

ARACELI MARTINEZ ORTIZ

TEXAS STATE VITA

Research Associate Professor
Texas State University
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I. ACADEMIC/PROFESSIONAL BACKGROUND

A. Name: Araceli Martinez Ortiz **Title:** *Research Associate Professor and Executive Director, LBJ Institute for STEM Education & Research*

B. Educational Background

<i>Degree</i>	<i>Year</i>	<i>University</i>	<i>Major</i>	<i>Thesis/Dissertation</i>
Ph.D.	2010	Tufts University, Medford, MA	Engineering Education	<i>Students' Understanding of Ratio and Proportion in an Engineering Robotics Program</i>
M.A.	2003	Michigan State University, Lansing, Michigan	Curriculum & Instruction/Instructional Technology	
M.S.	1992	Kettering University, Flint, Michigan	Manufacturing Engineering Management	
B.S.	1988	The University of Michigan, Ann Arbor, Michigan	Industrial & Operations Engineering	

C. University Experience

<i>Position</i>	<i>University</i>	<i>Dates</i>
Research Associate Professor	Texas State University	Aug. 2017– Present
Research Assistant Professor	Texas State University	Aug. 2015– July 2017
Assistant Professor	Texas State University	Aug. 2012–July 2015

Teaching Assistant	Tufts University	May 2006–July 2006
Adjunct Lecturer	Framingham State University	Nov. 2004–Aug. 2006

D. Other Relevant Professional Experience

<i>Position</i>	<i>Entity</i>	<i>Dates</i>
STEM Education Research Consultant	Sustainable Future Education dba <i>Latinx STEM Ed Consulting</i> , San Marcos, TX	Aug. 2012–Present
Director, Educator Quality/Engineering Special Projects	Texas Higher Education Coordinating Board, Director, Educator Quality/Engineering Special Projects, Austin, TX	Aug. 2008–Aug. 2012
Assistant Principal/ Mathematics Specialist	Austin Independent School District, Austin, TX	Oct. 2006–Aug. 2008
Mathematics Specialist	Littleton Public Schools, Littleton, MA	Aug. 2005–Aug. 2006
Director, Teacher Professional Development	Learning Initiative for Teaching and Technology, Framingham, MA	Nov. 2004–Aug. 2006
Director, Curriculum Development: Engineering is Elementary Program	Museum of Science, Boston, MA	Sept. 2003–Nov. 2004
Associate Director of Marketing/Business Development Manager	Microsoft Corporation, Mexico City, Mexico and Southfield, MI	July 2000–Sept. 2003
Engineering Operations Strategist/New Business Development Manager	Ford Motor Company, Dearborn, MI and Mexico City, Mexico	Jan. 1995–July 2000
Engineering Design Group Leader/Quality Improvement Project Manager	General Motors, Warren, MI	Jan, 1989–Jan. 1995
Staff Quality Engineer	Plastech Inc., St. Clair Shores, MI	Jan. 1988–Jan. 1989

E. Other Professional Credentials (licensure, certification, etc.)

EC-6 Generalist Teacher Certification	State of Texas, 2006
Mathematics 4–8 Teacher Certification	State of Texas, 2006
Administrator Certification K–12	State of Massachusetts, 2005

II. TEACHING**A. Teaching Honors and Awards:**

- *Visiting Professor- Funded by the Women in Engineering Program
University of New South Wales, Sydney, Australia
(Spring 2019)*

B. Courses Taught*Texas State University*

- *Tech 3364: Engineering Quality Assurance
(Fall 2018)*
- *Tech 5390: Research in Technology
(Spring 2019/ Fall 2019)*
- *C&I 5304: Teaching Mathematics and Science in the Elementary Classroom
(Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014)*
- *C&I 5303: Teaching Mathematics in the Integrated Elementary Classroom
(Summer 2013)*
- *US1100: University Seminar—Special Section for Engineering/Engineering
Technology Students (Fall 2015)*

Framingham State University

- *PRDV78914: Developing Instructional Materials for the Classroom (Fall 2005)*
- *PRDV78917: Using Technology in Middle/High School Physical Sciences and
Math Classrooms (Spring 2006)*

C. Graduate Theses/Dissertations or Exit Committees

- *[n/a]*

D. Courses Prepared and Curriculum Development*Texas State University Rising Stars Program*

- Development of *VizStars Program* (Fall 2015/Spring 2016). Led in the team development of a six-week program to develop visual spatial reasoning skills for students pursuing undergraduate degrees in science, mathematics, computer science, engineering, and engineering technology. Delivered a focused talk and coordinated the curriculum and instruction for the rest of the program.

- Development of *US1100 University Seminar, Introduction to Engineering/Engineering Technology* (Fall 2015)

Boston Museum of Science

- *Engineering is Elementary, an integrated Elementary Science and Engineering Program (2003-2005)*. Led creative engineer and curriculum developer of this NGSS-based integrated Elementary Science and Engineering Program. Developed the curriculum concept, framework, and pilot materials for Massachusetts K–5 students that links engineering lessons to the elementary science curriculum by integrating literacy into the program in the form of original informational storybooks and supporting engineering design-based activities. Coordinated an in-classroom proof of concept program. This program received NSF funding and is now used in over 50 states affecting over 32,000 teachers and 2.5 million students.

