

# NASER DEHAIBI

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## Education

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### Stanford University

PhD., Mechanical Engineering

*Stanford Ignite Certificate Program*

Dissertation title: *Investigating customer perceptions of sustainability in product features*

Advisor: Prof. Erin MacDonald

Readers: Prof. Noah Goodman, Prof. Conrad Tucker

*Expected: June 2021*

*Stanford, CA*

### University of Michigan

M.Eng., Energy Systems Engineering

Department of Integrative Systems + Design

*December 2015*

*Ann Arbor, MI*

### Texas A&M University

B.S., Mechanical Engineering

*Engineering Systems Management Certificate*

*May 2014*

*College Station, TX & Doha, Qatar*

## Awards & Distinctions

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### Qatar Research Leadership Program Award

*Qatar Foundation*

*2014 - Present*

*Doha, Qatar*

Granted a competitive fellowship to pursue higher education in the United States (Masters & PhD). The fellowship provides a research grant of up to \$50,000 per year in addition to covering tuition fees and a stipend.

### Co – President

*Advanced Degree Candidates Consulting Club, Stanford University*

*2019 - 2020*

*Stanford, CA*

Managed a team of six executive board members to support advanced degree candidates interested in consulting.

## Professional Experience

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### Research Assistant

*Stanford University*

*Sep 2016 - Present*

*Stanford, CA*

Developed design methods to help designers determine customer perceptions of product sustainability, which may differ from actual sustainability, using crowdsourced annotations of online reviews and machine learning.

### Course Assistant

*Stanford University*

*Apr 2017 - Present*

*Stanford, CA*

Assisted with multiple courses at Stanford covering undergraduate, graduate, and executive levels. Topics include design thinking, modeling profit in consumer products, experimental design with users, and culture and diversity in engineering.

### Edison Engineering Development Program (EEDP) Intern

*GE Oil & Gas*

*Jul - Aug 2013*

*Doha, Qatar*

Executed Six Sigma to optimize steam turbine design specifications using proprietary machine learning algorithms.

### Summer Intern – Operations

*Qatargas (formerly RasGas Company Limited)*

*Jul - Aug 2012*

*Doha, Qatar*

Facilitated maintenance with control room operators for a plant generating \$10 billion in annual revenue.

## Works Under Review

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**El-Dehaibi, N.**, Liao, T., and MacDonald, E. F., 2020, "Exploring the Effects of Perceived Sustainability Features on how Customers Resonate with Sustainable Products," unpublished.

**El-Dehaibi, N.**, and MacDonald, E. F., 2020, "Differentiating Online Products using Features Perceived as Sustainable," unpublished.

## Journal Publications

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**El-Dehaibi, N.**, Goodman, N. D., and MacDonald, E. F., 2019, "Extracting Customer Perceptions of Product Sustainability from Online Reviews," *Journal of Mechanical Design*, Vol. 141, No. 12, pp. 121103. Available online at: <https://doi.org/10.1115/1.4044522>

## Conference Proceedings

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**El-Dehaibi, N.**, and MacDonald, E. F., 2020, "Investigating Inter-Rater Reliability of Qualitative Text Annotations in Machine Learning Datasets," 16<sup>th</sup> International Design Conference, Dubrovnik, Croatia, May 18-21.

**El-Dehaibi, N.**, and MacDonald, E. F., 2019, "Extracting Customer Perceptions of Product Sustainability from Online Reviews," ASME 2019 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference/Design Automation Conference, Anaheim, California, August 18 – 21.

## Book Chapters

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Bohra, M., **El-Dehaibi, N.**, Sanfilippo, A., and Khraisheh, M., 2018, "Potential Impacts of Solar Energy Integration on Fuel-Mix Strategies in Qatar", *The Economics of Renewable Energy in the Gulf*, Routledge, London, U.K., pp. 167-187. Available online at: <https://doi.org/10.4324/9780429434976>

## Teaching Cases

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Bill, Q., Spevacek, C., **El-Dehaibi, N.**, Johnson, W., and Hoffman, Andrew, 2016, "Uber and the Sharing Economy: Global Market Expansion and Reception", Erb Institute, Ann Arbor, MI, case study#1-430-479. Available online at: <https://wdi-publishing.com/product/uber-and-the-sharing-economy-global-market-expansion-and-reception/>

## Poster Sessions

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**El Dehaibi, N.**, and MacDonald, E., "Semantic Classification for Identifying Sustainable Content in Online Product Reviews," Poster session presented at the ASME 2018 International Design Engineering Technical Conferences & Computers & Information in Engineering Conference, Quebec City, Quebec, August 26-29.

