Dr. Erin F. MacDonald

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Lab website: coming soon
Portfolio: http://tinyurl.com/erinmacdportfolio

I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

A. Educational Background

The University of Michigan (UM), Ph.D., Mechanical Engineering, 2008

The University of Michigan, M.S., Mechanical Engineering, 2004

Brown University, B.S., Materials Science and Engineering with Honors, 1998

B. Academic Positions

Assistant Professor, Department of Mechanical Engineering, Stanford University, 2014 – Present

Assistant Professor, Department of Mechanical Engineering, Iowa State University (ISU), 2009 – 2014

Assistant Professor by courtesy, College of Design, Iowa State University, 2009 – 2014

Associate, Ames National Laboratory, 2009 – 2013

Affiliated Faculty: Human Computer Interaction Program; Wind Energy Institute; Center for Crops Utilization Research; and Biopolymers and Biocomposites Research Team, Iowa State University, 2010 – 2014

Director, IRIS Design Lab (Interdisciplinary Research in Sustainable Design), Iowa State University, 2009 – 2014

Postdoctoral Associate, Sloan School of Management, Massachusetts Institute of Technology (MIT), 2008 –2009

Instructor, Department of Mechanical Engineering, Massachusetts Institute of Technology, 2009

C. Other Professional Employment

Product Design Consultant to OllyDog, Berkeley, CA, 2004

Assistant Product Development Manager, Sierra Designs, Emeryville, CA, 2000 – 2002

Costume Design Business Owner, Oakland, CA, 1999 – 2001

Business Analyst, Mitchell Madison Group, San Francisco, CA, 1998 – 1999

Research Consultant and Plant Intern, H.C. Starck, Newton, MA, 1997 – 1998

Public Relations Intern, Association for Women in Science, Washington, D.C., 1995

D. Honors, Recognitions, and Outstanding Achievements

American Society of Mechanical Engineers Design Automation Young Investigator Award, 2012

Big 12 Faculty Fellowship Award, 2012

Mack 2050 Challenge Scholar, Iowa State University, 2009 – 2012

National Science Foundation Graduate Research Fellowship Award, 2005 – 2008

Lipschutz, Host and Smith Award, University of Michigan, 2008

Martin Luther King Spirit Award, North-Campus Colleges, University of Michigan, 2007

Graham Environmental Institute Small Scale Grant Award, University of Michigan, 2006

Winner Umbrella-Inside-Out Cradle To Cradle Design Competition, *ID Magazine* and Treehugger.com, 2006

Distinguished Leadership Award, College of Engineering, University of Michigan, 2006

Team award, P3 Sustainable Design Competition, Environmental Protection Agency, 2005

First Place Design Poster and Second Place Design Presentation, Mechanical Engineering Graduate Student Symposium, University of Michigan, 2005

President's Award, American Recreation Products/Sierra Designs, 2002

Student Composite Design Award, Metals, Minerals, and Materials Society, 1998

E. Formally Invited Lectures and Invited Conference Presentations

1. "Cognitive Empathy Advances Design Research: Four Concepts, Three Examples," Department of Mechanical Engineering, Stanford University, April 30, 2014.
2. "Cognitive Empathy in Design Practice and Research," Department of Mechanical Engineering, Stanford University, February 19, 2014.
3. "How Choice Models Inform Consumer Design," with W. Ross Morrow, General Motors, June 13, 2013.
4. "Successful Sustainable Design at the Intersection of Engineering and Human Behavior," Department of Mechanical Engineering, Cornell University, March 26, 2013.
5. "Successful Sustainable Design at the Intersection of Engineering and Human Behavior," Iowa EPSCoR Policy Seminar Series, ISU, March 5, 2013.
6. "Successful Sustainable Design at the Intersection of Engineering and Human Behavior," Department of Mechanical Engineering, Oregon State University, February 28, 2013.
7. "Successful Sustainable Design at the Intersection of Engineering and Human Behavior," Segal Design Institute, Northwestern University, August 16, 2012.
8. "Seven Cognitive Concepts for Successful Sustainable Design," Osborne Research Club, ISU, April 9, 2012.
9. "Reducing Risk for Developers and Landowners Using Wind Farm Layout Optimization," Wind Energy Institute, Iowa State University, December 21, 2012.
10. "The Human Factor in Sustainable Engineering," Department of Mechanical Engineering, University of Iowa, November 11, 2011.
11. "Interdisciplinary Sustainable Design," Marketing Colloquium Distinguished Speaker Series, School of Business, Iowa State University, March 4, 2011.
12. "Customer Decisions and Sustainable Design," John Deere, July 14, 2010.
13. "Customer Decisions and Sustainable Design," 3M, April 20, 2010.
14. "Customer Decisions and Sustainable Design," John Deere, April 13, 2010.
15. "Modeling Customer Preference in the Design of Sustainable Products," Department of Mechanical Engineering, Oregon State University, November 30, 2009.
16. "Why People (Don't) Buy Green Products," The Mathworks, July 30, 2009.
17. "Graduate Programs in Design" (Panel Member), International Design Technical Conference, Brooklyn, August 2008.

