

Gary Garber
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EDUCATION

Tufts University Sabbatical Year at the Center for Engineering Education and Outreach
Boston University Master of Arts in Physics
Haverford College Bachelor of Science in Physics and Astronomy

EDUCATIONAL WORK EXPERIENCE

Boston University Academy, Instructor and Robotics Coach **1999-2018**

Taught Physics, Engineering, Technology, and Math. Developed research opportunities for students in laboratories and industry. University Liaison between the Academy and the University. Robotics experience in managing a team of 40+ students and 15+ adults, fundraised (\$40-60K/year), procurement, marketing, annual review production, video production, recruiting volunteers and staff, training team members, hosting camps and hosting regional tournaments

Educational Consultant

Curriculum development, teacher training, product testing, webinars, directing camps. Clients include

- **Discovery Education**-Facilitated PD & Coached teachers in Math, Science, STEM and Social Studies
- **Eduscape**-Facilitated PD in Google Classrooms, G-Suite for Education, and Digital Citizenship
- **Code Monkey**-Designed Computer Science PD Workshops
- **Harvard University** College of Engineering –Product and curriculum development for robotics
- **Latino STEM Alliance**-Design LEGO based robotics and coding curriculum
- **STEM FUSE**-Designed MeeperBOT based electronics and coding curriculum
- **Intelitek**-Developing robotics coding curriculum, teacher training, PD, and webinars using CoderZ
- **DEILAB-Design Engineering Innovation Laboratory** – providing robotics PD, directing LEGO robotics Engineering Camps, developing LEGO robotics curriculum
- **Mathworks**-Developing robotics and coding curriculum using Simulink and MATLAB
- **Tufts University Center for Engineering Education Outreach**-Design Team Lead for InterLACE Project, curriculum developer, software developer, educational research, LEGO workshop presenter and outreach, facilitating design team & professional development workshops in 21st century skills such as collaboration and documentation, coaching teachers in collaboration and documentation
- **Americorp VISTA Program**: Supervised Americorp members who mentor local F.I.R.S.T. robotics teams. Includes staff training, assigning tasks, managing time.

Informal Education

Taught in a variety of camp and museum settings such as:

- **DEILAB, Director** -Director of LEGO and VEX robot and coding summer camps
- **B.U. College of Engineering U-Design Summer Camp**, Instructor – taught aviation and rocketry
- **Melrose Math Circle** Facilitated a Math Circle discussion for elementary school students.
- **Academy of Natural Sciences of Philadelphia**, Staff Astronomer and Teacher
- **Astronomy To Go, Instructor**- Traveled to schools and camps presenting planetarium shows

Awards

NSTA Wendell G. Mohling Outstanding Aerospace Award	2017
Massachusetts STEM Teacher of the Year Finalist	2015
American Institute of Aeronautics and Astronautics Foundation Educator Achievement Award	2015
Winner Vernier Engineering Contest	2014
NSTA/Vernier Technology Award	2014
Exemplary nominee for ASCD Outstanding Young Educator Award	2012
Suffolk Country Science Teacher of the Year Award, Mass Science Teachers Association	2011
NASA Reduced Gravity Education Flight Teaching From Space Grant	2011
Massachusetts Institute of Technology Inspirational Teacher Award	2011
Above and Beyond Best Teacher Award –Mass Technology Leadership Council	2008

PROFESSIONAL AFFILIATIONS

National Science Teachers Association	
Co-chair Physics Day at NSTA Regional Conference in Hartford	2011
American Association of Physics Teachers	
President of New England Section of AAPT	2011 to 2015
Director , New England Physics Olympics	2011-2017
Co-chair of New England Section AAPT Meeting at Thayer Academy	2012
Co-chair of New England Section AAPT Meeting at Milton Academy	2013
Co-chair of New England Section AAPT Meeting at Salem State Univ	2014
Co-chair of New England Section AAPT Meeting at Salem State Univ	2015
Co-chair of New England Section AAPT Meeting at Thayer Academy	2016
American Astronomical Society Teacher Resource Agent	
American Institute of Aeronautics and Astronautics	
American Society for Engineering Education	

WORKSHOP PRESENTATIONS

Encouraging Authentic Collaboration through Student Documentation, LEGO Education Symposium	2018
InterLACE 2.0 Design Team Teacher Retreat, Tufts CEEO	2017
Interactice Learning and Collaboration Environment, LEGO Education Symposium	2016
Coding with CoderZ, Intellitek Headquarters	2016
Introduction to the LEGO EV3 Mindstorms Robotics, Steps for Success	2016
GirlPowered Student Workshop in Robotics and Engineering Leadership, Boston University	2016
Introduction to FIRST LEGO League, Coaches Workshop at Boston University	2016
Introduction to the LEGO EV3 Mindstorms Robotics for Librarians, Boston Public Library	2016
Collaboration in the Classroom: Virtual to Verbal, Mass Science Teachers Meeting	2015
Introduction to the LEGO EV3, Steps for Success	2015
InterLACE: Collaboration in the Classroom National Meeting of National Science Teachers Assoc.	2014
InterLACE 2 Day Professional Development Training, Tufts University	2013
Hands-on Workshop on Collaborative Learning with InterLACE Software, Mass Science Teachers	2012
InterLACE, 1 week long Professional Development Training , Tufts University	2012
Introduction to VEX and LEGO Tetrix Robotics, Mass Science Teachers	2011
Introduction to VEX Robotics, Mass Science Teachers	2010
Introduction to VEX Robotics, Mass Science Teachers	2009
VEX Robotics, Lowell Physics Alliance	2009
Introduction to LEGO Robotics, Mass Science Teachers	2008