III. SCHOLARLY/CREATIVE PUBLICATIONS

A. Works in Print (including works accepted, forthcoming, in press)

1. Books (if not refereed, please indicate)

- [n/a]

a. Scholarly Monographs

- [n/a]

b. Textbooks

Cunningham, C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum. Marvelous machines: Making work easier*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum. To get to the other side-Designing bridges*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum. Catching the wind-Designing windmills*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is Elementary Curriculum. Water, water, everywhere: Designing walls*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum. A sticky situation: Designing walls*. Boston, MA: Museum of Science.

c. Edited Books

- [n/a]

d. Chapters in Books

- [n/a]

e. Creative Books

Cunningham C., Lachapelle C., Higgins M., and Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum: Aisha makes work easier*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum: Javier builds a bridge*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum: Leif catches the wind*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum: Saving Salila's turtle*. Boston, MA: Museum of Science.

Cunningham C., Lachapelle C., Higgins M., Lindgren-Streicher A., & **Martinez Ortiz, A.** (Eds.). (2005). *Engineering is elementary curriculum: YiMins's great wall*. Boston, MA: Museum of Science.

2. Articles

a. Refereed Journal Articles

Martinez Ortiz, A., Sriraman, V., and Novoa, C. (2019). Understanding, Networks, and Inclusion in Higher Education- A Collective Impact Model towards Increasing STEM Major Student Retention. *Journal of College Academic Support Programs: Volume 2: Issue 3*.

Martinez Ortiz, A., Rodriguez Amaya, L., Kawaguchi Warshauer, H., Garcia Torres, S., Scanlon, E. and Pruett, M. (2018). They Choose to Attend Academic Summer Camps? A Mixed Methods Study Exploring the Impact of a NASA Academic Summer Pre-

Engineering Camp on Middle School Students in a Latino Community, *Journal of Pre-College Engineering Education Research (J-PEER)*: Vol. 8: Issue 2, Article 3.

- Martinez Ortiz, A., Sriraman, V., and Smith, S. (2018).** Transformative STEM Teacher Education - Supporting Teacher Identity Development through Design and Making, *Journal of the World Federation of Associations of Teacher Education*. Vol. 2: Issue 3a., 69-93.
- Sriraman, V., Torres, A., & **Martinez Ortiz, A. (2017).** Teaching Sustainable Engineering and Industrial Ecology using a Hybrid Problem-Project Based Learning Approach. *Journal of Engineering Technology*, 4(2), 8-15
- Torres, A., Sriraman, V., & **Martinez Ortiz, A. (2017).** Implementing Project Based Learning Pedagogy in Concrete Industry Project Management. *International Journal of Construction Education and Research*
- Talley, K.G. & **Martinez Ortiz, A. (2017).** Women's interest development and motivations to persist as college students in STEM: Views and voices from a Hispanic serving institution. *International Journal of STEM Education*.
- Martinez Ortiz, A. (2015).** Examining students' proportional reasoning strategy levels as evidence of the impact of an integrated LEGO robotics and mathematics learning experience. *Journal of Technology Education*, 26(2), 46–69.
- Martinez Ortiz, A., Smith, S. & Bos, B. (2015).** The power of educational robotics as an integrated STEM learning experience in teacher preparation programs. *Journal of College Science Teaching*, 44(5), 42–47.
- Martinez Ortiz, A. & Sriraman, V. (2015).** Exploring faculty insights into why undergraduate college students leave STEM fields of study: A three-part organizational self-study. *American Journal of Engineering Education*, 6(1), 43–60.
- Song, In-Hyouk, Sriraman, V., & **Martinez Ortiz, A. (2015).** A three-step teaching and learning process in an advanced electronics course for non-electrical engineering technology majoring students. *World Transactions on Engineering and Technology Education*, 13(1), 8–13.

b. Non-refereed Articles

- [n/a]

