Curriculum Vitae

AMANDA ALZENA SULLIVAN, Ph.D.

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EDUCATION

2016 Ph.D., Tufts University
Department: Child Study & Human Development
Dissertation: *Breaking the STEM Stereotype: Investigating the Use of Robotics to Change Young Children's Gender Stereotypes About Technology & Engineering*

2012 M.A., Tufts University
Department: Child Study & Human Development

2009 B.A., Bennington College
Major: Psychology & Drama

ACADEMIC HONORS AND AWARDS

2018 **Tufts Teaching with Technology Award: Finalist & Honorable Mention**
Awarded by Tufts Technology Services Educational Technology Services Group

2017 **Postdoctoral Research Poster Competition- 1st Prize**
Awarded by Tufts University

2015 **Housing Families Certificate of Appreciation for Volunteer Service**
Awarded by Housing Families, Inc.

2015 **Outstanding Contribution to Undergraduate Studies 2015**
Awarded by Tufts University's Graduate Student Council

2014 **Graduate Student Research Competition Award Winner**
Awarded by Tufts University

2012 **Outstanding Contribution to Undergraduate Studies 2012**
Awarded by Tufts University's Graduate Student Council

2012 **Eliot-Pearson Research-Practice Integration Award**
Awarded by Tufts University's Eliot-Pearson Department of Child Development

2010 **Segel Education Award for service in the AmeriCorps New Hampshire Based Residential Summer and School Program**
Awarded by Americorps

RESEARCH

2010-Present **The DevTech Research Group at Tufts University**
Postdoctoral Researcher (2016-Present), *Graduate Research Assistant* (2010-2016)
Provide general research, data collection, and analysis support across a range of research projects. Assist in the hiring, supervision, and mentorship of undergraduate and graduate research assistants.

2018-Present **VEX Robotics Program: Gender Differences in Attitudes, Engagement and Performance**
Postdoctoral Researcher and Project Coordinator
P.I. Prof. Marina Umaschi Bers, Tufts University, DevTech Research Group
Coordinate a multi-phase research study on gender differences in student and mentor experiences with the VEX robotics program. Tasks include: development of research measures, recruitment, data collection, data analysis, and research publications.

2016-2017 **Making the Invisible Tangible**
Postdoctoral Researcher
P.I. Prof. Orit Shaer, Wellesley College, Wellesley HCI Lab
Co P.I. Prof. Marina Umaschi Bers, Tufts University, DevTech Research Group
Worked with a team of researchers and designers on creating reality based interfaces, tangible technologies, and educational videos which enhance children's understanding of abstract concepts in the field of bioengineering.

2015-2016 **Billund Builds Music**
Research Team Member
P.I. Dr. Merredith Portsmore, Tufts University, Center for Engineering Education Outreach
Visited Denmark to collect qualitative data on children's play and learning as part of a city-wide unit on designing and building musical instruments. Contributed to planning, data collection, analysis, and publication.

2012-2016 **Ready for Robotics Project**
Project Coordinator/ Graduate Research Assistant
P.I. Prof. Marina Umaschi Bers, Tufts University, DevTech Research Group
Worked with design team, teachers, and researchers on creating a developmentally appropriate robotics kit (called KIBO) for young children (ages 4-7) as part of this National Science Foundation funded project (NSF Grant No. DRL-1118897). Participated in all aspects of research, analysis, and data collection across the United States and in Singapore.

2010-2012 **TangibleK Project**
Graduate Research Assistant
P.I.s Prof. Marina Umaschi Bers and Prof. Robert Jacobs, Tufts University
Assisted with data collection from teachers and children, data entry, and data analysis as part of this National Science Foundation funded project on robotics education in early childhood (NSF DRL-0735657).

