

Eric C. Deng

CONTACT INFORMATION	2832 Menlo Ave. Los Angeles, CA 90007	ericcdeng@gmail.com www.linkedin.com/in/denge/
EDUCATION	University of Southern California , Los Angeles, CA	
	M.S., Mechanical Engineering <i>Computational Design</i>	Fall 2018 (Optionally)
	<ul style="list-style-type: none">• Thesis Topic: <i>Generative Embodiment Design for Interactive Agents (Tentative)</i>• Advisors: Maja J. Matarić, Ph.D	
	B.S., Electrical Engineering <i>Robotics and Control Systems</i>	Spring 2017
	<ul style="list-style-type: none">• Thesis: <i>Minimal Behaviors for Socially Interactive Robots</i>• Advisors: Maja J. Matarić, Ph.D and Gaurav S. Sukhatme, Ph.D	
INDUSTRY EXPERIENCE	Product Engineering Associate , <i>Embodied Inc.</i> 1/2018 to Present Stealth robotics startup—product-focused role with an emphasis in human-centered design, human-robot interaction, and mechatronics developments/design for manufacturing. Helping with technical interviews for research roles and evaluating machine learning and AI toolkits for development.	
	Product Development Consultant , <i>VNTANA 3D</i> 8/2017 to 1/2018 Leading electromechanical and industrial redesign of cutting-edge holographic displays. Designing and prototyping new manufacturable (DFMA), product lines for holographic media platforms. Products designed manufactured and deployed (late-2017).	
	Robotics and Product Engineering Intern , <i>Facebook Inc.</i> 5/2017 to 8/2017 Led exploration and development for new electromechanical products to be integrated into Facebook’s existing and upcoming product suites. Industrial/mechanical design, systems architecture, and market research. <i>Multiple Patent Applications.</i>	
	Fellow , <i>IDEO CoLab</i> 1/2017 Designed and prototyped human-centered products, services, and ventures on teams of designers, engineers, and businesspeople with a specialization in interactive agents, consumer hardware design, nonverbal signaling, and robotics.	
	Co-Founder and CEO , <i>Botkins Robotics</i> 5/2016 to 8/2017 Co-founded personal robotics company focused on blended-reality interaction for open-world play with children. Led business and product design as well as development of mechanical and electrical systems and content. Winners at the USC Maseeh Entrepreneurship Prize Competition and presented at USC Board of Trustees meeting.	
	Robotics and Product Engineering Intern , <i>Facebook Inc.</i> 5/2016 to 8/2016 Led product development on new robotics-related product and infrastructure tools including designing and building electromechanical systems and integrating prototypes with existing Facebook products and tools. <i>Multiple Patent Applications.</i>	
	Robotics Engineering Intern , <i>Facebook Inc.</i> 5/2015 to 8/2015 Designed and built electromechanical systems for prototypes of robotics-related technologies with a focus on manufacturability and assembly. <i>Multiple Patent Applications.</i>	
	Hardware Engineering Intern , <i>Sandia National Laboratories</i> 7/2013 to 2/2014 Designed and prototyped embedded systems for a number of confidential projects primarily concerned with remote sensing and closed-loop/real-time control systems.	
INVOLVEMENT	President , <i>Eta Kappa Nu (HKN), Upsilon Chapter</i> August 2017 – Present M.S. Ambassador , <i>Mechanical Engineering Department</i> August 2017 – Present Founding Student Director , <i>City Fellows Consortium</i> August 2015 – Present Founding President , <i>Theta Tau, USC</i> August 2015 – August 2016 Viterbi Student Ambassador , <i>Viterbi School of Engineering</i> May 2015 – May 2016 Mechatronics Team Lead , <i>USC Formula SAE (SC Racing)</i> May 2014 – May 2016	

