

Avery Harrison

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EDUCATION

2019-Present **Ph.D. in Learning Sciences & Technologies**

Worcester Polytechnic Institute

Advisors: Erin Ottmar, Ph.D., Ivon Arroyo Ed.D.

Research focus: embodied cognition, mathematics education, measurement, gesture, learning technologies, affect and learning

2019 **M.S. in Learning Sciences & Technologies**

Worcester Polytechnic Institute

Advisors: Erin Ottmar, Ph.D., Ivon Arroyo Ed.D.

Master's Thesis: *Exploring Measurement Estimation Through Learners' Actions, Language, and Gestures*

2015 **B.A. Psychology**

University of Richmond

Advisor: L. Elizabeth Crawford, Ph.D.

Department Honors: Psychology

Institution Honors: *cum laude*

Honors Thesis: *Shifting Perceptions: Exploring with the Rubber Hand Illusion*

FELLOWSHIPS, HONORS, & AWARDS

- 2019 Member of the WPI Graduate Student Council of Arts & Sciences, Graduate representative for the Learning Sciences and Technologies program
- 2019 National Science Foundation Graduate Research Fellowship (national; \$102,000)
- 2019 PME-NA Student Registration Scholarship (conference; \$380)
- 2018 WPI Graduate Student Travel Fund (university; \$500)
- 2018 PME-NA Student Registration Scholarship (conference; \$485)
- 2018 Artificial Intelligence in Education Graduate Student Funding (conference; \$1,500)
- 2018 WPI Graduate Student Travel Fund (university; \$1,000)
- 2018 Women's Research and Mentoring Program Fellowship (university; \$1,000)
- 2017-2018 Marietta Anderson Fellowship (university; \$31,200)
- 2014-2015 Senior Honors Program (departmental)
- 2015 Outstanding Research by an Undergraduate Award (departmental)
- 2014 John Neasmith Dickinson Memorial Research Award (departmental; \$1,000)
- 2014 Inducted into Psi Chi International Honor Society in Psychology
- 2014 Spider Research Fellowship (university; \$4,000)
- 2014 University of Richmond School of Arts & Sciences Travel Grant (\$750)
- 2014 University of Richmond School of Arts & Sciences Travel Grant (\$250)
- 2013 University of Richmond School of Arts & Sciences Summer Research Fellowship (\$4,000)
- 2013 University of Richmond School of Arts & Sciences Research Grant (\$500)
- 2013 University of Richmond School of Arts & Sciences Travel Grant (\$500)

2013-2014 Dean's List (Spring 2013, Fall 2013, Spring 2014, Fall 2014)

GRANTS

2019 Internal grant support from the Women's Impact Network at WPI (university; \$23,000)
2018 Internal grant support from the Women's Impact Network at WPI (university; \$28,000)

PUBLICATIONS

Harrison, A., Smith, H., Hulse, T., & Ottmar, E. (In revision). Spacing out!: Manipulating spatial features in mathematical expressions affects performance. Manuscript submitted for review.

Harrison, A., Ottmar, E., & Arroyo, I. (under review). The roles and study of gesture in mathematics learning. Manuscript submitted for review.

Hulse, T., Daigle, M., Manzo, D., Braith, L., **Harrison, A.,** & Ottmar, E. (2019). *From Here to There! Elementary: A game-based approach to developing number sense and early algebraic understanding. Educational Technology Research and Development, 67*(2), 423-441.

McCarthy, V., **Harrison, A.,** & McCarthy, F. (2014). Sustainable organizations and leadership development: Developing self-efficacy and a growth mind set in employees. *Journal of Academy for Advancement of Business Research, 3*, 55-59.

CONFERENCE PROCEEDINGS

Smith, H., **Harrison, A.,** Ottmar, E., & Arroyo, I. (2019). *Supporting technology-augmented game creation and play through a teacher professional development program.* Paper presented at the 2019 annual meeting of the Northeastern Educational Research Association. Trumbull, Connecticut.

Ottmar, E., **Harrison, A.,** Walkington, C., Abrahamson, D., Nathan, M. J., & Smith, C. (2019). *Embodied Mathematical Imagination and Cognition (EMIC) Working Group.* Working group conducted at the 2019 conference of the North American Chapter of the Psychology of Mathematics Education. St. Louis, Missouri.

