

Elisa Kwon

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Education

University of California, Berkeley <i>Ph.D. in Mechanical Engineering</i>	Aug 2020 – Dec 2024 (Expected) Berkeley, CA, USA
University of Toronto <i>M.A.Sc. in Mechanical Engineering</i>	Sept 2017 – Aug 2019 Toronto, ON, CA
University of Toronto <i>B.A.Sc. in Engineering Science</i>	Sept 2012 – May 2017 Toronto, ON, CA

Research Experience

University of California, Berkeley <i>Graduate student researcher</i> <ul style="list-style-type: none">Investigating human-AI collaboration during the design processConducting behavioral and neuroimaging human-subject studiesAdvisor: Dr. Kosa Goucher-Lambert (ME)Committee: Dr. Bjoern Hartmann (EECS), Dr. Hannah Stuart (ME)Ph.D. Qualifying Exam passed and candidacy achieved (Sept 2022)	Aug 2020 – Present Berkeley, CA, USA
Rotman Research Institute <i>Research assistant</i> <ul style="list-style-type: none">Analyzing eye-tracking data using statistical analysis methodsConstructing interactive plots to support data visualization and exploration	March 2020 – Aug 2021 Toronto, ON, CA
University of Toronto <i>Research assistant</i> <ul style="list-style-type: none">Designing and executing studies testing creative task performanceDeveloping methods to support concept generation<i>Thesis: Methods towards enhancing divergent thinking in conceptual design</i>Advisor: Dr. L.H. Shu	Sept 2017 – Aug 2019 Toronto, ON, CA

Teaching Experience

University of California, Berkeley <i>MEng capstone project mentor</i> <ul style="list-style-type: none">Masters of Engineering (ME) Students (Fall 2023-Spring 2024)Project: Next Generation Design Systems (Visual Creativity) <i>Graduate student instructor</i> <ul style="list-style-type: none">Design Methodology (Spring 2021)Human-Centered Design Methods (Fall 2021, 2022)	Jan 2021 – Present Berkeley, CA, USA
University of Toronto <i>Head teaching assistant</i> <ul style="list-style-type: none">Design of Innovative Products (Fall 2017, 2018)	Sept 2017 – Dec 2018 Toronto, ON, CA

Journal Articles

Kwon, E., Goucher-Lambert, K. (2024) Comparing and evaluating human and computationally derived representations of non-semantic design information. *Journal of Mechanical Design*. 146(3): 031401. doi:10.1115/1.4063567

Kwon, E., Rao, V., Goucher-Lambert, K. (2023) Understanding inspiration: Insights into how designers search for, discover, and use inspirational stimuli. *Design Studies*, 88, 101202. doi.org/10.1016/j.destud.2023.101202

Kwon, E., Huang, F., Goucher-Lambert, K. (2022) Enabling multi-modal search for inspirational design stimuli using deep learning. *AI EDAM*, 36, E22. doi:10.1017/S0890060422000130

Kwon, E., Ryan, J.D., Bazylak, A., Shu, L.H. (2020) Does visual fixation affect idea fixation? *Journal of Mechanical Design*, 142(3), 031118. doi:10.1115/1.4045600

Kwon, E., Pehlken, A., Thoben, K-D., Bazylak, A., Shu, L.H. (2019) Visual similarity to aid alternative-use concept generation for retired wind-turbine blades. *Journal of Mechanical Design*, 141(3), 031106. doi:10.1115/1.4042336

Peer-reviewed Conference Papers

Kwon, E., Patterson, J.D., Beaty, R., Goucher-Lambert, K. (2024) Assessing the alignment between word representations in the brain and large language models. Design Computing and Cognition'24. Montreal, QC, CA. July 8-10, 2024.

Kwon, E., Goucher-Lambert, K. (2023) Similarities and differences in human vs. computational representations of non-semantic inspirational design stimuli. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Boston, MA. August 20-23, 2023.

Kwon, E., Goucher-Lambert, K. (2023) Examining the boundary between near and far design stimuli. Proceedings of the Design Society: 24th International Conference on Engineering Design. Bordeaux, France. July 24-28, 2023.

Kwon, E., Rao, V., Goucher-Lambert, K. (2022) Investigating the roles of expertise and modality in designers' search for inspirational stimuli. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. St. Louis, MO. August 14-17, 2022.

Kwon, E., Rao, V., Goucher-Lambert, K. (2022) Exploring designers' encounters with unexpected inspirational stimuli. Design Computing and Cognition'22. Glasgow, Scotland, UK. July 4-6, 2022.