3. Conference Proceedings

a. Refereed Conference Proceedings

- Martinez Ortiz, A.**, Kawaguchi Warshauer, H., Rodriguez Amaya, L., Garcia Torres, S., (2018). Proceedings from the 2018 American Society of Engineering Education annual meeting: *The Influence of Early STEM Career Exploration as Related to Motivation and Self-determination Theory*. Salt Lake City, UT: American Society of Engineering Education.
- Smith, S.F, Talley, K.G., **Martinez Ortiz, A.**, Sriraman,V., (2018). Proceedings from the 2018 American Society of Engineering Education annual meeting: *Teachers' Engineering Design Self-Efficacy Changes Influenced by Boundary Objects and Cross-Disciplinary Interactions*. Salt Lake City, UT: American Society of Engineering Education.
- Torres, A. , Sriraman,V., **Martinez Ortiz, A.**, (2018). Proceedings from the 2018 American Society of Engineering Education annual meeting: *The Use of Peer Teaching Quality Managers to Improve Student Learning in a Construction Project Management Course*. Salt Lake City, UT: American Society of Engineering Education.
- Martinez Ortiz, A.**, Rodriguez Amaya, L.,Kawaguchi Warshauer, H., Garcia Torres, S., Scanlon, E. & Pruett, M. (2017). Proceedings from the 2017 American Society of Engineering Education annual meeting: *They Choose to Attend Academic Summer Camps? A Mixed Methods Study Exploring Motivation for, and the Impact of, an Academic Summer Pre-engineering Camp upon Middle School Students in a Latino Community*. Columbus, OH: American Society of Engineering Education.
- Martinez Ortiz, A.**, Mata, Eusebio, & Asiabanpour, B. (2017). Proceedings from the 2017 American Society of Engineering Education annual meeting: *A Pilot Study Measuring Student Attitude Changes Resulting from Participating in Workforce Development Training Program in Green and Technology Practices*. Columbus, OH: American Society of Engineering Education.
- Sriraman, V., Torres, A., & **Martinez Ortiz, A.**, (2017). Proceedings from the 2017 American Society of Engineering Education annual meeting: *Teaching Sustainable Engineering and Industrial Ecology using a Hybrid Problem-Project Based Learning Approach*. Columbus, OH: American Society of Engineering Education.
- Martinez Ortiz, A.**, & Guirguis, M. (2016). Proceedings from 2016 American Society of Engineering Education annual meeting: *Inspiring computer science interest in entry-level courses by developing unique, motivating and relevant instructional modules*. New Orleans, LA: American Society of Engineering Education.
- Novoa, C., **Martinez Ortiz, A.**, & Talley, K. (2016). Proceedings from 2016 American Society of Engineering Education annual meeting: *Multi-disciplinary summer orientation sessions for first-year students in engineering, engineering technology, physics, and computer science*. New Orleans, LA: American Society of Engineering Education.
- Talley, K., **Martinez Ortiz, A.**, Novoa, C., & Sriraman, V. (2016). Proceedings from 2016 American Society of Engineering Education annual meeting: *Integrating an introduction to engineering experience into a university seminar course*. New Orleans, LA.

Sriraman, V., Spencer, B.J., & **Martinez Ortiz, A.** (2016). Proceedings from 2016 American Society of Engineering Education annual meeting: *Early internships for engineering technology student retention: A pilot study*. New Orleans, LA: American Society of Engineering Education.

Torres, A., Sriraman, V., & **Martinez Ortiz, A.** (2016). Proceedings from 2016 American Society of Engineering Education annual meeting: *Considering the effectiveness of comprehensive assessment and the impact of PBL implementation in a concrete industry project management course*. New Orleans, LA: American Society of Engineering Education.

Martinez Ortiz, A. & Talley, K. (2015). Proceedings from 2015 American Society of Engineering Education annual meeting: *The roots of science, mathematics and engineering self-confidence in college students: Voices of successful undergraduate women*. Seattle, WA: American Society of Engineering Education.

Martinez Ortiz, A., Asiabanpour, B., Kim, Y., Salamy, H., & Jimenez, J. (2015). Proceedings from 2015 American Society of Engineering Education annual meeting: *Engaging students in environmental learning and awareness of green design technologies and careers through a pre-engineering program*. Seattle, WA: American Society of Engineering Education.

Hu, Jiong, **Martinez Ortiz, A.**, & Sriraman, V. (2014). Proceedings from 2014 American Society of Engineering Education annual meeting: *Implementing PBL in a concrete construction course*. Indianapolis, IN: American Society of Engineering Education.

Martinez Ortiz, A. (2014). Proceedings from 2014 American Society of Engineering Education annual meeting: *A comprehensive model for motivating and preparing under-represented students, educators and parents in science, engineering and technology*. Indianapolis, IN: American Society of Engineering Education.

Freeman, R., Vasquez, H, Fuentes, A., Knecht, M., Martin, T., Walker, J. & **Martinez Ortiz, A.** (2010). Proceedings from 2010 American Society of Engineering Education annual meeting: *Development and implementation of challenge-based instruction in statics and dynamics*. Louisville, KY: American Society of Engineering Education.

b. Non-refereed Conference Proceedings

Martinez Ortiz, A. (2008). Proceedings of the Pupils Attitudes Toward Technology Annual Conference, PATT-19: *Engineering design as a contextual learning and teaching framework: How elementary students learn math and technological literacy*. Salt Lake City, UT. 359–370.

4. Abstracts

- [n/a]

5. Reports

Texas Education Agency and Texas Higher Education Coordinating Board (2009). *Algebra II College and Career Readiness Standards*, performance expectations and TEKS alignment report. Austin, Texas. State of Texas [**Martinez Ortiz, A.** – contributor]

6. Book Reviews

- [n/a]

7. Other Works in Print

- [n/a]

B. Works not in Print

1. Papers Presented at Professional Meetings

Close, E. and **Martinez Ortiz, A.** (July, 2016). *Cool NASA Stuff, NGSS and Cultural Competency*. Invited Talk at the 2016 American Association of Physics Teachers Summer Meeting. Sacramento, CA.

Martinez Ortiz, A. (April, 2016). Innovation in Teacher Education within a Global Context- *Cooperative Networks of Experts Facilitating Teacher Professional Development with NASA STEM Resources*. Invited Talk at the World Federation of Associations of Teacher Education. 2016 Conference in Barcelona, Spain. Barcelona, Spain.

Martinez Ortiz, A. (March, 2016). Latino Attainment: Meeting America's Equity & Talent Imperatives- *Serving and Teaching our Brilliant STEM Students and Teachers - A NASA funded Model for Success*. Invited Talk at the American Association of Hispanics in Higher Education, Inc. 2016 Conference in Costa Mesa, California.

Martinez Ortiz, A. and Kohler, S. (February, 2016). *NASA Workshop on Culturally Relevant STEM Education*. Invited Talk at the 2016 Association of Teacher Educators 96th Annual National Meeting. Chicago, Illinois.