TEACHING EXPERIENCE

University Level

2016-Present **Tufts Early Childhood Technology Graduate Certificate Program**
Associate Director and Faculty Member

- Technological Tools for Playful Learning (online)
- Designing Educational and Technological Environments for Children (online)
- Directed Research/Independent Study (online/ in-person)
- Early Childhood Technology Residency (in-person)

2016 **Tufts Department of Child Study & Human Development**
Instructor

- Technology & Engineering Module, as part of the Advanced Curriculum II course (required for second year MAT students)

2014-2015 **Tufts Experimental College**
Part-Time Faculty

- Human Development in the Digital Age
- Kids and Computers: Exploring Educational Technology, Apps, and Games

K-12 Teaching

2015-2017 **Center for Engineering Education Outreach**
Early Childhood Workshops Instructor (grades K-2)

2015-2017 **Lexington Community Education**
Saturday STEM Series Teacher (grades K-2)

Spring 2016 **Brooks Elementary School**
Fun with Engineering and Robots Afterschool Teacher (K-3)

2010-2016 **Robotics Teacher, various schools**
Grades PK-2nd Robotics Instructor at various public and private schools in the greater Boston area

2010-2016 **DevTech Summer Programs**
Summer Programs Teacher for a variety of technology classes including robotics, programming, and film making for grades ranging PK-3rd grade

2009-2010 **Ezra Academy**
Elementary School Drama Teacher

2008-2009 **Bennington College Early Childhood Center**
Preschool Classroom Aide

2008 **Dallas Children's Theater**
Education & Production Winter Intern

PROFESSIONAL EXPERIENCE

2011-Present **Educational Technology Consultant**
Independent Consultant.
Independent consultant with a variety of schools and business including: Joulez, Inc, WGBH, Kreativa Technologies, Bishop Elementary School, Arlington, MA; the Rashi School, Dedham, MA; and Belmont Day School, Belmont, MA.

2015-2018 **KinderLab Robotics**
Curriculum Consultant & Trainings Team Member
Develop and provide professional development training sessions for customers. Coordinate with international and local attendees from education, industry, and creative fields. Assist in the development of curriculum and other educational teaching materials for children.

2014-2018 **The Amandas Consulting, LLC**
Co-Founder/ Consultant
Co-founded a consulting partnership that offers a range of educational technology services for parents, teachers, and researchers.

VOLUNTEER AND PROFESSIONAL SERVICE

2017 **International Conference on Computational Thinking Education**
International Program Committee Member
Served as an invited committee member and reviewer of papers submitted for this conference.

2014-2017 **Housing Families Inc.**
Childcare Volunteer
Provided childcare and enrichment activities to children impacted by homelessness as needed to mixed ages ranging from infants through adolescents. Provided free robotics and technology summer camp sessions.

2013-2015 **Eliot-Pearson Mentorship Program**
Planning Committee Member (2013-2014), Mentor (2014-2015)
Provided mentorship to students considering child development careers.

2012 **Robotics Service-Learning Trip**
Coordinator and Supervisor
Worked with a professor to organize, recruit, train, and lead a STEM education service-learning trip for 30 undergraduate and graduate students from Tufts to teach robotics at PS-185 (now the Discovery & Design Magnet School) in Harlem, NYC.

2010 **Wediko Children's Services**
Americorps Summer Service Member
Served as a counselor in a short-term residential treatment setting for children ages 9-19 with social, emotional, and/or behavioral challenges. Assisted with group therapy sessions, administering behavioral checklists, and daily routines. Also served as the Drama activity instructor.

PUBLICATIONS

Books:

Bers, M.U. & **Sullivan, A.** (2018). *ScratchJr Coding Cards*. No Starch Press.

Sullivan, A. (manuscript in production). *Breaking the STEM Stereotype: Reaching Girls in Early Childhood*. Rowman & Littlefield.

Peer-Reviewed Journal Articles:

Sullivan, A. & Bers, M.U. (2019). VEX Robotics Competitions: Gender differences in student attitudes and experiences. *Journal of Information Technology Education: Research, 18*, 97-112.