Rao, V., Kwon, E., Goucher-Lambert, K. (2022) Like a Moodboard, but more interactive - The role of expertise in designers' mental models and speculations on an intelligent design assistant. Design Computing and Cognition'22. Glasgow, Scotland, UK. July 4-6, 2022.

Kwon, E., Huang, F., Goucher-Lambert, K. (2021) Multi-modal search for inspirational examples in design. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Virtual, Online. August 17-19, 2021.

Kwon, E., Ryan, J.D., Bazylak, A., Shu, L.H. (2019) Does visual fixation affect idea fixation? ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Anaheim, CA. August 18-21, 2019.

Kwon, E., Pehlken, A., Thoben, K-D., Bazylak, A., Shu, L.H. (2018) Visual similarity to aid alternative-use concept generation for retired wind-turbine blades. ASME International Design Engineering Technical Conferences - Design Theory and Methodology Conference. Quebec City, Quebec, Canada. August 26-29, 2018.

Poster presentations

Kwon, E., Patterson, J.D., Beaty, R., Goucher-Lambert, K. (2023) Large Language Model Alignment with Brain Representations during Creative Association. Meeting of the Society for the Neuroscience of Creativity. Toronto, ON.

Kwon, E., Goucher-Lambert, K. (2023) Using neuroimaging to enhance data-driven engineering design tools. Meeting of the Society for the Neuroscience of Creativity. San Francisco, CA.

Kwon, E., Kacollja, A., Shahmiri, E., Ryan, J.D., Shen, K. (2021) Alterations in oculomotor behavior in healthy aging and mild cognitive impairment. *Journal of Vision* 2021, 21(9), 2735. (Presented at Annual Meeting of the Vision Sciences Society) doi.org/10.1167/jov.21.9.2735

Kwon, E., Ryan, J.D., Bazylak, A., Shu, L.H. (2019) Does visual fixation affect idea fixation? 2019 University of Toronto Mechanical & Industrial Engineering Research Symposium. Toronto, ON.

Kwon, E., Bazylak, A., Shu, L.H. (2018) Visual similarity to aid alternative-use concept generation for retired wind-turbine blades. 2018 University of Toronto Mechanical & Industrial Engineering Research Symposium. Toronto, ON. June 2018. (**Best poster award**)

Invited talks

Guest lecture: "Supporting early-stage engineering design using AI-based methods", University of Toronto, Design of Innovative Products (MIE440). October 2023.

Guest lecture: "Concept generation: Team ideation techniques and structured methods", University of California, Berkeley, Human-Centered Design (ME292C/DESINV190). October 2022.

Awards, Honors, & Certificates

NSERC Postdoctoral Fellowship (PDF) <i>National award for postdoctoral research</i> • \$90 000 total for postdoctoral research	2025-2027
NSERC Postgraduate Scholarship (PGS-D) <i>National award (CGS-D declined for postgraduate studies outside Canada)</i> • \$63 000 total for PhD studies	2021-2024
Certificate in Remote Instruction <i>Awarded for completion of Graduate Remote Instruction Innovation Fellows Program, UC Berkeley</i>	2020
Ontario Graduate Scholarship <i>Provincial award for graduate studies</i> • \$15 000 total for Master's studies	2018
Best poster presentation award <i>Departmental award at the University of Toronto</i>	2018

Service & Outreach

Leadership

Student organization officer <i>Mechanical Engineering Graduate Student Council, UC Berkeley</i> <ul style="list-style-type: none">• Mentorship program: facilitating mentorship between incoming and continuing graduate students• Social committee: planning departmental events for ME graduate students	2023-present
Student organization president <i>Counterpoint, University of Toronto</i>	2014-2019

Outreach

Research intern mentor <i>Transfer-to-Excellence program, UC Berkeley</i> <ul style="list-style-type: none">• Summer research internship for community college students• Student: Isaac Hernandez (Mechanical Engineering), MiraCosta College	2023
Course instructor <i>Splash at Berkeley</i> <ul style="list-style-type: none">• High school educational outreach program, UC Berkeley• Course: Creative + Sustainable Product Design: Making and Breaking	2023

Service

Panelist <i>Design Scholars Graduate Student Panel, UC Berkeley</i>	2023
Student Committee Member <i>Mechanical Engineering Faculty Search, UC Berkeley</i>	2022

Other Experience

Research and Development Intern <i>Litostroj Power (Hydropower equipment manufacturing)</i>	Aug 2016 <i>Ljubljana, Slovenia</i>
Data Science Intern <i>Sysomos (Social media data analytics)</i>	May 2016 – July 2016 <i>Toronto, ON, CA</i>
Business Analyst <i>Environment and Climate Change Canada</i>	May 2014 – Aug 2015 <i>Toronto, ON, CA</i>