18. "The Construction of Preference in Engineering Design," Department of Mechanical Engineering, Carnegie Mellon University, April 30, 2008.
19. "The Construction of Preference in Engineering Design," Department of Mechanical Engineering, Iowa State University, March 27, 2008.
20. "The Construction of Preference in Engineering Design," Department of Mechanical Engineering, Clemson University, March 12, 2008.
21. "The Construction of Preference in Engineering Design," Lab for Manufacturing and Productivity, Department of Mechanical Engineering, MIT, March 6, 2008. Available: http://techtv.mit.edu/videos/195-manufacturing-seminar-30608-erin-macdonald.
22. "The Construction of Preference in Engineering Design," Center for Design Research, Department of Mechanical Engineering, Stanford University, February 28, 2008.
23. "The Construction of Preference in Engineering Design," Berkeley Energy and Sustainable Technologies Lab, Department of Mechanical Engineering, University of California at Berkeley, February 2008.
24. "The Construction of Preference in Engineering Design," Department of Industrial Engineering, Pennsylvania State University, February 21, 2008.
25. "The Construction of Preference in Engineering Design," Department of Mechanical Engineering, Northwestern University, February 13, 2008. "Why People (Don't) Buy Green Products," Whirlpool, August 2, 2007.
26. "Why People (Don't) Buy Green Products," Ford Motor Company, May 3, 2007.
27. "Why People (Don't) Buy Green Products from a Product Designer's Perspective," School of Natural Resources and Environment, University of Michigan, October 18, 2007.
28. "Sustainability Round-table Discussion," University of Michigan Society of Automotive Engineers, April 2007.
29. "An introduction to the Kano Method, an imperfect product design methodology, and its implications in decision theory," Decision Consortium, Psychology Department, University of Michigan, September 28, 2006.
30. "Impact of Technology on the Human Condition," Tau Beta Pi Martin Luther King Lecture Series, February 2005.
31. "Breaking the Glass Ceiling," Tau Beta Pi Martin Luther King Lecture Series, February 2004.

F. Grants and Contracts Received

Investigator: Erin MacDonald (PI)
Title: Consideration, Design, and Energy Policy
Granting Agency: National Science Foundation, Engineering Systems and Design Program
Duration: 2013-2016
Dollar Amount: $399,398
Role: We are investigating psychological models of decision-making and applying them to the design and optimization of vehicles. These models are representative of how consumers make choices, and can be used to understand response to step-changes in available vehicles, such as new fuel sources. Funding included for two graduate students, summer support, workshop organization, and travel. Work thus far has resulted in one accepted journal publication and another under review, one conference publication, and one workshop.

Investigator: Erin MacDonald (PI)
Title: Review of Innovation Engineering Leadership Institute Program

Granting Agency: Center for Industrial Research and Service (CIRAS), National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP)
Duration: 2012-2013
Dollar amount (to MacDonald): $66,353 ($66,353)
Role: Investigation of the Innovation Engineering Workshop series for effectiveness based on documented experimental findings in journal publications. Funding includes graduate student support, course buy-out, and travel. The work resulted in presentations to CIRAS and one draft journal publication.

Investigator: Erin MacDonald (PI)
Title: The Effect of Homeowner Preferences on Wind Farm Optimization: Quantification and Modulation
Granting Agency: Ames National Laboratory
Duration: 2010-2011
Dollar amount (to MacDonald): $55,000 ($55,000)
Role: This funding initiated research on wind farm design optimization with homeowner (landowner) preferences. Funding was used to support Le Chen's tuition and stipend, and resulted in one journal publication, one refereed conference proceeding, and one conference presentation.