PUBLICATIONS

- Garber, Gary, Coding in CoderZ Robotics, Intellitek, 2017
- Garber, Gary, Simulink VEX Robotics Tutorials, Mathworks, 2017
- Garber, Gary. *Learning LEGO Mindstorm EV3*. London: Packt, 2015.
- Garber, Gary. *Instant LEGO Mindstorm EV3*. London: Packt, 2013.
- Hannon, D.; Danahy, E.; Schneider, L.; Coopey, E.; Garber, G.; "Encouraging teachers to adopt inquiry-based learning by engaging in participatory design," *Integrated STEM Education Conference (ISEC), 2012 IEEE 2nd* , vol., no., pp.1-4, 9-9 March 2012
- Garber, G. (2008). I,robot. *IEEE Women In Engineering Magazine*, 1(1), 35-37.
- Chapter 18 to 21 of textbook Integrated Physics and Chemistry, Cambridge Physics Outlet 2003

WEBINARS AND VIDEOS

How can we enable more children to experience learning with robots? - Intelitek webinar	2017
Using robotics to teach 21 st Century Skills -Intelitek webinar	2017
Robotics coding with Blockly and CoderZ - Intelitek Webinar	2017
Modeling VEX Robots using Simulink - Mathworks video tutorials	2016
LEGO EV3 vs. VEX IQ Robotics, a Comparison in Sensor Control Systems - O'Reilly Webcasts	2014
Mysteries of Magnetism -MIT BLOSSOMS Science Video Lessons for High School Classes	2015

ORAL AND POSTER PRESENTATIONS

GirlPowered Robotics and STEM Education, New England Meeting of AAPT	2018
Educational Robotics Competitions: VEXIQ and LEGO EV3, Massachusetts STEM Summit	2016
Hands on inquiry based teaching of the Physics of Aerospace, NE Regional Meeting of AAPT	2016
Physics Olympics, New England Meeting of AAPT	2016
Robots and Learning: Today and Tomorrow: Invited Panel Discussion <i>Assembled: Education Boston</i> "Are You Ready for the Future?" Sponsored by General Assembly, Learn Launch, and Pearson	2014
Rocket Launch Analysis, New England Meeting of AAPT	2014
Research-Based STEM Resources:Closing the Gap between Researchers and Practitioners, Massachusetts STEM Summit, Invited Panel Discussion	2013
InterLACE: Interactive Learning and Collaboration Environment, NE Regional Meeting of AAPT,	2013
Visualizing Student Ideas to Drive Conversations Around Inquiry, Christa McAuliffe Tech Conference	2012
Reduced Gravity Pendulum, New England Meeting of AAPT	2012
Zero Gravity Pendulum on a NASA Reduced Gravity Flight, Invited Speaker, Lowell Physics Alliance	2012
Zero Gravity Pendulum on a NASA Reduced Gravity Flight, New England Meeting of AAPT	2011
STEM Opportunities for students and teachers, Melrose Education Coalition, Invited Panel Speaker	2011
Robobooks, an Interactive Digital Textbook, Regional NSTA, Hartford	2011
Zero Gravity Pendulum on a NASA Reduced Gravity Flight, Regional NSTA, Hartford	2011
Stop Action Animation used in the Classroom, Regional NSTA, Hartford	2011
High School Research Seminar, New England Meeting of AAPT	2010
Using Galileo's Owns Words in the Physics Classroom, New England Meeting of AAPT	2009
Optical Integrating Sphere and measuring the intensity of light bulbs,New England Meeting of AAPT	2009
Teaching with Robots, Invited Panel Discussion, Lowell Physics Alliance	2009
VEX Robotics, New England Meeting of AAPT	2008
FIRST Robotics, National Meeting of NSTA	2008
Integrating High School Students into University Research, National Meeting of NSTA	2008
Podcasting in the Classroom, New England Section Meeting of AAPT	2007
Outreach to Rookie Robotics Teams, National F.I.R.S.T. Robotics Conference	2007
Integrating High School Students into University Research, National AAPT meeting	2006
Forming a F.I.R.S.T. Robotics Team, New England Section Meeting of AAPT	2006
Integrating High School Students into University Research, New England Section Meeting of AAPT	2005