Bohra, M., **El-Dehaibi, N.**, Sanfilippo, A., and Khraisheh, M., "Potential Impacts of Solar Energy Integration on Fuel-Mix Strategies in Qatar," Poster session presented at the 2017 European Photovoltaic Solar Energy Conference and Exhibition, Amsterdam, The Netherlands, September 25-29.

**El Dehaibi, N.**, Barth, N., and Ahzi, S., "Thermal Stress Analysis of Photovoltaic Modules using Thermo-elastic Modeling," Poster session presented at the 2015 University of Michigan Engineering Research Symposium, Ann Arbor, MI, November 20.

## Summary of Research Projects

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### Extracting Customer Perceptions from Online Product Reviews

*Stanford, CA*

- Created a crowdsourcing approach to annotate online reviews based on perceived customer value.
- Developed custom survey features in Qualtrics using JavaScript and Amazon Web Services
- Built a natural language processing machine learning algorithm to extract customer perceptions from online reviews
- Completed the Institutional Review Board training and submitted a human experiments protocol
- Investigated perceived sustainability of French Presses as a case study and formulated insights for designers

### Creating Product Designs that Convey Sustainability Perceptions

*Stanford, CA*

- Mentored three Product Design undergraduate students as part of the Summer Undergraduate Research Institute (SURI) on a research project
- Developed design concepts of French Presses based on sustainability criteria and created renderings on SolidWorks
- Designed and conducted pilot tests to assess how participants perceive design features
- Tested hypotheses using non-parametric and post-hoc analyses

### Investigating Inter-Rater Reliability in Machine Learning Datasets

*Stanford, CA*

- Performed a literature review on statistical analyses within inter-rater reliability
- Wrote the first publicly available Python code to calculate inter-rater reliability on qualitative text annotations
- Measured and compared four variations of inter-rater reliability for qualitative annotations of online reviews
- Proposed suggestions to designers on measuring reliability of qualitative annotations for machine learning datasets

### Understanding Sustainability Perceptions as Product Descriptions

*Stanford, CA*

- Created a crowdsourcing approach to evaluate products based on perceived sustainability and interest
- Developed an interactive interface using Java to quantify perceived product sustainability
- Designed and conducted pilot tests that scaled to over 1000 users in the full launch.
- Proposed guidelines for designers on modifying online product descriptions and designs to emphasize features that have perceived customer value as indicated in their written reviews

### Simulating Solar Energy Integration on Fuel Mix Strategies in Qatar

*Doha, Qatar*

- Developed a Monte-Carlo module in MATLAB to promote gradual substitution of oil and gas production with solar energy in Qatar
- Advised Qatari officials on cost effective energy policies for economic stability

### Investigating Thermoelastic Modeling of Photovoltaic Modules

*Doha, Qatar*

- Designed a thermo-elastic model of solar thermal stresses within 96% accuracy of a finite element model
- Presented methods and findings at the Engineering Graduate Symposium, University of Michigan

## Teaching Experience

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### Analytical Product Design (ME215C) - Lead Course Assistant

*2017 - 2019*

*Stanford University*

*Stanford, CA*

- Led a team of three course assistants to mentor a class of up to 50 undergraduate students per quarter
- Guided students with building engineering, manufacturing, and marketing models to optimize product specifications for maximum profit
- Facilitated team building exercises to assist students in building strong, healthy teams
- Co-organized Stanford Design EXPE where students showcase their final products

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## **Innovation Masters Series (Stanford Center for Professional Development) - Course Assistant**

2019

*Stanford University*

*Stanford, CA*

- Assisted Design professors with a course tailored for 45 executives from Visa and client companies
- Coached participants to boost creativity with brainstorming and prototyping skills
- Led participants on campus tours and assisted with course logistics

## **Expanding Engineering Limits: Culture, Diversity, and Equity (ENGR 217) - Course Assistant**

2019

*Stanford University*

*Stanford, CA*

- Co-taught a class of 80 undergraduate students as part of a teaching team of three faculty members and two course assistants
- Facilitated panel discussions with scholars and engineers on the interdependencies of engineering, diversity, culture, and equity
- Guided students on 10-week personal projects exploring topics related to the course
- Designed the Canvas course website to accommodate students enrolled in sections with different credit requirements

## **Professional Associations**

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American Society of Mechanical Engineers (ASME)