Sullivan, A. & Bers, M.U. (2018). Investigating the use of robotics to increase girls' interest in engineering during early elementary school. *International Journal of Technology and Design Education.* Online First.

Sullivan, A & Bers, M.U. (2018). The impact of teacher gender on girls' performance on programming tasks in early elementary school. *Journal of Information Technology Education: Innovations in Practice, 17*, 153-162.

Bers, M. U., Verish, C., **Sullivan, A.,** & Shaer, O. (2018). Enhancing Children's Interest and Knowledge in Bioengineering through an Interactive Videogame. *Journal of Information Technology Education: Innovations in Practice, 17*, 055-081.

Sullivan, A., & Bers, M.U. (2017). Dancing robots: Integrating art, music, and robotics in Singapore's early childhood centers. *International Journal of Technology and Design Education.* Online First.

Pugnali, A., **Sullivan, A**., & Bers, M.U. (2017) The Impact of User Interface on Young Children's Computational Thinking. *Journal of Information Technology Education: Innovations in Practice, 16*, 172-193.

Sullivan, A. & Bers, M.U. (2016). Girls, Boys, and Bots: Gender Differences in Young Children's Performance on Robotics and Programming Tasks. *Journal of Information Technology Education: Innovations in Practice, 15*, 145-165.

Elkin, M., **Sullivan, A.**, & Bers, M.U. (2016). Programming with the KIBO Robotics Kit in Preschool Classrooms. *Computers in the Schools, 33*(3), 169-186.

Sullivan, A., & Bers, M.U. (2015). Robotics in the early childhood classroom: Learning outcomes from an eight-week robotics curriculum in pre-kindergarten through second grade. *International Journal of Technology and Design Education.* Online First.

Elkin, M., **Sullivan, A.,** & Bers, M. U. (2014). Implementing a robotics curriculum in an early childhood Montessori classroom. *Journal of Information Technology Education: Innovations in Practice, 13*, 153-169.

Kazakoff, E., **Sullivan, A.**, & Bers, M.U. (2013). The effect of a classroom-based intensive robotics and programming workshop on sequencing ability in early childhood. *Early Childhood Education Journal*, *41*(4), 245-255.

Bers, M.U., Seddighin, S., & **Sullivan, A.** (2013). Ready for robotics: Bringing together the T and E of STEM in early childhood teacher education. *Journal of Technology and Teacher Education*, *21*(3), 355-377.

Sullivan, A., & Bers, M. U. (2013). Gender differences in kindergarteners' robotics and programming achievement. *International Journal of Technology and Design Education*, *23*(3), 691-702.

Sullivan, A., Kazakoff, E.R., & Bers, M.U. (2013). The wheels on the bot go round and round: Robotics curriculum in pre-kindergarten. *Journal of Information Technology Education: Innovations in Practice,* 12, 203-219.

Invited Book Chapters:

Elkin, M., **Sullivan, A**., & Bers, M. U. (2018). Books, Butterflies, and 'Bots: Integrating Engineering and Robotics into Early Childhood Curricula. *Early Engineering Learning* (pp. 225-248). Springer, Singapore.

Sullivan, A., Strawhacker, A., & Bers, M.U. (2017). Dancing, drawing, and dramatic robots: Integrating robotics and the arts to teach foundational STEAM concepts to young children. In Khine, M.S. (Eds.) *Robotics in STEM Education: Redesigning the Learning Experience. Springer Publishing*.

Sullivan, A. & Bers, M.U. (2017). Computational Thinking and Young Children: Understanding the Potential of Tangible and Graphical Interfaces. In Ozcinar, H., Wong, G., & Ozturk, T. (Eds.) *Teaching Computational Thinking in Primary Education*. IGI Global.

Publications in Conference Proceedings:

Loparev, A., **Sullivan, A**., Verish, C., Westendorf, L., Davis, J., Flemings, M., Bers, M.U., & Shaer, O. (2017). BacToMars: A Collaborative Educational Video Game for Teaching Biological Engineering. *In Proceedings of Foundations of Digital Interactive Games (FDG) 2017*. Extended abstract, poster.