Investigator: Erin MacDonald (PI)
Title: Big 12 Faculty Fellowship Program
Granting Agency: ISU
Duration: May 2012 (Two weeks)
Dollar amount (to MacDonald): $2,500 ($2,500)
Role: Visit UT Austin to collaborate with Professor Carolyn Conner Seepersad on research in conceptual design methods and learn about her teaching strategies in design classes.

Chaired position: Mack 2050 Challenge Scholar, $5000 per year, 2009 – 2011.

Grants as Contributing Team Member:
Investigator: Robert Brown (PI); grant leaders associated with my funding: Barry Butler, University of Iowa; Gene Tackle, ISU; and Bruce Babcock, ISU
Title: Iowa EPSCoR
Granting Agency: National Science Foundation
Dollar Amount (to MacDonald): $20,000,000 ($23,181)
Role: As a young faculty mentee associated with this large grant, I meet with both the Wind Energy and Energy Policy planks and have developed proposals and collaborations with other EPSCoR-supported faculty (W. Ross Morrow, Anupam Sharma). EPSoCR has funded graduate student Le Chen's summer tuition and stipend (wind farm optimization research) and provided conference and travel funds for both Le Chen and me. Additional funds provided for creation of web interface and technical workshop organization.

Investigator: David Ringholz (PI), Tim Borich, Nadia Anderson, Carl Rogers, Janis Terpenny and Judy Vance
Title: Interdisciplinary Design Education, Research and Engagement fund
Granting Agency: Iowa State University Provost Strategic Initiative
Duration: 2011-2013
Dollar amount (to MacDonald): $1,521,500 (~ $10,000)
Role: I worked as a thrust-area team member creating an interdisciplinary Ph.D. in Design. I contributed towards: the submission of associated NSF proposals, such as a NSF IGERT proposal (Co-PI); the overall curriculum design; and physical space organization. I have had course buy-out funded by the grant. Additional collaborator: Seda Yilmaz (all collaborators are at ISU).

II. PUBLICATIONS AND CREATIVE WORKS

Symbol key for this section:

+	Denotes publication that carries special prestige and recognition
*	Denotes publication that has undergone stringent editorial review by peers
#	Denotes publication derived from graduate work at the University of Michigan
^	Denotes publication derived partially from graduate work
†	Names with this designation identify graduate student as co-authors
†P	Names with this designation identify postdoctoral researchers as co-authors

A. Doctoral thesis title

+*# MacDonald, E., 2008, The Construction of Preference in Engineering Design and Implications for Green Products, Ph.D. thesis, University of Michigan, Ann Arbor. *Nominated by Department of Mechanical Engineering for university-wide Distinguished Dissertation Award at University of Michigan.*

B. Articles in Journals (in print or accepted)

1. Du, P.† and MacDonald, E., In Press, "Eye-Tracking Data Predicts Importance of Product Features and Saliency of Size Change," *Journal of Mechanical Design.*
2. *Morrow, W., Long, M.† and MacDonald, E., 2014, "Market-System Design Optimization with Consider-then-Choose Models," *Journal of Mechanical Design*, Vol. 136, No. 3, 031003.
3. *Urban, G., Liberali, G., MacDonald, E., Bordley, R. and Hauser, J., 2014, "Morphing Banner Advertising," *Marketing Science*, Vol. 33., No. 1, pp. 27-46.
4. *She, J.† and MacDonald, E., 2014, "Priming Designers to Communicate Sustainability," *Journal of Mechanical Design*, Vol. 136, No. 1, 011001.
5. *Chen, L.† and MacDonald, E., 2014, "A System-Level Cost-of-Energy Wind Farm Layout Optimization with Landowner Modeling," *Energy Conversion and Management*, 77, pp. 484-494.
6. *Reid, T.†P, MacDonald, E. and Du, P.†, 2013, "Impact of Product Design Representation on Customer Judgment," *Journal of Mechanical Design*, Vol. 135, No. 9, 091008.
7. * Chen, L.† and MacDonald, E., 2012, "Considering Landowner Participation in Wind Farm Layout Optimization," *Journal of Mechanical Design*, Vol. 134, No. 8, 084506.
8. *# MacDonald, E., Gonzalez, R. and Papalambros, P., 2009, "Preference Inconsistency in Multidisciplinary Design Decision Making," *Journal of Mechanical Design*, Vol. 131, No. 3, 031009.
9. *# MacDonald, E., Lubensky, A., Sohns, B. and Papalambros, P., 2009, "Product Semantics and Wine Portfolio Optimization," *International Journal of Product Development*, Vol. 7, No. 1/2, pp. 73-98.
10. *# MacDonald, E., Gonzalez, R. and Papalambros, P., 2009, "The Construction of Preferences for Crux and Sentinel Product Attributes," *Journal of Engineering Design*, Vol. 20, No. 6, pp. 609-626.
11. *# Briant, C.L., MacDonald, E., Balliett, R.W. and Luong, T., 2000, "Recrystallization textures in tantalum sheet and wire," *International Journal of Refractory Metals and Hard Materials*, Vol. 18, pp. 1-8.

