May). Which free web apps for collaboration are the most user-friendly?. Featured in *EurekAlert.org, Newswise.com, Phys.org, Livenetworknews.com, Scienmag.com, Allmagnews.com, Healthmedicinet.com, Science Codex.*
J3	Preston, J. (2016, May). Georgia Tech research finds that web apps for the workplace succeed to varying degrees. *GVU Center News Brief.* http://gvu.gatech.edu/georgia-tech-researchers-find-web-apps-workplace-are-succeeding-varying-degrees
Dissertation	Guzdial, M. (2016, May). CS classes have different results than laboratory experiments—not in a good way. *Communications of the ACM.* http://cacm.acm.org/magazines/ 2016/6/202660-the-solution-to-ai-what-real-researchers-do-and-expectations-for-cs-classrooms/fulltext
J1	Routledge (2016, April). Employing subgoals in computer programming education. Featured in #ReadMyResearch: Education. http://explore.tandfonline.com/page/bes/rmr/education
Dissertation	Guzdial, M. (2016, March). CS classes have different results than laboratory experiments—Not in a good way. *Blog @ CACM*. http://bit.ly/1UUrOUu
Dissertation	Guzdial, M. (2016, March). Optimizing learning with subgoal labeling: Lauren Margulieux defends her dissertation. *Computing Education Blog.* https://computinged.wordpress.com/ 2016/03/29/optimizing-learning-with-subgoal-labeling-lauren-margulieux-defends-her-dissertation/

P7	Guzdial, M. (2016, February). SIGCSE 2016 Preview: Parsons problems and subgoal labeling, and improving female pass rates on the AP CS exam. *Computing Education Blog.* https://computinged.wordpress.com /2016/02/29/sigcse-2016-preview-parsons-problems-and-subgoal-labeling-and-improving-female-pass-rates-on-the-ap-cs-exam/
P6	Falkner, N. (2016, January). Teaching for (current) humans. Blog post. https://nickfalkner.com/2016/01/13 /teaching-for-current-humans/
P6	Guzdial, M. (2015, August). ICER 2015 preview: Subgoal labeling works for text, too. *Computing Education Blog.* https://computinged.wordpress.com/2015/08/07/icer-2015-preview-subgoal-labeling-works-for-text-too/
P5	Georgia Tech GVU Center (2015, June). Defining mixed online learning. *News Brief*. http://us2.campaign-archive2.com/?u=a29f4ab2c992525ddd2413264 &id=ecc826d67e&e =3f1206e0a9
P1	Bolkan, J. (2015, February). MIT researchers: Crowdsourced outlines improve learning from videos. *Campus Technology* and *THE Journal.* http://campustechnology.com/articles/ 2015/02/12/research-outlines-improve-learning-from-videos.aspx?admgarea=news
P1	Hardesty, L. (2015, February). Better how-to videos. System recruits learners to annotate videos, increasing their educational value. *MIT News Office.* http://newsoffice.mit.edu/2015/better-how-to-videos-0211
Multiple	Wikipedia (2014). Subgoal labeling. http://en.wikipedia.org/wiki/Subgoal_labeling
P1	Georgia Tech GVU Center (2013). New computing education model applied to mobile app development. 2013 Annual Report: Advancing Technology to New Heights. http://gvu.gatech.edu/sites/gvu.gatech.edu/ files/uploads/GVU%20AR%202013%20-%20web%20small.pdf
P3 & P4	American Psychological Foundation (2013, March). 15 students conduct groundbreaking research, thanks to APF scholarships. *Monitor on Psychology*, *44*(3), 76.
P1	Guzdial, M. (2012, December). The bigger issues in learning to code: Culture and pedagogy. *Computing Education Blog.* http://computinged.wordpress.com/2012/12/21/the-bigger-issues-in-learning-to-code-culture-and-pedagogy/
P1	Pickens, C. (2012, October). Subgoals in learning. *Computing Education: A Research Blog about Computer Science Education.* http://michigancomputes.wordpress.com/2012/10/23/subgoals-in-learning/
P1	Guzdial, M. (2012, June). Instructional design principles improve learning about computing: Making measurable progress. *Computing Education Blog.* http://computinged.wordpress.com/ 2012/06/05/instructional-design-principles-improve-learning-about-computing-making-measurable-progress/