

# Kosa Kendall Goucher-Lambert

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6179 Etcheverry Hall  
Department of Mechanical Engineering  
University of California, Berkeley  
Berkeley, CA 94720

+1 510 664 5376  
kosa@berkeley.edu  
www.kosagl.com  
<https://orcid.org/0000-0003-0850-9197>

## EDUCATION

**Carnegie Mellon University**, Pittsburgh, PA August 2012 - May 2017  
Ph.D. in Mechanical Engineering, 2017  
Dissertation: *Investigating Decision Making in Engineering Design Through Complementary Behavioral and Cognitive Neuroimaging Experiments*  
Committee: Jonathan Cagan (Advisor), Jarrod Moss, Erin MacDonald, and Katie Whitefoot  
M.S. in Mechanical Engineering, 2014

**Occidental College**, Los Angeles, CA August 2007 - May 2011  
B.A. in Physics, 2011  
Exchange student, University of Cape Town, South Africa, Spring 2010

## APPOINTMENTS

**University of California, Berkeley**, Berkeley, CA  
2019 - Present Assistant Professor, Department of Mechanical Engineering  
2019 - Present Affiliate Faculty, Jacobs Institute for Design Innovation  
2019 - Present Affiliate Faculty, Berkeley Institute of Design  
2019 - Present Affiliate Faculty, Berkeley Master of Design Program

**Carnegie Mellon University**, Pittsburgh, PA  
2017 - 2018 Postdoctoral Research Associate, Department of Mechanical Engineering  
2012 - 2017 Graduate Research Assistant, Department of Mechanical Engineering

**Apogee Electronics**, Santa Monica, CA  
2011 - 2012 New Product Development Operations

**Washington State University**, Vancouver, WA  
Summer 2010 Undergraduate Research Assistant, Department of Electrical Engineering

## RESEARCH INTERESTS

Design theory, methodology, and automation; design cognition; decision-making applied to engineering teams and individuals; ideation and creativity; analogical reasoning in design; preference modeling and design attribute optimization; neuroimaging methods applied to design; sustainable design; new product development; crowdsourcing; human-machine collaboration.

## AWARDS & HONORS

2019	Excellence in Design Science Best Paper Award, International Conference on Engineering Design, for paper titled: “Using Hidden Markov Models to Uncover Underlying States in Neuroimaging Data for a Design Ideation Task”
2019	Reviewers Favorite Award, International Conference on Engineering Design, for paper titled: “Exploring the Application of Network Analytics in Characterizing a Conceptual Design Space”
2019	Reviewers Favorite Award, International Conference on Engineering Design, for paper titled: “Using Hidden Markov Models to Uncover Underlying States in Neuroimaging Data for a Design Ideation Task”
2018	Best Paper Honorable Mention, ASME International Design Engineering and Technical Conferences (Design Theory and Methodology), for paper titled: “Inspired Internal Search: Using Neuroimaging to Understand Design Ideation and Concept Generation with Inspirational Stimuli”
2017	Reviewers Favorite Award, International Conference on Engineering Design, for paper titled: “Using crowdsourcing to provide analogies for designer ideation in a cognitive study”
2016 - 2018	Carnegie Institute of Technology Bradford and Diane Smith Fellowship
2015	Reviewers Favorite Award, International Conference on Engineering Design, for paper titled: “Fairness and Manipulation: An Empirical Study of Arrow’s Impossibility Theorem”
2014	Best Paper Award, ASME International Design Engineering and Technical Conferences (Design Theory and Methodology), for paper titled: “The Impact of Sustainability on Consumer Preference Judgments of Product Attributes”
2014 - 2018	National Science Foundation (NSF) Graduate Research Fellowship
2009 - 2011	Occidental College Dell G. Taylor Scholarship
2009	Occidental College Academic-Athletic Achievement Award
2009	Southern California Intercollegiate Athletic Association All-Conference (Soccer)

## PUBLICATIONS

### Journal Articles

7. **Goucher-Lambert, K.**, Gyory, J.T., Kotovsky, K., and Cagan, J. (2020). Adaptive Inspirational Design Stimuli: Using Design Output to Computationally Search for Stimuli that Impact Concept Generation. *ASME Journal of Mechanical Design*, doi: 10.1115/1.4046077
6. Gecer Ulu, N., Messersmith, M., **Goucher-Lambert, K.**, Cagan, J., and Kara, L.B. (2019). Wisdom of Micro-Crowds in Evaluating Solutions to Esoteric Engineering Problems. *ASME Journal of Mechanical Design*, 141(8), 081102-081102-10. doi: 10.1115/1.4042615
5. **Goucher-Lambert, K.**, and Cagan J. (2019). Crowdsourcing Inspiration: Using crowd generated inspirational stimuli to support designer ideation. *Design Studies*, 61, 1-29. doi: 10.1016/j.destud.2019.01.001
4. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2019). A neuroimaging investigation of design ideation with and without inspirational stimuli— understanding the meaning of near and far stimuli. *Design Studies*, 60, 1-38. doi: 10.1016/j.destud.2018.07.001

3. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2017). Inside the Mind: Using Neuroimaging to Understand Moral Product Preference Judgments Involving Sustainability. *ASME Journal of Mechanical Design*, 139(4):041103-041103-11. doi: 10.1115/1.4035859.
2. McComb, C., **Goucher-Lambert, K.**, and Cagan, J. (2017). Impossible by design? Fairness, strategy, and Arrow's impossibility theorem. *Design Science*, vol 3. doi:10.1017/dsj.2017.1
1. **Goucher-Lambert, K.**, and Cagan, J. (2015) The Impact of Sustainability on Consumer Preference Judgments of Product Attributes. *ASME Journal of Mechanical Design*, 137(8), 081401-081401-11. doi: 10.1115/1.4030271.

#### Peer-Reviewed Conference Papers

15. Nandy, A., Dong, A., **Goucher-Lambert, K.** (2020). A Comparison of Vector and Network-Based Measures for Assessing Design Similarity. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. August 16-19, 2020. (Accepted)
14. Moore, G., **Goucher-Lambert, K.**, Agogino, A. (2020). A Life Cycle Analysis of Laser Cutter Embodied Impacts. ASME International Design Engineering Technical Conferences - Design for Manufacturing and the Life Cycle Conference. August 16-19, 2020. (Accepted)
13. Rao, V., Kim, E., Kwon, J., Agogino, A., **Goucher-Lambert, K.** (2020). Method Selection in Human-Centered Design Teams: An Examination of Decision-Making Strategies. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. August 16-19, 2020. (Accepted)
12. Chong, L., **Goucher-Lambert, K.**, Kotovsky, K., and Cagan, J. (2020). Does a Constrained Design Space Constrain Effective Ideation?. 2020 Design Computing and Cognition Conference. Atlanta, GA. June 29 - July 1, 2020. (Accepted)
11. Rao, V., Kim, E., Jung, H.J., **Goucher-Lambert, K.**, and Agogino, A. (2020). Design for Cybersecurity (DfC) Cards: A Creativity-Based Approach to Support Designers' Consideration of Cybersecurity. 2020 Design Computing and Cognition Conference. Atlanta, GA. June 29 - July 1, 2020. (Accepted)
10. **Goucher-Lambert, K.**, Gyory, J.T., Kotovsky, K., and Cagan, J. (2019). Computationally Derived Adaptive Inspirational Stimuli For Real-Time Design Support During Concept Generation. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Anaheim, CA. August 18-21, 2019.
9. **Goucher-Lambert, K.**, and McComb, C. (2019). Using Hidden Markov Models to Uncover Underlying States in Neuroimaging Data for a Design Ideation Task. International Conference on Engineering Design Conference. Delft, Netherlands. August 5-8, 2019. **Reviewers Favorite Award. Excellence in Design Science Award (Best Overall Paper)**
8. Gyory, J.T., **Goucher-Lambert, K.**, Kotovsky, K., and Cagan, J. (2019). Exploring the Application of Network Analytics in Characterizing a Conceptual Design Space. International Conference on Engineering Design Conference. Delft, Netherlands. August 5-8, 2019. **Reviewers Favorite Award**
7. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2018). Inspired Internal Search: Using Neuroimaging to Understand Design Ideation and Concept Generation with Inspirational Stimuli. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Quebec City, Quebec, Canada. August 26-29, 2018. **Best Paper Award Finalist**

6. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2018). Unsuccessful External Search: Using Neuroimaging to Understand Fruitless Periods of Design Ideation Involving Inspirational Stimuli. 2018 Design Computing and Cognition Conference. Milan, Italy. July 2-4, 2018.
5. **Goucher-Lambert, K.**, and Cagan, J. (2017). Using crowdsourcing to provide analogies for designer ideation in a cognitive study. International Conference on Engineering Design Conference. Vancouver, Canada. August 21-35, 2017. **Reviewers Favorite Award**
4. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2016). The Truth in the Decision: Using Neuroimaging to Understand Product Preference Judgments Involving Sustainability. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Charlotte, NC. August 21-24, 2016.
3. **Goucher-Lambert, K.**, Moss, J., and Cagan, J. (2016). A Meta-Analytic Approach for Uncovering Neural Activation Patterns of Sustainable Product Preference Decisions. 2016 Design Computing and Cognition Conference. Chicago, IL. June 25-29, 2016.
2. McComb, C., **Goucher-Lambert, K.**, and Cagan, J. (2015). Fairness and Manipulation: An Empirical Study of Arrow's Impossibility Theorem. International Conference on Engineering Design Conference. Milan, Italy. July 28-31, 2015. **Reviewers Favorite Award**
1. **Goucher-Lambert, K.**, and Cagan, J. (2015). The Impact of Sustainability on Consumer Preference Judgments of Product Attributes. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Buffalo, NY. August 17-20, 2014. **Best Paper Award**

#### Abstracts

2. Vasudevan, V., Huang, A., **Goucher-Lambert, K.**, Kim, E., and Agogino, A. (2019). theDesignExchange.org: innovation archive of design methods and case studies. International Conference on Engineering Design Conference. Delft, Netherlands. August 5-8, 2019. (w/ Public Demonstration)
1. Gyory, J.T., **Goucher-Lambert, K.**, Kotovsky, K., and Cagan, J. (2019). A Proposed Metric to Assess the Overall Innovative Potential of Conceptual Designs. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Anaheim, CA. August 18-21, 2019. (w/ Oral Presentation)

#### Posters

3. **Goucher-Lambert, K.**, McComb, C. and Cagan, J. "Fairness and Manipulation: An Empirical Study of Arrow's Impossibility Theorem", Carnegie Mellon University Bennett Conference. Pittsburgh, 2015.
2. Tigli, O., Baciuc, H.J., and **Goucher-Lambert, K.** "Effects of Growth Conditions on ZnO Nanowire Synthesis", IEEE Nanotechnology Materials and Devices Conference, Shilla-Jeju, Korea, Oct. 18-21, 2011.
1. **Goucher-Lambert, K.**, Tigli, O., and Baciuc, H.J. "Effects of Growth Conditions on ZnO Nanowire Synthesis", Occidental College Summer Research Conference. Los Angeles, 2010.

#### INVITED TALKS

Presentation and Panel: "Strategies for Success", NextProf Workshop Series, Georgia Institute of Technology, October 2019.

Seminar: "Unpacking Design through Behavior, Cognition, and Computation", Georgia Institute of Technology, Woodruff School of Mechanical Engineering, October 2019.

Presentation: “Engineering Design at UC Berkeley” (Flash Talk), Academic and Research Leadership Symposium, Detroit, MI, March 2019.

Seminar: “Engineering Design Decision-Making: Using Behavior, Cognition and Computation to Create Design Tools of the Future”, Stevens Institute of Technology, School of Systems and Enterprises, March 2018.

Seminar: “Engineering Design Decision-Making: Using Behavior, Cognition and Computation to Create Design Tools of the Future”, University of California, Berkeley, Department of Mechanical Engineering and Jacobs Institute of Design Innovation, March 2018.

Seminar: “Engineering Design Decision-Making: Using Behavior, Cognition and Computation to Create Design Tools of the Future”, Oregon State University, Department of Mechanical, Industrial, and Manufacturing Engineering, February 2018.

Seminar: “Engineering Design Decision-Making: Using Behavior, Cognition and Computation to Create Design Tools of the Future”, Loyola Marymount University, Department of Mechanical Engineering, December 2017.

Presentation: “Inside the Mind: Using Neuroimaging to Understand Open Engineering Design Research Questions”, International Conference on Engineering Design — Young Member Keynote Event. Milan, Italy, July 2015.

## TEACHING

### University of California, Berkeley, Berkeley, CA

2019 (Fall) ME 292C/DESINV 190: Human Centered Design Methods [GSI: Elena Duran]

2019 (Spring) ME 290H: Green Product Development: Design for Sustainability [co-Instructor w/ Euiyoung Kim, GSI: George Moore]

### Carnegie Mellon University, Pittsburgh, PA

2017 (Fall) Integrated Product Conceptualization [Instructor, TA:Daksh Jayaswal]

2015 (Spring) Technology-Based Product Innovation and Enterprise Creation [Technology Expert for Jon Cagan and Stuart Evans]

2014 (Spring) Senior Mechanical Design II: Conceptualization and Realization [Teaching Assistant for L. Burak Kara]

2013 (Fall) Design for Manufacturing and the Environment [Teaching Assistant for Drew Dagentesh]