C. Conference Proceedings with Stringent Editorial Review by Peers (in print or accepted)

1. *Chen, L.† and MacDonald, E., 2013, "Effects of Uncertain Land Availability, Wind Shear, and Cost on Wind Farm Layout," ASME International Design Engineering Technical Conference/ Design Automation Conference, Portland, OR, August 4-7. (Full paper, peer-reviewed)
2. *She, J.† and MacDonald, E., 2013, "Trigger Features on Prototypes Increase Preference for Sustainability," ASME International Design Engineering Technical Conference/ Design Theory and Methodology, Portland, OR, August 4-7. (Full paper, peer-reviewed)
3. *Du, P.† and MacDonald, E., 2013, "Eye-Tracking Data Predicts Importance of Product Features and Saliency of Size Change," ASME International Design Engineering Technical Conference/ Design Theory and Methodology, Portland, OR, August 4-7. (Full paper, peer-reviewed)
4. ^* MacDonald, E. and She, J. †, 2012, "Seven Cognitive Concepts for Successful Sustainable Design," ASME International Design Engineering Technical Conference/ Design Theory and Methodology, Chicago, IL, August 12-15. (Full paper, peer-reviewed)
5. * She, J.† and MacDonald, E., 2012, "Priming Designers to Communicate Sustainability," ASME International Design Engineering Technical Conference/ Design Theory and Methodology, Chicago, IL, August 12-15. (Full paper, peer-reviewed)
6. * Reid, T.†P, MacDonald, E. and Du, P. †, 2012, "Impact of Product Design Representation on Customer Judgment with Associated Eye Gaze Patterns," ASME International Design Engineering Technical Conference/ Design Theory and Methodology, Chicago, IL, August 12-15. (Full paper, peer-reviewed)
7. * Morrow, W., Long, M.† and MacDonald, E., 2012, "Consider-then-Choose Models in Decision-Based Design Optimization," ASME International Design Engineering Technical Conference/Design Automation Conference, Chicago, IL, August 12-15. (Full paper, peer-reviewed)
8. +* Urban, G., Liberali, G., MacDonald, E., Bordley, R. and Hauser, J., 2012, "Morphing Banner Advertising," Theory and Practice in Marketing conference, Harvard Business School, Cambridge, MA, May 3-5. (Full Paper, invited by committee for participation)
9. * Chen, L.† and MacDonald, E., 2011, "A New Model for Wind Farm Layout Optimization with Landowner Decisions," ASME International Design Engineering Technical Conference/Design Automation Conference, Washington, D.C., August 28-31. (Full paper, peer-reviewed)
10. #* MacDonald, E., Whitefoot, K., Allison, J., Papalambros, P.Y. and Gonzalez, R., 2010, "An Investigation of Sustainability, Preference, and Profitability in Design Optimization," ASME International Design Engineering Technical Conference/Design Automation Conference, Montreal, August 15-18. (Full paper, peer-reviewed)
11. #* MacDonald, E., Gonzalez, R. and Papalambros, P.Y., 2007, "Preference Inconsistency in Multidisciplinary Design Decision Making," ASME International Design Engineering Technical Conference/Design Automation Conference, Las Vegas, NV, September 4-8. (Full paper, peer-reviewed)
12. #* MacDonald, E., Gonzalez, R. and Papalambros, P.Y., 2007, "The Construction of Preferences for Crux and Sentinel Product Attributes," International Conference on Engineering Design, Paper number 824, Paris, August 28-31. (Full paper, peer-reviewed)
13. #* MacDonald, E., Backsell, M., Gonzalez, R. and Papalambros, P.Y., 2006, "The Kano Method's Imperfections, and Implications in Product Decision Theory," International Design Research Symposium, Seoul, November 10-11. (Full paper, peer-reviewed)