RESEARCH
EXPERIENCE

- Research Assistant and Fellow, *Interaction Lab*** 12/2014 to Present
Computational, end-to-end design of socially interactive robots. Developing and evaluating model-based approaches for building effective embodiments and gestures for socially interactive robots. *Funded by Richardson Research Fellowship and NSF Advised by Maja J. Matarić, Ph.D*
- Research Assistant, *Immersive Audio Laboratory*** 8/2017 to 1/2018
Studying relationships of localization errors in 3D space with head-related transfer function uniqueness with implications in sound design principles for immersive content. *Advised by Chris Kyriakakis, Ph.D*
- Research Engineer, *Computational Physics Laboratory*** 4/2014 to 12/2014
Studied the extinction and instability mechanisms of premixed turbulent flames in isotropic flow. *Advised by Paul D. Ronney, Ph.D*

AWARDS

- CRA-E Outstanding Undergraduate Researcher Finalist, *Computing Research Association*** 2018
National award program that recognizes undergraduate students in North American colleges and universities who show outstanding potential in an area of computing research.
- Stamps Scholar, *USC and Stamps Family Foundation*** 2014
Four-year, full-tuition scholarship at the University of Southern California funded by the Stamps Foundation with an additional \$20,000 enrichment fund. One of five scholars selected in graduating class.
- Richardson Research Fellow, *USC Viterbi School of Engineering*** 2016
Endowed fellowship for engineering research—specifically funded for work related to interactive robotics and natural language generation for autonomous agents. One of eleven scholars selected for inaugural class.
- Undergraduate Research Symposium Winner, *USC*** 2015, 2016
2nd Prize and Honorable Mention winner in the USC Undergraduate Research Symposiums (2016 and 2017) in the Physical Sciences, Math, and Engineering category.
- Honors Colloquium Moderator Award, *USC Viterbi School of Engineering*** 2015
- Boeing Scholarship Recipient, *USC Viterbi School of Engineering*** 2015
- Viterbi Undergraduate Fellow, *USC Viterbi School of Engineering*** 2014
- W.V.T. Rusch Honors Student, *USC Viterbi School of Engineering*** 2014
- Boeing Design Challenge *First Place Winner*, *USC*** 2014
- Lockheed Martin National Merit Scholar, *Lockheed Martin Corporation*** 2014

SKILLS

Hardware Skills:

- Solidworks, Keyshot, Embedded-C, Altium, Eagle, KiCAD, ZBrush, ANSYS, Finite Element Analysis and Computational Fluid Dynamics Analysis (FEA/CFD), Clay and Wood Prototyping, NX, AutoCAD Fusion360

Software Skills:

- C++, ROS, Machine Learning, Python, Unity, Javascript, Adobe Illustrator/Photoshop, Sketch, Matlab, LaTeX

Operational Skills:

- Design for Manufacturing and Assembly (DFMA), Product Management (Hardware and Software), Human-Centered Research and Design (in-person and online), Natively and professionally fluent in English and Mandarin
- Application domain expertise in personalized learning, entertainment, social skill therapy, and special needs populations.

