Research Statement
My research focuses on how innovative technologies, learning environments, and pedagogies influence the organizational culture and structure of educational institutions. I am particularly interested in how the Maker Movement and design-oriented practices might be catalysts for changing institutional norms within formal secondary education.

Education

May 2021  
**PhD, Human and Social Dimensions of Science and Technology**  
School for the Future of Innovation in Society  
Arizona State University  
Tempe, AZ

May 2008  
**BA, Classical Studies**  
College of Liberal Arts and Sciences  
University of Florida  
Gainesville, FL  
Minors in Physics and Italian Studies

Research Experience

August 2018 to Present  
**Independent Research**  
Graduate Research Fellowship Program (NSF Solicitation #11-582)  
National Science Foundation

August 2016 to August 2018  
**Graduate Research Associate**  
Polytechnic School, Ira Fulton Schools of Engineering  
Arizona State University

- Maker Educational Pathways (NSF Grant #1329321)  
  - Co-PIs: Drs. Shawn Jordan and Micah Lande
- Maker Learning Trajectories (NSF Grant #1723802)  
  - PI: Dr. Micah Lande
- DiALoG Argumentation Project (NSF Grants #1621496, #1621441)  
  - PI: Dr. Bryan Henderson

Key research accomplishments:
- Gathered qualitative data from young Makers and their parents with critical incident and artifact elicitation interview protocols [J1, C5, C6]
- Analyzed qualitative data from in-practice STEM teachers utilizing thematic analysis and institutionally-oriented theoretical frameworks [J3]
- Led research studies on Maker identity using both existing and independently-gathered gathered data [J1, C5, C6]
- Supported Drs. Jordan and Lande in writing up on-going research [C3]
- Submitted proposal to NSF EAGER grant in response to DCL (Dec 2017)
• Mentored undergraduates in developing research questions, conducting studies, and writing individual conference papers [C4-C6, C8, C9, J2]
• Surveyed and synthesized current literature on Maker Education within the engineering education academic community [C7]

Journal Publications


Conference Proceedings


**Awards, Fellowships, and Commendations**

September 2019  *Imaginary College Fellow*, a fellowship with Arizona State University’s Center for Science and the Imagination that “celebrates the individuals and groups who are already advancing [their] mission of fresh, creative and ambitious thinking about the future”.

November 2018  *University Innovation Fellows*, a year-long fellowship for training and capacity-building in design thinking and organizational change within higher education. Granted through Stanford University’s Hasso Plattner Institute of Design.

April 2018  *HSD Personal Achievement Award*, in recognition of outstanding individual accomplishments during PhD studies. Awarded by Arizona State University’s School for the Future of Innovation in Society.

April 2018  *NSF GRFP Fellowship*, a nationally-competitive fellowship that provides funding and tuition for three years of graduate studies. Granted through the National Science Foundation’s Graduate Research Fellowship Program.

June 2017  *DEED Student Essay Contest*, *How engineering design education will be everywhere and nowhere in 2040*. Written for the Design in Engineering Education Division (DEED) of the American Society for Engineering Education (ASEE). Presented at the 2017 ASEE Annual Conference. Columbus, OH.


**Posters, Panels, and Invited Talks**


**Service/Leadership**

December 2018 Workshop Leader: Integrating Making, Design, and STEAM Education
Arizona State University, Polytechnic Campus
Mesa, AZ
Conducted half-day of workshops for in-service K-8 teachers and administrators on how design and making activities can bridge the divide between STEM and Art

August 2018 Journal Reviewer
Journal of Engineering Education

April 2018 Workshop Leader: Maker Education Pedagogy
Mary Lou Fulton Teacher’s College, Graduate Class: SCN 411
Tempe, AZ
Conducted hands-on introductory seminar for pre-service K-8 STEM teachers on the Maker Movement, focusing on how to infuse Making into their classrooms and curricula.

October 2017 Volunteer, FabLearn Conference
Stanford University
Stanford, CA
Provided on-site organizational assistance during a 2-day conference on Maker Education hosted by Stanford University’s School

Fall 2017- Fall 2018 Mentor, Chief Science Officer Program
Arizona Technology Council
Phoenix, AZ
Advised high school students and teachers from the Greater Phoenix Metro Area on ways to foster STEM cultures in their schools.


**Educational Training/Pedagogy Courses**

**July 2014**

*Summer Teacher Institute*
Exploratorium
San Francisco, CA
*Competitive summer program for middle and high school science teachers run by world-renowned scientists and educators at a top-tier interactive science center.*

**June 2010**

*Postgraduate Studies, Summer Physics Modeling Workshop*
Arizona State University
Tempe, AZ
*Three-week course on teaching electromagnetism and circuits using an inquiry-based, lab-first pedagogy developed at Arizona State University.*

**Professional Experience**

**July 2014 to August 2016**

*Program Director*
CREATE at Arizona Science Center
Phoenix, AZ
- Contributed to the physical, programmatic, and organizational design of a 6,500 sq. ft. education-oriented, community makerspace
- Developed relationships with local corporate, non-profit, and educational organizations to foster the growth of a Phoenix-based Maker community
- Oversaw a staff of four full-time and four part-time employees, and an annual program budget of $30,000
Assisted in the creation and implementation of STE(A)M-based hands-on activities and technical workshops

**August 2009 to Dec 2014**

*Science & Math Teacher*
Great Hearts Academies
Phoenix, AZ
- Taught Physics I, Physics II, Earth Science and Pre-calculus using inquiry-based and Socratic methodologies
- Served as Curriculum Consultant for Physics I teachers in the Great Hearts Academies charter school network
- Co-led a making-based STE(A)M club of over 50 students, ranging from rocketry to Rube Goldberg machines
Established Physics departments for two separate academies; managed budgets and supply purchasing

**August to Dec 2007**

*Staff Science Reporter*
The Independent Florida Alligator
Gainesville, FL
- Interviewed dozens of scientists, engineers, and school officials on latest University of Florida research
- Wrote numerous feature-length articles on topics ranging from stem cell research to nano-scale engineering
- Developed skills in communicating complex scientific ideas to a wide-ranging audience