### Metropolitan Water District of Southern California, Los Angeles, CA

2009 - 2011 Lead Student Advisor, Solar Cup

*Note: Solar Cup is the largest high school competition involving solar powered locomotion in the nation.*

## ADVISING

### PhD Students

2019 - Present Yakira Mirabito (ME)

2019 - Present Ananya Nandy (ME)

### Undergraduate Students

2019 - Present Jonathan Wong (ME)  
 2019 - Present Dixun Cui (ME)  
 2019 - Present Ahan Sabharwal (EECS)

### **Masters of Engineering Capstone Students**

2019 - 2020 *“Data Driven Creativity Enhancement for Improved Product Design”*  
 Fred Hertlein (IEOR), Leonardo Huerta (ME), Bailing Zhan (IEOR)

2018 - 2019 *“Reimagining Autonomous Driving Scenarios with Human-Centered Design”* (co-Advisor w/ Alice Agogino and Euiyoung Kim)  
 Team 1: Aaron Ong (ME), Arnold Yeung (ME), Joaquin Troncoso (IEOR)  
 Team 2: Changhao Zheng (ME), Shreyas Bhayana (ME), Zheng Sun (ME), Ziwei Zhang (ME), Hugues Vigner (IEOR)

### **Masters Thesis and Exam Committee**

2019 Aaron Cheston Ong (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Arnold Yu Hin Yeung (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Changhao Zheng (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Jingbo Yang (Inside Member, M.Eng., Product Design)  
 Shreyas Bhayana (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Xianxin Zhang (Inside Member, M.Eng., Product Design)  
 Zheng Sun (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Zhijiong Huang (Inside Member, M.Eng. Product Design)  
 Ziwei Zhang (Co-Chair w/ Alice Agogino, M.Eng. Product Design)  
 Yu Zhang (Inside Member, M.Eng. Product Design)

## **PROFESSIONAL ACTIVITIES**

### **Society Memberships**

2014 - Present Design Society  
 2013 - Present American Society of Mechanical Engineers  
 2013 - Present National Society of Black Engineers (2019+ as Professional Member)

### **Referee**

*Journals:* ASME Journal of Mechanical Design, Design Studies, Design Science, IEEE Transactions on Engineering Management

*Conferences:* ASME IDETC Design Theory and Methodology Conference, ASME IDETC Design Automation Conference, Design Computing and Cognition, DESIGN, International Conference on Engineering Design, ASME IDETC Design for Manufacturing and the Life Cycle Conference

*External Funding:* National Science Foundation CMMI (2019)

*Internal Funding:* France-Berkeley Fund (2019)

### **Editorships**

2018 - Present      Co-Guest Editor for Design Science Journal Thematic Collection on Design Neurocognition (w/ John Gero, Tripp Shealy, and Yong Zeng)

#### **Review Coordinator**

2020                      ASME IDETC Design Theory and Methodology Conference: Creativity and Ideation  
 2020                      Design Computing and Cognition Conference '20  
 2019                      ASME IDETC Design Theory and Methodology Conference: Human Behavior in Design

#### **University Service**

2019 - Present      Founding Member, Jacobs Institute for Design Innovation, Diversity, Equity, and Inclusion Committee  
 2019 - Present      Member, Department of Mechanical Engineering, Equity, and Inclusion Committee  
 2019 - Present      Member, Department of Mechanical Engineering, Committee on Courses  
 2019 - Present      Member, Department of Mechanical Engineering, Committee on Seminars  
 May 2019              Speaker, Jacobs Institute for Design Innovation 2019 Advisory Board Meeting  
 2019 - Present      Member, Director's Council, Jacobs Institute for Design Innovation

#### **Diversity, Equity, Inclusion, and Outreach**

July 2019              Technology Expert/Advisor, Lawrence Hall of Science (Learning Science Design Group) for NSF Project: *"Digital Engineering Internship for Middle School Students"*  
 April 2019              Panelist, Berkeley Graduate Engineering and Science Students Speaker Series: *"From Representation to Power"*  
 March 2019              UC Berkeley Faculty Representative, 2019 National Society for Black Engineers Convention (Detroit, MI)  
 March 2019              Participant, Professionals of Color Career Day, Flynn Elementary School  
 February 2019        Speaker, UC Berkeley Mechanical Engineering First Year Scholars Seminar Series

#### **Certifications**

2018                      Carnegie Mellon University Future Faculty Program Certificate  
 2016                      Diversity and LGBTQIA+ Safe Zone Training

#### **PERSONAL**

Born in Portland, OR (1989). Occidental College Men's Varsity Soccer (2007-2011). Carnegie Mellon Men's Club Soccer President (2014-15) and Head Coach (2017-2018).