Harrison, A., Wixon, N., Botelho, A., & Arroyo, I. (July, 2018). *Sensor-free predictive models of affect in an online learning environment.* Proceedings of the 11th International Conference on Educational Data Mining. Buffalo, New York. pp. 634-637. (Poster)

Hulse, T., **Harrison, A.,** Ostrow, K., Botelho, A., & Heffernan, N. (July, 2018). *Starters and finishers: Predicting next assignment completion from student behavior during math problem solving.* Proceedings of the 11th International Conference on Educational Data Mining. Buffalo, New York. pp. 525-528. (Poster)

Harrison, A., Hulse, T., Manzo, D., Micciolo, M., Ottmar, E., & Arroyo, I. (June, 2018). *Computational thinking through game creation in STEM classrooms.* Proceedings (Part II) of the 19th International Conference on Artificial Intelligence in Education. London, U.K. pp. 134-138. (Poster)

Micciolo, M., Arroyo, I., **Harrison, A.**, & Hulse, T. (June, 2018). *The wearable learning cloud platform for the creation of embodied multiplayer math games*. Proceedings (Part II) of the 19th International Conference on Artificial Intelligence in Education. London, U.K. pp. 220-224. (Poster)

CONFERENCE SYMPOSIA

Harrison, A. (Chair), Ottmar, E., Arroyo, I., Rosenbaum, R., Bakker, A., Abrahamson, D., Hulse, T., Manzo, D., & Landy, D. (April, 2018). *Embodiment and Action in Mathematics Games*. Symposium presented at the American Psychological Association's conference on Technology, Mind and Society in Washington, D.C.

CONFERENCE PRESENTATIONS

*Denotes undergraduate or high school collaborator.

Harrison, A., Smith, H., Hulse, T., & Ottmar, E. (2020). *Spacing out: Manipulating spatial features in math expressions affects performance*. Paper to be presented in a roundtable session on "Design Considerations in Mathematics Learning" at the 2020 American Educational Research Association Annual Meeting in San Francisco, California.

Valente, R.*, **Harrison, A.**, Ottmar, E., & Arroyo, I. (2019). *Using action and movement to develop students' understanding of measurement in a technology-augmented game*. Poster presented at the 2019 annual meeting of the Northeastern Educational Research Association. Trumbull, Connecticut.

Hulse, T., **Harrison, A.**, Manzo, D., & Ottmar, E. (2019). *Developing measures of mathematical proficiency in a learning technology*. Research report presented at the Annual Research Meeting of the National Council of Teachers of Mathematics (NCTM).

Smith, H., **Harrison, A.**, Ottmar, E., & Arroyo, I. (June, 2019). *Quantity and quality of gestures are related to performance on an embodied geometric estimation task*. Poster presented at the 2019 meeting of the Mathematical Cognition and Learning Society in Ottawa, Canada.

Hulse, T., **Harrison, A.**, Arroyo, I., & Ottmar, E. (November, 2018). *Developing methods to implement embodied game design for mobile learning technologies in STEM classrooms*. Poster presented at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education. Greenville, South Carolina.

Djotas, A.*, **Harrison, A.**, & Hulse, T. (November, 2018). *Implicit biases: Who associates men with science?* Poster presented at the 58th Annual Meeting of the New England Psychological Association. Worcester, Massachusetts.

Harrison, A. (July, 2018). *Utilizing movement and action for mathematics learning in an online algebra game*. Doctoral Consortium presented at the 11th International Conference on Educational Data Mining. Buffalo, New York.

Harrison, A., Hulse, T., Manzo, D., Micciolo, M., Ottmar, E., & Arroyo, I. (June, 2018). *Computational thinking via game design*. Presented at the "Gamification of Intelligent Educational Systems" workshop at the 19th International Conference on Artificial Intelligence in Education. London, U.K.

McCarthy, V., **Harrison, A.**, & McCarthy, F. (April, 2014). Sustainable organizations and leadership development: Developing self-efficacy and a growth mind set in employees. *Journal of Academy*

for Advancement of Business Research, 3, 55-59. Paper presented at the 2014 Institute of Strategic and International Studies conference in Paris, France.