Martinez Ortiz, A. (June, 2015). *The Collective Impact of Collaborative Professional Learning Networks in Science, Technology, Engineering and Mathematics Education Efforts*. Invited Talk and poster presentation at the Asian Conference on the Social Sciences. Kyoto. Japan.

Martinez Ortiz, A. (March, 2015). *The Potential Collective Impact of Engineering Education*. 2015 ASEE- Gulf Southwest Section Annual Conference. San Antonio, Texas

- Martinez Ortiz, A.** (July, 2014). *Exploring Why Women Choose to Study STEM & PERSIST-Socialization and Identity Development*. Invited Talk at the STEM Think Tank Conference. The STEM Connection- Developing Skills and Creating Relationships. Nashville, TN.
- Martinez Ortiz, A.** (March., 2014). *Supporting Texas faculty in the Preparation of Tomorrow's Teachers*. Invited Talk at the New Horizons in Texas STEM Education Conference. Sponsored by the CCRI Texas Mathematics Collaborative. San Marcos, Texas
- Huling, L., **Martinez Ortiz, A.**, and Beck, J. (2013, October), *Developing teacher educators to lead preparation program reforms*". Paper presented at the Consortium of State Organizations for Texas Teacher Education conference, San Antonio, Texas.
- Martinez Ortiz, A.**, (2013, October), *Preparing quality elementary teachers in science, technology, engineering & mathematics*, Paper presented at the Critical Questions in Education conference, San Antonio, Texas.
- Huling, L., **Martinez Ortiz, A.**, and Beck, J. (2012, October), *Shaping the future of college and career readiness*". Paper presented at the Consortium of State Organizations for Texas Teacher Education conference, Austin, Texas.
- Martinez Ortiz, A.** (2011). *Students learning rate and proportion using engineering LEGO robotics*. Paper presented at the American Society for Engineering Education annual conference, Vancouver, British Columbia, Canada.
- Martinez Ortiz, A.** (2011). *College and Career Readiness initiative- Faculty Collaboratives*. Paper presented at the Association of Teacher Educators annual meeting, Orlando, Florida.
- Martinez Ortiz, A.** (2011). *Positionality Matters: Understanding culture and context from the perspective of key stakeholders*. Paper presented at the ITEST NSF Conference, Newton, Massachusetts.
- Martinez Ortiz, A.** (2009). *An Investigation of fifth-grade students' learning of rate and proportion using engineering LEGO robotics*. Poster presented at the American Educational Research Association (AERA) annual conference, Denver, Colorado
- Martinez Ortiz, A.** (2006). *Technology and instructional design in the STEM classroom*. Paper presented at the International Technology and Engineering Educators Association annual conference, Salt Lake City, Utah

2. Invited Talks, Lectures, and Presentations

- Martinez Ortiz, A.** LBJ Institute Open House. Educators as Makers. "*Theoretical underpinnings of the Maker Movement*". San Marcos, Texas. January,12, 2018.
- Martinez Ortiz, A.** 2018 ATE Conference. "Promoting Equity and Academic Achievement in STEM Education using Culturally Responsive Teaching". Las Vegas, Nevada. February, 18, 2018.
- Martinez Ortiz, A.** Texas State University Delegation of Teacher Educators from la Universidad Catolica del Norte (UNC) in Chile. "*Overview of Science, Technology, Engineering & Mathematics Education in the U.S.*" San Marcos, TX. March 26, 2018.
- Martinez Ortiz, A.** Presentation to ASEE- GSW Conference. "*Using Systems Theory and Collective Impact Approaches to Increase the Retention and Success of University STEM Majors*" Austin, Texas. April 6, 2018.
- Martinez Ortiz, A.** Medgar Evers- The World Runs on STEAM Conference. "*Learning Communities and Collective Impact in Higher Education- A Model Towards Increasing STEM Major Student Retention.*" New York City, NY. May 12, 2018.
- Martinez Ortiz, A.** NASA MUREP Educator Institute at Glenn Research Center. "*Making STEM Relevant for Diverse Student Populations (CRT) & Team Building / Overview of Teaching and Learning Framework & NGSS Standards / Planning & Carrying Out Investigations Classroom Connections/ Earth & Space Science Standards / Interdependence of Science, Engineering & Technology/ Life Science Standards / Engineering, Technology & Applications of Science / Integrating Mathematics, Computer Science, Reading and the Arts in STEM.*" Cleveland. Ohio, June 3-8, 2018.
- Martinez Ortiz, A.** FAMA Closing Presentation for Families. "*Tu Puedes Ser Ingeniero/a ! You Can Do it- Be an Engineer!*" San Marcos, TX. July 28, 2018
- Martinez Ortiz, A.** National Council of Space Grant Directors Meeting, Stowe, Vermont- Sept. 10-13, 2018
- Martinez Ortiz, A.** TxState Common Experience Series-Innovation Week- NASA Innovation Day workshop coordination. "*Innovation the NASA Way – Impacting our World and Beyond.*" San Marcos, Texas. Sept. 26, 2018
- Martinez Ortiz, A.** Future Aerospace Engineers and Mathematicians Academy. "*Stars, Science, and NASA*". Lockhart, TX. October 5, 2018.
- Martinez Ortiz, A.** Round Rock Scholar workshop. "*Innovation- from Creative Play in Schools to NASA Space Technologies that Change the World.*" Round Rock, TX. October 16, 2018
- Martinez Ortiz, A.** Workshop for Faculty Senate Leaders- "*Faculty Diversity Overview at Texas State.*" San Marcos, TX. October 17, 2018.
- Martinez Ortiz, A.** Stemsation- University of Texas San Antonio presentation- "*Innovation, Creative Play and Engineering Education.*" October 20, 2018.