D. Publications Submitted but Not Yet Accepted

1. ^MacDonald, E. and She, J.†, "Seven Cognitive Concepts for Successful Eco-Design," Under Review, *Journal of Cleaner Production.*
2. ^ MacDonald, E., Whitefoot, K., Du, P.†, Papalambros, P.Y., Gonzalez, R. and Allison, J., "Modeling the Activation of Pro-Environmental Preference Improves Profitability and Sustainability in Design Optimization," Under Review, *Journal of Mechanical Design.*

E. Working Papers (drafts available by e-mail request)

1. She, J.† and MacDonald, E., "Triggering Consumer Preferences for Sustainable Products via Product Design."
2. Chen, L.† and MacDonald, E., "Wind Farm Layout Optimization Under Uncertainty with Realistic Landowner Decisions".
3. Chen, L.† and MacDonald, E., "Modeling Wind Farm Noise Impact and Landowner Compensation Results in Realistic Cost-of-Energy Estimates".
4. Du, P.† and MacDonald, E., "Varied Effectiveness of the Cancellation-and-Focus Model in Different Presentation Scenarios with Gaze Data Evidence."
5. MacDonald, E., Conner-Seepersad, C., She, J.† and Holtta-Otto, K., "Priming Designers Leads to Improved Product Designs."

F. Creative Works (Exhibitions, Competitions, and Performances Executed)

1. Department of Mechanical Engineering Design Expo, Co-coordinator with W. Ross Morrow, ISU, 2010 – Present (one per semester), Examples: http://www.facebook.com/pages/Iowa-State-University-Mechanical-Engineering-Design-Expo-2010/167614283279119.
2. *# Crayella Umbrella, Winner Umbrella-Inside-Out Cradle To Cradle Design Competition, *ID Magazine* and Treehugger.com (with Vinson, N., Koenigsknecht, T., and Uphues, M.), 2006. Available: http://www.coroflot.com/erinmacdonald/Crayella
3. # Mass Collaboration = Innovation, Better Living Using Engineering (BLUE) Lab, Installation at the Duderstadt Gallery, University of Michigan, 2006. Available: http://www.coroflot.com/erinmacdonald/Mass-Collaboration-equals-Innovation
4. # A visual indication of natural resource consumption in everyday objects, Installation at the Duderstadt Gallery, University of Michigan, 2003. Available: http://www.coroflot.com/erinmacdonald/Art

G. Patents, Disclosures and Technology Transfer Activities

1. MacDonald, E., Vinson, N., Koenigsknecht, T. and Uphues, M., 2010. *Umbrella*, U.S. Patent No. 7,775,226.
2. Ganio, T. and MacDonald, E. 2001. *Sleeping Bag Device*, U.S. Patent No. 6,292,961 B1.

H. Bulletins, Reports, or Conference Proceedings That Have Not Undergone Stringent Editorial Review by Peers (in print or accepted)

1. * MacDonald, E., 1998, "Texture Analysis: Tantalum and Tungsten." Unpublished Honors Undergraduate Thesis, Brown University.