Harrison, A., Matta, K., Canning, L., Crawford, B., & Landy, D. (January, 2014). *Adaptation to technologically altered auditory input*. Poster presented at the 26th annual Association for Psychological Science conference in San Francisco, California.

Hempfling, J., **Harrison, A.**, & Knouse, L. (January, 2013). *Can deficits in executive functioning predict risky drinking behavior in undergraduate students?* Poster presented at the 25th annual Association for Psychological Science conference in Washington, D.C.

OTHER PRESENTATIONS

Ottmar, E., Douglas, E., **Harrison, A.**, Hulse, T., & Daigle, M. (April, 2019). *WIN Women's Young Investigator Fellowship: Providing WPI students and faculty with mentorship and research conference opportunities*. Poster presented at the annual "Elevating Women in STEM" event by the Women's Impact Network at Worcester Polytechnic Institute.

Harrison, A. (February, 2019). *The language of gestures: Developing a novel coding guide*. Poster presented at the annual Graduate Research Innovation Exchange (GRIE) competition at Worcester Polytechnic Institute.

Ottmar, E., Douglas, E., **Harrison, A.**, Hulse, T., & Daigle, M. (April, 2018). *WIN Women's Young Investigator Fellowship: Providing WPI students and faculty with mentorship and research conference opportunities*. Poster presented at the annual "Elevating Women in STEM" event by the Women's Impact Network at Worcester Polytechnic Institute.

Harrison, A. (April, 2018). *Hands-on geometry: Exploring fine motor actions during problem solving*. Poster presented at the annual Graduate Research Innovation Exchange (GRIE) competition at Worcester Polytechnic Institute.

Harrison, A. (April, 2015). *Shifting perceptions: Exploring with the rubber hand illusion*. PowerPoint presentation given at annual Senior Honors Presentations in the Department of Psychology at the University of Richmond.

Harrison, A., Aizpuru, M., Twedt, E., & Crawford, L. (April, 2015). *Shifting perceptions: Exploring with the rubber hand illusion*. Poster presented at the 2015 Arts & Sciences Student Symposium in Richmond, Virginia.

Harrison, A., Soos, A., Twedt, E., & Crawford, L. (April, 2015). *Memory for hand placement using an Xbox Kinect*. Poster presented at the 2015 Arts & Sciences Student Symposium in Richmond, Virginia.

Harrison, A., Crawford, B., & Blair, J. (April, 2013). *Handy hearing: Exploring the use of moveable ears*. Poster presented at the 2013 Arts & Sciences Student Symposium in Richmond, Virginia.

INVITED TALKS

2019 Lightning Talk: "*Watch, Do, Learn*" presented for undergraduates, graduates, and faculty at the Worcester Polytechnic Institute Arts & Sciences Week

2019	Panel speaker: “ <i>NSF GRFP Boot Camp – Overview and Panel Session</i> ” for undergraduate and graduate students at Worcester Polytechnic Institute
	Guest lecturer: “ <i>How People Learn</i> ” for Fundamentals of Teaching and Pedagogy course for graduate students and postdocs at Worcester Polytechnic Institute
2018	Panel speaker: “ <i>Interested in Grad School? Panel Discussion with Grad Students</i> ” session at the 58 th Annual Meeting for the New England Psychological Association
2015	Panel speaker: “ <i>Making the Most of the Psychology Major</i> ” workshop at the University of Richmond

RESEARCH EXPERIENCE

2017-Present	Graduate Research Assistant, <i>Learning Sciences & Technologies</i> Worcester Polytechnic Institute <ul style="list-style-type: none"> • Educational Psychology and Mathematics Learning Lab • Advanced Learning Technologies Lab
2013-2015	Honors and Independent Research, <i>Department of Psychology</i> University of Richmond, Virginia <ul style="list-style-type: none"> • Cognitive Psychology Lab
2012-2013	Undergraduate Research Assistant, <i>Department of Psychology</i> University of Richmond, Virginia <ul style="list-style-type: none"> • Clinical Psychology Lab