- JOURNAL PUBLICATIONS
1. Elaine Short, **Eric C. Deng**, David Feil-Seifer, and Maja J. Matarić. “Understanding Agency in Interactions Between Children with Autism and Socially Assistive Robots”, *Journal on Human-Robot Interaction (JHRI)*. December 2017.
- JOURNAL PUBLICATIONS UNDER REVISION
1. **Eric C. Deng**, Bilge Mutlu, and Maja J. Matarić. “Embodiment in Socially Interactive Robots”, *Foundations and Trends in Robotics*. 2018. *Accepted and Under Final Development*.
- REFEREED PUBLICATIONS
1. **Eric C. Deng**, Bilge Mutlu, and Maja J. Matarić. “Formalizing Design Space and Product Development Processes for Socially Interactive Robots”, Refereed paper in Workshop on *Social Robots in the Wild* at the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI), March 2018.
 2. Caitlyn Clabaugh, David Becerra, **Eric C. Deng**, and Maja J. Matarić. “Long-term, in-Home Evaluations of Socially Assistive Robotics with Children”, 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI) *Late-Breaking Reports*, March 2018.
 3. **Eric C. Deng** and Maja J. Matarić. “Object-Based Generative Methods for Embodied Gestures in Socially Interactive Robots”, Refereed paper in AAAI Spring Symposium on *UX in Artificial Intelligence*, March 2018.
 4. **Eric C. Deng** and Maja J. Matarić. “Model-Based Approaches for Attention Acquisition for Human-Robot Interaction”, Refereed paper at 2017 Interaction Design and Children (IDC) Workshop on *Playing Together*. June 2017.
 5. **Eric C. Deng** and Maja J. Matarić. “Mime-Inspired Behaviors in Minimal Social Robots.” Refereed paper at 2017 ACM Conference on Human Factors in Computing Systems (CHI) Workshop for *What Can Actors Teach Robots*. May 2017.
 6. **Eric C. Deng** and Ross Mead. “Electromagnetic Platform Stabilization for Mobile Robots”, Refereed paper in AAAI Spring Symposium on *Enabling Computing Research in Socially Intelligent Human-Robot Interaction: A Community-Driven Modular Research Platform*, March 2016.
- THESIS
1. **Eric C. Deng**. “Generative Embodiment Design for Interactive Agents”, Master’s Thesis, *University of Southern California, Departments of Aerospace and Mechanical Engineering and Computer Science*. In Progress. *Advised by Maja J Matarić and S.K. Gupta*
 2. **Eric C. Deng**. “Minimal Behaviors in Socially Interactive Robots”, Undergraduate Thesis, *University of Southern California, Departments of Computer Science and Electrical Engineering*, May 2017. *Advised by Maja J Matarić and Gaurav Sukhatme*
- INVITED TALKS
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| End-to-End Design of Socially Interactive Robots | December 2017 |
| Mission San Jose High School, <i>Fremont, CA</i> | |
| Teaching Design Thinking using Minimal Robots | Fall 2017 |
| University of Southern California; <i>Los Angeles, CA</i> | |
| End-to-End Design of Socially Interactive Robots | August 2017 |
| Northwestern Polytechnic University; <i>Xi’an, China</i> | |
| Targeted Design Methods for Socially Assistive Robots | February 2017 |
| California College of Arts; <i>San Francisco, CA</i> | |
| Socially Assistive Robots and the Classroom of Tomorrow | January 2017 |
| The Growing Place; <i>Los Angeles, CA</i> | |

SERVICE

- AAAI Awards Judge**, *Intel International Science and Engineering Fair* 2017
Invited to be one of 6 guest judge for the Association for the Advancement of Artificial Intelligence (AAAI) Special Awards at the world finals for Intel ISEF, selecting AI-centered projects to be recognized for novel applications and technical contributions.
- NAE Student Representative**, *National Academy of Engineers (NAE)* 2017
Invited to be a student representative to the NAE to provide insight and perspective on design of curriculum, specifically focused around the Grand Challenges Program.
- Reviewer**, *International Journal of Social Robotics (IJSR/SORO)* 2017 to Present
Journal Reviewer for IJSR and SORO, journal venues for publications related to social robotics and interactive agents.
- Outreach Coordinator**, *Interaction Lab* 12/2015 to Present
Leading development and coordination of Interaction Lab outreach activities.
- Mentor**, *Interaction Lab* 06/2016 to Present
Mentoring a combination of undergraduate and masters students, helping them better understand the research fields and state of the art in robotics, teaching robotics concepts and general engineering practices. Helped mentor 31 undergraduate and 3 masters students to-date.
- Service Committee Co-Lead**, *Theta Tau-Kappa Epsilon* 8/2015 to 8/2017
Helped source, design, and lead service events for the USC chapter of Theta Tau with a focus on STEM for underrepresented populations in the Los Angeles area.