Sullivan, A., Bers, M.U., Mihm, C. (2017). Imagining, Playing, & Coding with KIBO: Using KIBO Robotics to Foster Computational Thinking in Young Children. *In the proceedings of the International Conference on Computational Thinking Education, 2017.* Wanchai, Hong Kong.

Loparev, A., **Sullivan, A.,** Verish, C., Westendorf, L., Davis, J., Flemings, M., Bers, M.U., & Shaer, O. (2017). BacToMars: Creative Engagement with Bio-Design for Children. *In the proceedings of the ACM Conference on Interaction Design and Children (IDC) 2017*. Stanford, CA, USA

Strawhacker, A., **Sullivan, A.,** & Portsmore, M. (2016). Billund builds music: An engineering education initiative in danish kindergartens. *Published in the Proceedings of the Integrated STEM Education Conference*. Princeton, NJ, USA.

Sullivan, A., Elkin, M., & Bers, M. U. (2015). KIBO Robot Demo: Engaging young children in programming and engineering. *Published in Proceedings of the 14th International Conference on Interaction Design and Children (IDC '15).* ACM, Boston, MA, USA.

Strawhacker, A., **Sullivan, A.,** & Bers, M.U. (2013). TUI, GUI, HUI: Is a bimodal interface truly worth the sum of its parts? *Published in the Proceedings of the 12th International Conference on Interaction Design and Children*. June 24-27, 2013. New York, NY, USA.

PRESENTATIONS

Sullivan, A. (2017). Dancing robots: Using the KIBO robot to teach foundational engineering and programming content. Early Childhood STEM Conference. Pasadena, CA.

Sullivan, A., Elkin, M., & Bers, M. U. (2015). KIBO Robot Demo: Engaging young children in programming and engineering. Poster presented at the 14th International Conference on Interaction Design and Children (IDC '15). ACM, Boston, MA, USA.

Sullivan, A. (2015). Integrating robotics into early childhood education. Opening session speaker at the Mississippi Head Start Association Conference, Jackson, MS.

Sullivan, A. & Stacey, D. (2014). Social media boot camp for parents. Workshop presented at the Boston International Kids Film Festival, Somerville, MA.

Sullivan, A. & Strawhacker A. (2014). Young children as programmers and engineers: A hands- on approach. Workshop presented at Department of Early Education and Care Spring STEM Conference for Early Educators, Sturbridge, MA.

Sullivan, A. & Strawhacker, A. (2014). STEM in early childhood: An interactive workshop. Workshop presented at the Early Childhood Investigations Conference, Eastern Connecticut State University, CT.

Bers, M.U., Strawhacker, A., & **Sullivan, A.** (2013). The missing T & E in early childhood STEM: Young children as programmers and engineers. Talk presented at the NSF-Smithsonian STEM Smart Conference, Washington, DC.

Strawhacker, A., **Sullivan, A.,** & Bers, M.U. (2013). TUI, GUI, HUI: Is a bimodal interface truly worth the sum of its parts? Poster presented at the 12th International Conference on Interaction Design and Children. June 24-27, 2013. New York, NY, USA.

Sullivan, A. (2012). Robotics in early childhood education. Presentation at the Tufts Educational Daycare Center, Medford, MA.

SKILLS AND CERTIFICATIONS

Certifications

• American Red Cross Adult/Child/Infant CPR/First Aid/AED Certification

• 20 Hours Certification in BRIDGES Mediation Program

Technical Skills

• Computer skills: MS Office Suite, Windows and Mac OS, Google Docs, Social Media, Windows Live Movie Maker, iMovie, SPSS Statistics.

• Children's programming languages and robotics

kits including: LEGO® WeDo, CHERP, Scratch, ScratchJr, PBS Kids ScratchJr, KIBO Robotics, Beebot.