SERVICE TO WPI AND THE COMMUNITY

2019	Volunteer at the National Council of Teachers of Mathematics (NCTM) regional conference in Boston, MA Lead on the WIN-sponsored “Women’s Young Investigator Fellowship” program Volunteer at Touch Tomorrow Science Festival WPI Teacher and Games Project: 14-week professional development for local teachers Reviewed submissions to the following conferences: <i>PME-NA</i> , 2019 <i>Northeastern Educational Research Association</i> , 2019 Sub-reviewer for submissions submitted to the following conferences: <i>Cognitive Science Society</i> , 2019 <i>Artificial Intelligence in Education</i> , 2019
2018	Lead on the WIN-sponsored “Women’s Young Investigator Fellowship” program Working with students at the Central Community Branch YMCA Volunteer at Touch Tomorrow Science Festival Sub-reviewer for papers and posters submitted to the following conferences: <i>International Conference on Learning Sciences</i> , 2018 <i>Intelligent Tutoring Systems</i> , 2018 <i>Artificial Intelligence in Education</i> , 2018
2018	Volunteer judge at the annual Mass Academy STEM Fair for high school students
2015	Volunteer at Arts & Sciences Student Symposium
2015	Lobbied with National Alliance for Mental Illness (NAMI) for Mental Health Advocacy Day at the Virginia General Assembly Building

PROFESSIONAL DEVELOPMENT

2019-Present	Develop and lead a program-wide discussion series on topics in the learning sciences
2019	Attended the following workshops at the 2019 Northeastern Educational Research Association (NERA) annual meeting: <i>Supporting Social Justice in STEM for Culturally-Diverse Learners</i> <i>Using R to Automatically Generate Reports and Presentations with Officer</i>
2019	Participated in 3-minute thesis competition at the 2019 NERA annual meeting
2018	Attended webinar on “Bridging Research and Policy: Insights from AAAS Congressional Fellows” <i>Participated in the following program at Worcester Polytechnic Institute:</i> NSF GRFP Boot Camp Series
2017	<i>Participated in the following programs at Worcester Polytechnic Institute:</i> Graduate Fellowship Workshop Data Management 101 Workshop Introduction to LaTeX Workshop Individual Development Plan Series Research Communication Series Student Training and Readiness Series: Pitch Workshop Student Training and Readiness Series: Cultivating Strong Mentoring Relationships Student Training and Readiness Series: Establishing a Good Work-Life Balance
2014	Participated in the “Introduction to R Statistical System” Workshop at the 26 th Association for Psychological Science Annual Convention

TEACHING EXPERIENCE

2016-2017	Language and Cultural Assistant , <i>Bilingual English Development and Assessment</i> Madrid, Spain
2015- 2016	English Teacher , <i>Mediakids Academy</i> Bangkok, Thailand
2013-2015	Teaching Fellow , <i>Department of Psychology</i> University of Richmond, Virginia

REVELANT WORK EXPERIENCE

2019	Graduate Writing Tutor , <i>The Writing Center</i> Worcester Polytechnic Institute, Massachusetts <ul style="list-style-type: none">Support undergraduate and graduate students in scientific and academic writing
2019	Academic Program Curriculum Coordinator , <i>Office of Pre-Collegiate Outreach</i> Worcester Polytechnic Institute, Massachusetts <ul style="list-style-type: none">Designed and coordinated the week-long SPARK: Women in Science Day Camp
2018	Qualitative Researcher , <i>Department of Social Sciences & Policy Studies</i> Worcester Polytechnic Institute, Massachusetts <ul style="list-style-type: none">Qualitatively explored department course syllabi to question source and authorship diversity in course materials

2016 **Lead Camp Counselor, *Boar's Head***
Charlottesville, Virginia

- Coordinated day camp activities; oversaw counselors and campers

2014 **Statistics Note Taker**, *Department of Psychology*
University of Richmond, Virginia

- Selected to provide a student with physical assistance notetaking in a psychology methods course based on prior performance in the course

INTERNSHIPS

2014-2015 **Counseling and Psychological Services Outreach, *Department of Psychology***
University of Richmond, Virginia

PROFESSIONAL AFFILIATIONS

2019-Present	Student member of the American Educational Research Association
2019-Present	Student member of the Northeastern Educational Research Association
2018-2019	Student member of the International Artificial Intelligence in Education Society
2018-2019	Student member of the Educational Data Mining Society
2018-2019	Student member of the New England Psychological Association
2013-2019	Student member of the Association for Psychological Science

CERTIFICATIONS

2015	120-hour Internationally Accredited TESOL certification
2015	PADI Open-water diver certification