I. Abstracts (in print or accepted), Technical Presentations, and Posters

1. MacDonald, E. and Chen, L†, "Effects of Noise Impact and Landowner Compensation on Wind Farm Layout Design Under Uncertainty," to be presented at the ASME 2014 Conference on Energy Sustainability, June 30-July 2, Boston MA. (Abstract and Technical Presentation)
2. Long, M†, Morrow, W.R. and MacDonald, E., "Is Modeling Consideration Important to Product Portfolio Design?," to be presented at the 2014 INFORMS Marketing Science Conference, June 12-14, Atlanta GA. (Abstract and Technical Presentation)
3. MacDonald, E. and She, J.† "Examining Consideration Sets with Physical Prototypes," to be presented at the 2014 INFORMS Marketing Science Conference, June 12-14, Atlanta GA. (Abstract and Technical Presentation)
4. MacDonald, E. and Du, P.†, "Eye-tracking Aids in Understanding Consumer Product Design Evaluations," to be presented at the 2014 Advertising and Consumer Psychology Conference: The Psychology of Design, May 29-31, Ann Arbor MI. (**Forthcoming book chapter**, abstract, and technical presentation)
5. She, J.† and MacDonald, E., "Using Priming to Design Features and Influence Consumer Decisions," to be presented at the 2014 Advertising and Consumer Psychology Conference: The Psychology of Design, May 29-31, Ann Arbor MI. (Abstract and Poster)
6. Du, P.† and MacDonald, E., 2014, "Varied Effectiveness of the Cancellation-and-Focus Model in Different Presentation Scenarios with Evidence from Gaze Data," Mechanical Engineering Graduate Research Symposium, ISU, Ames, IA, March 7. (**Third-place winner in Poster Competition**)
7. She, J.† and MacDonald, E., 2013, "Priming Communication of Sustainability in Design," Mechanical Engineering Graduate Student Seminar, Ames, IA, Nov. 4. (Technical Presentation)
8. She, J.† and MacDonald, E., 2013, "Sustainable Design Cues Affect Customer Preference Constructions," Max Planck Summer Institute on Bounded Rationality, Berlin, Germany, Jun. 18-25. (Abstract and Poster)
9. She, J.† and MacDonald, E., 2013, "Trigger Features on Prototypes Increase Preference for Sustainability," ISU Sustainability Symposium, Ames, IA, February 25. (Poster)
10. Chen, L.† and MacDonald, E., 2013, "Effects of Uncertain Land Availability, Wind Shear, and Cost on Wind Farm Layout," Iowa Wind Energy Association Annual Conference, Des Moines, IA, March 25-27. (Poster)
11. Chen, L.† and MacDonald, E., 2013, "A Cost-of-Energy Wind Farm Layout Optimization with Landowner Remittances and Participation Rates," Iowa Wind Energy Association Annual Conference, Des Moines, IA, March 25-27. (Poster)
12. Chen, L.† and MacDonald, E., 2013, "Effects of Uncertain Land Availability, Wind Shear, and Cost on Wind Farm Layout," 2nd National Renewable Energy Laboratory (NREL) Wind Energy Systems Engineering Workshop, Broomfield, CO, January 29-30. (Abstract and Poster)
13. Chen, L.† and MacDonald, E., 2013, "A Cost-of-Energy Wind Farm Layout Optimization with Landowner Remittances and Participation Rates," 2nd NREL Wind Energy Systems Engineering Workshop, Broomfield, CO, January 29-30. (Abstract and Poster)
14. Chen, L.† and MacDonald, E., 2012, "Wind Farm Layout Optimization with Representation of Landowner Remittances and Other Costs," ASME Conference on Energy Sustainability, San Diego, July, and EPSCoR All-hands Poster Session, Cedar Rapids, IA, August 2012. (Abstract and Technical Presentation)

15. Chen, L.† and MacDonald, E., 2012, "Wind Farm Layout Optimization with Representation of Landowner Remittances and Other Costs," EPSCoR All-hands Poster Session, Cedar Rapids, MI, July 31. (Poster)
16. Chen, L.† and MacDonald, E., 2012, "A New Model for Wind Farm Layout Optimization with Landowner Decisions," Iowa Wind Energy Association Annual Conference, Des Moines, IA, April 9. (Poster)
17. She, J.† and MacDonald, E., 2012, "Communicate Sustainability in Design," Mechanical Engineering Graduate Research Symposium, ISU, Ames, IA, March 29. (Poster)
18. Chen, L.† and MacDonald, E., 2012, "A New Model for Wind Farm Layout Optimization with Landowner Decisions," Mechanical Engineering Graduate Research Symposium, ISU, Ames, IA, March 29. (Poster)
19. She, J.† and MacDonald, E., 2012, "Communicate Sustainability in Design," Sustainapalooza, Ames, IA, February 28. (Poster)
20. MacDonald, E., 2012, Investigation of Societal Concerns in Wind Farm Design Optimization, ISU EPSCoR Workshop Presentation, Ames, IA, November 29. (Technical Presentation)
21. ^MacDonald, E., 2011, "Seven Cognitive Concepts for Successful Sustainable Design," INFORMS Conference, Charlotte, NC, November 13-17. (Abstract and Technical Presentation)
22. She, J.† and MacDonald, E., 2011, "Creation of Design Methods that Facilitate Customer Decision-Making on Sustainable Products," INFORMS Conference, Charlotte, NC, November 13-17. (Abstract and Technical Presentation)
23. She, J.† and MacDonald, E., 2011, "Creation of Design Methods that Facilitate Customer Decision-Making on Sustainable Products," The Third Annual Iowa State University Symposium on Sustainability, Ames, IA, February 21. (Poster)
24. Chen, L.† and MacDonald, E., 2011, "Wind Farm Layout Optimization Considering the Effect of Landowners," the Third Annual Iowa State University Symposium on Sustainability, Ames, IA, February 21. (Poster)
25. Reid, T. †P and MacDonald, E., 2011, "The Influence of Product Form on Consumers' Decisions about Sustainable Product Features," The Third Annual Iowa State University Symposium on Sustainability, Ames, IA, February 21. (Poster)
26. MacDonald, E., Urban, G., Kim, J. and Bordley, R., 2010, "Improving Click-through with Web Advertisements Designed for Cognitive Style," INFORMS Marketing Science Conference, Cologne, June 17-19. (Abstract and Technical Presentation)
27. Urban, G., Kim, J., MacDonald, E., Hauser, J. and Dzyabura, D., 2010, "Developing Consideration Rules for Durable Goods Markets," INFORMS Marketing Science Conference, Cologne, June 17-19. (Abstract and Technical Presentation)
28. MacDonald E., 2009, Break-out Session Leader of "Ecodesign SIG Workshop," International Conference on Engineering Design, Stanford, CA, August 24-27. (Invited Break-out Session Leader)
29. MacDonald, E. and Gonzalez, G., 2009, "A Hybrid Model of Decision-Making Under Uncertainty," Second International Engineering Systems Symposium, Massachusetts Institute of Technology, Cambridge, MA, June 15-17. (Abstract and Technical Presentation)
30. MacDonald, E., Urban, G. and Hauser, J., 2009, "Would You Consider a Buick Even if It Were #1 in JD Power?", INFORMS Marketing Science Conference, Ann Arbor, MI, June 4-6. (Abstract and Technical Presentation)
31. Silinskaia, D. and MacDonald, E., 2009, "Non-compensatory Modeling of Consideration - Theory and Application at GM," MIT Center for Digital Business Annual Conference,