- Martinez Ortiz, A.** Kyle Elementary Schools Professional Development. “STEM Education for Elementary School Students.” November 15, 2018.
- Martinez Ortiz, A.** Munich- Ludwig Maximilians- Universitat- The Munich Center of the Learning Sciences Seminar. “ The Roles of Domain- Specific **Martinez Ortiz, A.** and Domain-General Knowledge in Science and Engineering Education”. December 29, 2018.
- Martinez Ortiz, A.** (June, 2016). *Hands-On NASA Workshop: NGSS Aligned and Culturally Relevant STEM Education Resources*. Invited Talk at the 2016 Touch Tomorrow Meeting for Teachers- A festival of science, technology, and robots. Worcester, MA.
- Martinez Ortiz, A.** (May, 2016). *Towards the Development of Faculty Learning Communities Interested in Improving STEM Education for All Students*. Keynote Presentation at the 2016 NSF Rising Stars- Faculty Summer Institute. San Marcos, TX.
- Martinez Ortiz, A.** (March, 2016). *Culturally Responsive Teaching in STEM Education- Using NASA Educational Resources*. Invited Talk at the NASA Research Center- STEM Educators Meeting. Langley, Virginia.
- Martinez Ortiz, A.** (November, 2014). *Succeeding in your STEM Career- Keys to Success in Life and Career*. Invited Talk at the Women in Science & Engineering Conference (WISE). Texas State University College of Science and Engineering. San Marcos, Texas
- Martinez Ortiz, A.** (October, 2014). *Successful Strategies to Fund your STEM Education Research- The NASA EPDC project*. Invited Talk at the Center for Children and Families Research and Networking Event. Texas State University, San Marcos, Texas
- Martinez Ortiz, A.** (January, 2014). *Problem Based Learning Overview*. Invited Talk for CSM 2342-Construction Materials. Texas State University, San Marcos, Texas
- Martinez Ortiz, A.** (May, 2013). *Science and Mathematics Process Standards- An Opportunity for Engineering as a Context*. Invited Talk at the College & Career Readiness Faculty Collaborative Conference. Houston, Texas
- Martinez Ortiz, A.** (October, 2012). *National and state directions towards integrated STEM teacher preparation*. Invited Talk at the Math, Science and Technology Teacher Preparation Academies (MSTTPA) conference. Stephen F. Austin State University. Nacogdoches, Texas
- Martinez Ortiz, A.** (May, 2012). *Towards improving educator quality- Research-based initiatives in Texas*. Invited Talk at the Math, Science and Technology Teacher Preparation Academies (MSTTPA) conference. Texas Higher Education Coordinating Board. Austin, Texas

3. Consultancies

4. Workshops

- Texas State University 2016 STEM Teacher Professional Learning Workshop – “*Early Algebra and Engineering Design Fundamentals for K-12.*” San Marcos CISD. June 20- 23, 2016.
- Texas State University 2016 STEM Professional Learning Workshop – “*STAAR and NASA SPACE connections for Upper Elementary Math and Science Learners.*” San Marcos CISD. Travis Elementary. Jan. 5, 2016.
- Texas State University 2015 STEM Professional Learning Workshop – “*Teaching Mathematics and Engineering Design to English Language Learners.*” San Marcos CISD. Travis Elementary. June 30- July 1, 2015.
- Texas State University 2014 STEM Professional Learning Workshop – “*Engineering in the Elementary Classroom.*” San Marcos CISD. Travis Elementary. February 3- April 1, 2014.
- Texas State University 2013 Summer STEM Professional Learning Workshop – “*Engineering in the Elementary Classroom.*” San Marcos CISD. August 1-10, 2013.

5. Other Works not in Print

a. Works “submitted” or “under review”

Martinez Ortiz, A. (2015) Parents as Partners in Early STEM Education; *Science and Children*.

b. Works “in progress”

Martinez Ortiz, A. (in progress) .Minority Serving Institutions Operationalizing Culturally Responsive Teaching in STEM- Insights regarding a NASA national model for the professional development of Educators. *The Journal of STEM Teacher Education*.

Hu, J., Martinez Ortiz, A. and Sriraman V. (in progress) Applying the Problem-Based Learning Approach to Teach a Concrete Construction Course. *Journal of Construction Education and Research*.

Hu, J., Martinez Ortiz, A. and Sriraman V. (in progress) Assessment of Problem-Based Learning in a Concrete Construction Course. *Journal of Scholarship of Teaching and Learning*

Martinez Ortiz, A. (in progress) Reflective Writing for Science and Mathematics Teacher Professional Development; *The Journal of STEM Teacher Education*.

Martinez Ortiz, A. and Huling, L. (in progress) Developing teacher educators to lead preparation program reforms that matter; *Journal of Teacher Education*.

