

**Pat Ko**  
Curriculum Vitae Jun 2018

University of Texas, STEM Education  
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**EDUCATION**

- May 2018      Ph.D. STEM Education  
University of Texas, Austin, TX  
Dissertation title: A Long-Term Study of Educational Robotics and  
Achievement in Math and Science  
Supervisor: Jill Marshall
- 2011            M.A. Secondary Education  
Texas State University, San Marcos, TX
- 1995            M.S. Computer Science  
University of North Carolina, Chapel Hill, NC
- 1992            M.Eng. Electrical Engineering  
Cornell University, Ithaca, NY
- 1991            B.S. Computer Science  
Cornell University, Ithaca, NY

**RESEARCH EXPERIENCE**

- 2009-2013      Graduate Research Assistant (GRA), University of Texas  
UTeachEngineering Project  
Lead GRA of research team  
\$12 million NSF supported multi-institution grant implementing a  
teacher training program for high school engineering and a high  
school engineering curriculum (“Engineer Your World”)  
Managed other graduate research assistants on project  
Managed day to day project research operations  
data collection (written, online surveys, classroom  
observations, interviews) and data management

## **TEACHING EXPERIENCE**

### **University Teaching**

- Spring 2015      Teaching Assistant, University of Texas  
Dept. of Statistics and Data Sciences  
Statistics in Health Care (Undergraduate class)
- Fall 2013-  
Fall 2014      Teaching Assistant, University of Texas  
Dept. of Statistics and Data Sciences  
Data Analysis in the Health Sciences (Undergraduate class)
- 1994-1995      Teaching Assistant, University of North Carolina  
Dept. of Computer Science  
Computer Architecture (Graduate class)  
Introduction to Programming (Undergraduate class)  
Computers & Society (Undergraduate class)
- 1994              Lecturer (solo teach), University of North Carolina  
Dept. of Computer Science  
Computers & Society (Undergraduate class)

### **K-12 Teaching**

- 2003-2006      High School Computer Technology and Business Teacher  
John B. Connally High School, Pflugerville, TX  
Business Computing and Information Systems  
Introduction to Accounting
- 2002-2003      High School Computer Science and Technology Teacher  
Lyndon B. Johnson Liberal Arts and Science Academy, Austin, TX  
Computer Science  
Computer Applications

## **OTHER RELEVANT EMPLOYMENT**

- 2013              External Grant Reviewer, Paragon TEC  
NASA Summer of Innovation Mini-Awards
- 2007-2008      E-Learning Developer, State of Texas  
Dept. of Family Protective Services
- 2000-2002      Computer chip digital logic designer, IBM

## PEER REVIEWED PUBLICATIONS

### Journal Publications

- Berland, L., Martin, T., Ko, P., Baker Peacock, S., Rudolph, J., & Golubski, C. (2013). Student learning in challenge-based engineering curricula. *Journal of Pre-College Engineering Education Research*, 3(1).
- Berland, L., Steingut, R. & Ko, P. (2014). High school student perceptions of the utility of the engineering design process: creating opportunities to engage in engineering practices and apply math and science content. *Journal of Science Education and Technology*, 1-16. doi:10.1007/s10956-014-9498-4
- Martin, T., Baker Peacock, S., Ko, P., & Rudolph, J. J. (2015). Changes in Teachers' Adaptive Expertise in an Engineering Professional Development. *Journal of Pre-College Engineering Education Research*, 5(2).

### Conference Publications, Posters, and Presentations

- Berland, L., Steingut, R. & Ko, P. (2013). High school student perceptions of the utility of the engineering design process. Poster session presented at the annual conference of the American Educational Research Association Annual Conference, San Francisco, CA.
- Ko, P. (2013). Work in progress – A longitudinal study of the effects of a high school robotics and computational thinking class on academic achievement. *FIE 2013 Conference Proceedings*. Presented at the 43rd Annual Frontiers in Education Conference, Oklahoma City, OK.
- Ko, P., & Delgado, C. (2013). A proposal for a hypothetical K-12 learning progression set for algorithmic thinking. Roundtable presentation at the annual conference of the American Educational Research Association, San Francisco, CA.
- Ko, P., Baker Peacock, S., & Martin, T. (2012). Using design-based instruction to increase engineering adaptive expertise in teachers. Presented at the annual conference of the American Educational Research Association, Vancouver, British Columbia, Canada.
- Ko, P., Baker Peacock, S., Martin, T., Rudolph, J., & Ramos, N. (2013). Fostering adaptive expertise: Design based instruction in high school engineering. *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Atlanta, GA.
- Martin, T., Benton, T., McKenna, W., & Ko, P. (2010a). Transfer of adaptive expertise to transform engineering education. *Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Louisville, KY.

Martin, T., Benton, T., McKenna, W., & Ko, P. (2010b). Transfer of adaptive expertise to transform engineering education. Presented at the P-12 Engineering and Design Education Research Summit, Seaside, OR.

Martin, T., Ko, P., & Peacock, S. B. (2011). Work in progress – Exploring teacher and student differences in assessment of constructivist practices. *FIE 2011 Conference Proceedings*. Presented at the 41st Annual Frontiers in Education Conference, Rapid City, SD.

Martin, T., Ko, P., Baker Peacock, S., & Rudolph, J. (2011). Using design-centered challenge based instruction to teach adaptive expertise in high school engineering. *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Vancouver, Canada.

### **Publications in Progress**

Ko, P., & Delgado, C. A proposal for a K-12 learning progression for algorithmic thinking. Manuscript in revision stage for *Computer Science Education*

Ko, P. What do we know about girls doing robotics? Manuscript

### **AWARDS AND FELLOWSHIPS**

2013 Univ of Texas STEM Education Professional Development Award

2011 Univ of Texas STEM Education Professional Development Award

2010 Univ of Texas Faculty/Student Collaboration Award

2010 NSF Engineering Education Programs Awardees PhD Consortium Conference Grant

2009-2010 Univ of Texas College of Education Pre-emptive Fellowship

### **SERVICE**

2018 Panel Moderator “What Education Researchers Want You To Know About Teaching and Classroom Research”, American Society for Engineering Education Gulf-Southwest Annual Conference, Austin, TX, Apr 4-6, 2018.

2018 Organization Committee Member for the American Society of Engineering Educators Gulf-Southwest Annual Conference

2017 Panel Organizer and Moderator “What Education Researchers Want You To Know About Teaching and Classroom Research”, American Society for Engineering Education Annual Conference, Columbus, OH, June 25-27, 2018.

Panelists: Maura Borrego, Stacey Klein-Gardner, Michael Loui, Jennifer Turns

- 2012-2013 Student Division Industry Liaison for the American Society of Engineering Educators (ASEE)
- 2012 Reviewed submitted papers for ASEE Annual Conference
- 2011 Reviewed submitted papers for Frontiers in Education (FIE) Conference

### **TEACHING CERTIFICATIONS**

Texas Teacher Certification – Computer Science (Grades 8-12), Basic Business (Grades 6-12)

### **PROFESSIONAL MEMBERSHIPS**

American Educational Research Association (AERA)

American Society of Engineering Education (ASEE)

### **REFERENCES**

Jill Marshall

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Chris Golubski

golubski@gmail.com