Massachusetts Institute of Technology, Cambridge, MA, May 19. (Abstract and Technical Presentation)

32. # MacDonald, E., Gonzalez, R. and Papalambros, P., 2007, "The Construction of Preferences for Crux and Sentinel Product Attributes," Decision Consortium Conference, University of Michigan, Ann Arbor, May 22. (Abstract and Technical Presentation)
33. # Hernandez, M. and MacDonald, E., 2005, "Sustainability in the Developed World," Engineers for a Sustainable World Conference, Austin, TX, October 5-9. (Abstract and Technical Presentation)

J. Publicity

1. Myers, F., 2012, "Design Expo demonstrates student work in mechanical engineering," Iowa State Daily, December 3. Available: http://www.iowastatedaily.com/news/article_3bbb06de-3dbc-11e2-912b-001a4bcf887a.html. Accessed 1/13/2013. (Not mentioned by name; co-organizer of event)
2. Wolthuizen, 2012, "ME graduate student aims to aid in wind energy development," InnovateOnline, September 6. Available: http://innovate.engineering.iastate.edu/2012/09/06/me-graduate-students-aims-to-aid-in-wind-energy-development. Accessed 1/13/2013.
3. Strawn, J., 2012, "MacDonald receives ASME young investigator award," ISU College of Engineering, August 30. Available: http://news.engineering.iastate.edu/2012/08/30/macdonald-receives-asme-young-investigator-award. Accessed 1/13/2013.
4. Wolthuizen, J., 2012, "ME assistant professor returns from Big 12 faculty fellowship," ISU College of Engineering, June 10. Available: http://news.engineering.iastate.edu/2012/06/13/me-assistant-professor-returns-from-big-12-faculty-fellowship. Accessed 1/13/2013.
5. Westrom, T., 2011, "Mechanical engineering students show off work at design expo," Iowa State Daily, December 6. Available: http://www.iowastatedaily.com/news/article_35bd23fc-2062-11e1-aaef-0019bb2963f4.html. Accessed 1/13/2013.
6. Ballstadt, T., 2010, "ME Design Expo," InnovateOnline, December 15. Available: http://innovate.engineering.iastate.edu/2010/12/15/me-design-expo. Accessed 1/13/2013.
7. Theobald, B., 2010, "Mechanical engineering students exhibit projects at Design Expo," Iowa State Daily, December 7. Available: http://www.iowastatedaily.com/news/article_96c182cc-0251-11e0-9d07-001cc4c002e0.html. Accessed 1/13/2013.
8. Anonymous, 2010, "Iowa State mechanical engineering students to show off their design ideas," US Fed News, States News Service, and Targeted News, November 11th.
9. Anonymous, 2010, "Umbrella with Shaft Co-Developed by Laurel Inventor," Targeted News Service, September 8th.
10. Strawn, J., 2009, "Buying into Green," InnovateOnline, October 18. Available: http://innovate.engineering.iastate.edu/2009/10/18/keys-to-buying-green. Accessed 1/13/2013.
11. Anonymous, 2007, "2006-07 CoE Graduate Student Achievements," Mechanical Engineering, University of Michigan. Available: http://www.engin.umich.edu/academics/gradprograms/studentactivities/achievements/200607achievements.html. Accessed 1/13/2013.
12. Anonymous, 2006, "Cradle To Cradle Umbrella Winner: Crayella," DesignTAXI, October 3. Available: http://designtaxi.com/news/4913/Cradle-To-Cradle-Umbrella-Winner-Crayella. Accessed 1/13/2013.
13. Olzer, L., 2006, "Cradle To Cradle Umbrella Winner: Crayella," Dexigner, September 30. Available: http://www.dexigner.com/news/9211. Accessed 1/13/2013.