Sharma, V., Sriraman, V. and Martinez Ortiz, A. (in progress). “Emphasizing Student Communication and Leadership Skill Development in an Industry Sponsored Construction Management Capstone Course.” *Journal of Construction Education and Research*.

c. Other works not in print

Martinez Ortiz, A. (2008). The Impact of engineering education at the kindergarten to high school levels- A review of research. *Unpublished manuscript-Tufts University*.

Martinez Ortiz, A. (2004). Using the engineering design process to develop a framework and an approach for integrating engineering into the elementary classroom science curriculum. *Unpublished manuscript-Tufts University*.

C. Grants and Contracts

1. Funded External Grants and Contracts

NASA MUREP (2019–2021). Texas State NASA STEM Engagement & Educator Professional Development Collaborative (EPDC-2).

PI: Martinez Ortiz, A.; Co PIs: Huling, L.

Total two-year award of \$6,000,000 (collaborative agreement).

NASA MUREP (2014–2019). Texas State NASA STEM Educator Professional Development Collaborative (EPDC).

PI: Martinez Ortiz, A.; Co PIs: Huling, L.; Sorto, M. A.; Close, E.; Bos, B.; Sriraman, V.; Asiabanpour, B.; Rodriguez Amaya, L.; Jensen, J.; and Lee, K.

Total five-year award of \$15,000,000 (collaborative agreement).

National Science Foundation (2015–2019). Improving Undergraduate STEM Education (IUSE) grant: “Texas State STEM Rising Stars”

PI: Martinez Ortiz, A.; Co PIs: Close, E. W.; Guirguis, M. S.; Talley, K. G.; Novoa, C.;

Total four year award of \$1,500,000 (grant).

NASA MUREP – Aerospace Academies (MAA) (2015–2018). FAMA- Future Aerospace Engineers And Mathematicians Academy award# NNX15AW25A. **PI: Martinez Ortiz, A.;** Co PI: Huling, L. Total three-year award of \$399,000 (grant).

NASA MUREP – Aerospace Academies (MAA) (2018–2020). FAMA 2- Tri-Region Future Aerospace Engineers And Mathematicians Academy, corresponding to award#

NNX15AW25A. **PI: Martinez Ortiz, A.**; Co PI: Cano-Amaya, Laura. Total two-year award of \$324,000 (grant).

National Science Foundation (2015–2018). REE grant: “The Engineering Education Maker Identity Project.” **PI: Martinez Ortiz, A.**; Co PIs: Sriraman, V.; Talley, K. G; Smith, S. Total three-year award of \$300,000 (grant).

NASA MUREP Educator Institutes (MEI) (2015–2019). “STEM Pre-Teacher Summer Educator Institutes.” PI: Huling, L.; **Co-PI: Martinez Ortiz, A.** Total five-year award of \$2,900,000 (collaborative agreement).

National Science Foundation (2014–2017). DUE grant: “University Maker Spaces: Discovery, Optimization, and Measurement of Impacts.” PI: Talley, K.; **Co-PIs: Martinez Ortiz, A.,** Smith, S. Total four-year award of \$75,000 (grant).

US Department of Agriculture STEM grant (2014–2016). “A BRIDGE Program to Engage, Sustain and Empower Women and Minorities in STEM.” PI: Aslan, S; **Co-PIs: Martinez Ortiz, A., et al.** Total two-year award of \$54,000 (grant).

U.S. Department of Education, MSEIP grant (2014–2017). “REENERGIZE: Recruitment and Retention of Students in STEM Programs through a Renewable Energy Research and Education Partnership with Five Minority Institutions.” PI: Asiabanpour, B. **Co-PIs: Martinez Ortiz, A., Aslan, S., Jimenez, J., Salamy, H. et. al.** Total two-year award of \$607,000 (grant).

2. Submitted, but Not Funded, External Grants and Contracts

National Science Foundation-“NSF Colegas Resource Hub” \$ 3,000,000 (2018). **PI: Martinez-Ortiz, A.**

US Embassy in Ethiopia- “Instructional and Leadership Development Workshops for Science, Technology, Engineering, and Mathematics Faculty from Five Regional Ethiopian Universities.” \$30,000 (2018). **PI: Martinez-Ortiz, A.**

Department of Defense: “Science, Technology, Engineering, and Mathematics (STEM) Education Consortium (DSEC) – STEM Education Support \$ 3,750,000 (2018). **PI: Martinez-Ortiz, A.**

National Science Foundation- “PEACE Community- Pre-Engineering Academic and Career Exploration Community” \$ 2,000,000 (2018). **PI: Martinez-Ortiz, A.**

NASA Higher Education PROFS -Pedagogy and Research in Online Faculty Short-courses. Proposal number: NNH15ZDA004C-U.S. SATELLITE LABORATORY INC. PI: Schuster, G., (2015). **Co-PI: Martinez-Ortiz, A.**

Science Program in Earth Observation–SciPEO (2015). Proposal number: NNH14ZHA001N-MIRO. TEXAS STATE UNIVERSITY. PI: Currit, N.; **Co-PI: Martinez-Ortiz, A.**

Technology and Educators Advancing the Mission of NASA -TEAM NASA (2015). Proposal number: NNH15ZDA004C. ROCKHURST UNIVERSITY. PI: Haskins, M., **Co-PI: Martinez-Ortiz, A.**

Sharing the Story and Adventure of NASA's Planetary Science with National Audiences: Building Capacity by Connecting People, Discoveries, Experiences, and Resources (2015). Proposal number: NNH15ZDA004C. UNIVERSITIES SPACE RESEARCH ASSOCIATION. PI: Shipp, S., **Co-PI: Martinez-Ortiz, A.**

The NASA Space Ambassadors Network (2015). Proposal number: NNH15ZDA004C. THE REGENTS OF THE UNIVERSITY OF CALIFORNIA. PI: Mendez, B., **Co-PI: Martinez-Ortiz, A.**

Science Curricula Innovations via Experiential NASA Collaborations in Education (SCIENCE). (2015). Proposal number: NNH15ZDA004C. DRYDEN FLIGHT RESEARCH CENTER. PI: Shy, K., **Co-PI: Martinez-Ortiz, A.**

National Science Foundation (2014). Innovative Technology Experiences for Students and Teachers grant. “WE MADE: Women Exploring Mathematics, Art, Design, & Engineering through Community-Wide Mobile Makerspace Experiences.” **Co-PI: Martinez Ortiz, A.** Proposed budget of \$800,000 (grant).

NASA-MIRO (2014). “Science Program in Earth Observation (SciPEO).” **Co-PI: Martinez Ortiz, A.** Proposed budget of \$1,000,000 (grant).

National Science Foundation (2014). USDA-HIS grant: “Strong Roots:” Empowering Students through Engineering-Agriculture Cross-Disciplinary Collaboration in Sustainability. **Co-PI: Martinez Ortiz, A.** Proposed budget of \$250,000 (grant).

National Science Foundation (2014). DUE grant: “Collaborative Research: Inventors, Makers and Learners: The Invention Studio as an Affordance for Learning.” **Co-PI: Martinez Ortiz, A.** Proposed budget of \$100,000 (grant).

National Science Foundation (2013). DRK-12 grant: “Exploratory Research: 3D Physical Science Professional Learning Community.” **Co-PI: Martinez Ortiz, A.** Proposed budget of \$449,958 (grant).

National Science Foundation (2013). WIDER grant: “Science Technology Engineering and Mathematics Faculty Leading Instructional Transformation.” **PI: Martinez Ortiz, A.** Proposed budget of \$250,000 (grant).

National Science Foundation (2013). REE grant: “Green Energy Education for a Higher Cause.” **PI: Martinez Ortiz, A.** Proposed budget of \$250,000 (grant).

National Science Foundation (2013). CAREER grant: “Enhancing Latino Children’s Understanding of Algebraic Reasoning.” **PI: Martinez Ortiz, A.** Proposed budget of \$404,391 (grant).

Freescall Foundation (2013). “Mathematics/Robotics Academy: Workshops for Teachers & Students.” **PI: Martinez Ortiz, A.** Proposed budget of \$98,670 (grant).

NASA Texas Space Grant Consortium (2013). “Motivating Children’s Enhanced Understanding of Algebraic Reasoning Concepts through the Context of Engineering Problem Solving and Design.” **PI: Martinez Ortiz, A.** Proposed budget of \$20,000 (grant).

National Science Foundation (2012). Innovative Technology Experiences for Students and Teachers grant. "Science, Engineering, and Technology for Students, Educators, and Parents." **Co-PI: Martinez Ortiz, A.** Proposed budget of \$200,000 (grant).

NASA Texas Space Grant Consortium (2012). Texas Space Grant Innovative Pilot in STEM Education-NASA Cooperative Agreement Notification NNH12CH0004C. “NASA STEM Teaching Fellows: Developing and Inspiring the Next Generation of STEM Teachers.” **PI: Martinez Ortiz, A.** Proposed budget of \$75,000 (grant).

Honda Foundation (2012). “My Little Engineers/Mis Pequeños Ingenieros: Mathematics and Science Connections for Families.” **PI: Martinez Ortiz, A.** Proposed budget of \$75,000 (grant).

3. Funded Internal Grants and Contracts

Texas State University, Research Grant (2014). “Impact of Engineering and Mathematics learning for Elementary students in a Latino Community Summer Program- Little Engineers.” **PI: Martinez Ortiz, A.** Awarded \$5,000 (grant).

Department of Curriculum and Instruction Scholar/Mentor program (2014): Scholarship review with Dr. Ruben Garza. **PI: Martinez Ortiz, A.** Awarded \$1,000 (grant).

Texas State University, REP (2013). “Research and Development of Engineering Learning Assessment Instruments Supporting Engineering Technology Students’ Success through Problem-Based Learning.” **PI: Martinez Ortiz, A.** Awarded \$6,712 (grant).

Department of Curriculum and Instruction Scholar/Mentor program (2013). Scholarship review with Dr. Lori Assaf. **PI: Martinez Ortiz, A.** Awarded \$1,000 (grant).

Department of Curriculum and Instruction Scholar/Mentor program (2012), Scholarship review with Dr. Leslie Huling. **PI: Martinez Ortiz, A.** Awarded \$1,000 (grant).

Alkek Library New Faculty Startup Funds (2012). **PI: Martinez Ortiz, A.** Awarded \$1,000 (grant).

4. Submitted, but Not Funded, Internal Grants and Contracts

Texas State University, REP (2012). “PBL-SETSS Texas Science Technology Engineering and Math for Students, Educators and Parents (TX-STEM-SEP).” PI, \$7,995 (grant).

Texas State University (2013). MIRG-PBL-SETSS “Problem-Based Learning Supporting Engineering Technology Student Success.” PI, \$24,570 (grant).

D. Fellowships, Awards, Honors

Selected as a 2018/2019 Speakers for the Faculty Speaker Series at Texas State University’s Round Rock Campus.

The Excellence in Diversity Award 2016- Finalist. Texas State University.

AERA Division K New Faculty Fellow and AERA Pre-conference (2015). Selected.

National Multidisciplinary AAHHE/Ford Faculty Fellow (2013). American Association of Hispanics in Higher Education/Ford Foundation.

IV. SERVICE

A. Institutional

1. University

Invited regular member of the University Internal Review Board (IRB). Texas State University. Led by Dr. Denise Gobert (2017–2020)

Invited member of the University think-tank “*Interdisciplinary Innovation to Improve STEM Education and Research.*” Texas State University. Led by Dr. Richard Boehm (Professor) and Jesse H. Jones (Distinguished Chair) in Geographic Education (2014–2016)

Member of the *Texas State University Hispanic Policy Network. Presented at the HPN Spring Symposium (April 2013); Supported the Hispanic Freshman Reception (September 2013).* (2012–2016)

Coordinating Committee Member. *Texas State University Women in Science and Engineering (WISE) Conference* (2013)

Core Team Member of the *Texas CCRI Mathematics Faculty Collaborative* led by the Texas State University System (2012)

2. College

Executive Director, LBJ STEM Institute for Engineering Education and Research. Leadership of Graduate Student Researcher program development/launch of first annual LBJ STEM Institute Open House (2015)

Designed and oversaw the establishment of the *Bobcat Made* Maker Space lab with “open hours” for university students to practice creative making and engineering design. (2015)

Director, LBJ STEM Institute for Engineering Education and Research, Leadership of Research Fellow program establishment (2014)

Director, LBJ STEM Institute for Engineering Education and Research, Leadership of strategic development activities (2014)

Director, LBJ STEM Institute for Engineering Education and Research, Leadership of physical space organization (2013)

Reviewer, *College of Education, Scholarship Selection Committee* (2014)

Reviewer. *College of Education, Scholarship Selection Committee* (2013)

3. Department/School: Curriculum & Instruction

2016 Search Chair: *Job Search Committee for LBJ Institute Faculty of Practice* (led to one new hire).

2014 Search Chair: *Job Search Committee for LBJ Institute Faculty of Practice*, (leading to 12 new hires).

2013, November: Designed and Delivered Integrated Robotics Lessons: ED2120 and C&I 5304.

2013–2014 Member: *Job Search Committee for Reading Education Professor*

B. Professional

Elected Member at Large, American Society for Engineering Education, Minorities in Engineering Division (2014–2016).

Co-Editor, *Todos-Mathematics for All Newsletter*. Todos-National Mathematics for All Professional Organization (2014–2016).

Advisory Board Member- NSF AISL Grant: *Informal Community Science Investigators (iCSI): Next Generation Engagement for Informal Science Institutions*. An NSF funded project promoting botanical, zoological, and ecological learning. Partners include MIT, The Missouri Botanical Garden, The San Diego Zoo and The Red Butte Botanical Garden. 2013–2016

Invited Proposal Reviewer for the *National Science Foundation, Division of Graduate Education*. 2014.

Invited Proposal Reviewer for the *National Science Foundation, Division of Research on Learning in Formal and Informal Settings (DRL)*. 2013.

Journal Scholarly Submission Reviewer, *Issues in Teacher Education*. 2013

Journal Scholarly Submission Reviewer, *American Journal of Engineering Education*. 2013

Scholarship Director, *Society of Hispanic Professional Engineers*. Austin, TX (2012–2014)

National Academy of Engineering (NAE). Working Committee Member: *Defining Standards for Professional Development for K–12 Teachers of Engineering*. 2012–2015.

C. Community

2016: Developed and led nine 1 week summer camps in pre-engineering and mathematics for SMCIS 3rd–8th grade students (200 students). Camp help at the Centro Cultural Hispano de San Marcos.

2015: Developed and led three 1-week summer camp in pre-engineering and mathematics for SMCIS 3rd, 4th, and 5th grade students (75 students). Camp help at the Centro Cultural Hispano de San Marcos.

2014: Developed and led two 1-week summer camp in pre-engineering and mathematics for SMCIS 3rd and 4th grade students (50 students). Camp help at the Centro Cultural Hispano de San Marcos.

2013: Developed and led a 1-week summer camp in pre-engineering and mathematics for SMCIS 3rd grade students (25 students). Camp help at the Centro Cultural Hispano de San Marcos.

2013: Developed and led a six-session event of Engineering Family Nights at Blazier Elementary School for the area community including teachers, families, and students (April 1, 8, 15, 22, and May 6.)

2013: Leadership Council Member: *Centro Cultural Hispano de San Marcos*. Organization with a mission to serve as a community beacon for the preservation, development, promotion, and celebration of the Hispanic arts, culture, heritage, and values through education.

2011: Advisory Board Member: *Con Mi Madre*. Organization to support Latina girls' social development and education in Austin, TX.

2009: Advisory Board Member and co-PI: *CHISE, Pre-College Science and Engineering Program*. Chicago Public Schools, Chicago, IL.

D. Service Honors and Awards

E. Service Grants and Contracts [n/a]