14. Sayer, K., 2006, "Cradle To Cradle Umbrella Winner: Crayella!," TreeHugger, Sepetmber 22. Available: http://www.treehugger.com/culture/cradle-to-cradle-umbrella-winner-crayella.html. Accessed 1/13/2013.
15. Anonymous, 2006, "Congratulations to Cradle to Cradle Winner Crayella!", Sustainable Style Foundation, September 26th. Available: http://www.sustainablestyle.org/category/events/page/7. Accessed 1/13/2013.
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III. INSTRUCTION AND SUPERVISION

Creativity and Imagination in Engineering Design, ISU, ME 423, 3 Credits, Taught: Fall 2009, Fall 2011, Fall 2012, Fall 2013)

Creativity and Imagination in Engineering Design, ISU, ME 523X and XE, 3 Credits, Taught: Fall 2011, Fall 2012, Fall 2013)

Introduction to Mechanical Engineering Design, ISU, ME 270, 3 Credits, Taught: Winter 2010, Fall 2010, Winter 2012, Winter 2013)

Student awards within Section:

1st Place; Chloe Dedic, Bieu Ieong, Aaron Kilstofte, Stephen Laskowski; Spring 2010 ME270 Design Competition

1st Place; Mile Hayes, Brad Johnson, Robert Lagano, Benjamin Perna; Spring 2012 ME270 Design Competition

Design and Manufacturing I, MIT, ME 2.007, Section Instructor, Spring 2009

Student Awards within Section:

1st Place, 2.007 International Design Competition, Edward M. Grinnell

Whitelaw Prize for Originality in 2.007, David S. Anderson

Design Process Models, University of Michigan, DESCI 502, with Dr. Colleen Seifert, Winter 2008

Analytical Product Design, University of Michigan, ME 499/599, DESCI 501, Teaching Assistant, Fall 2005, 2006, 2007

C. Supervision of Graduate Student Research as Primary Advisor or Co-Advisor

1. Ping Du, Ph.D. pre-candidate ISU ME, August 2010-present, Expected Graduation December 2014
2. Le Chen, Ph.D. ISU ME, August 2009- October 2013, "Wind farm layout optimization under uncertainty with landowners' financial and noise concerns," granted December 2013. *Winner of ISU Research Excellence Award, Fall 2013.*
3. Jinjuan She, Ph.D. ISU ME, January 2010 - October 2013, "Designing Features that Influence Decisions about Sustainable Products," granted December 2013. *Winner of ISU Teaching Excellence Award, Fall 2013.* See also III.E.1. User Experience and Interface Designer at INVIA Medical Imaging Solutions in Ann Arbor, Michigan (begins April 7th 2014).
4. Chris Miller, M.S. ISU ME, August 2012 - May 2013, "Academic validation of the Innovation Engineering program for use by CIRAS and other MEP centers for increasing innovation in American companies," granted May 2013. Currently Ph.D. student at North Carolina State University.

D. Service on Thesis Committees Other than Own Advisees (Program of Study Committee Member)

1. Eman Shoeib, M.S. Community and Regional Planning, ISU, defended May 2013
2. Cassandra Telenko, Ph.D. ME, University of Texas at Austin, Ph.D. defended Fall 2012
3. Nathan Johnson, Ph.D. ME, ISU, defended Spring 2012
4. Minhua Long, Ph.D. candidate ME, ISU, prelim defended October 2012
5. Susan VanderPlas, Ph.D. pre-candidate Statistics, ISU

E. Supervision of Post-Doctoral Students and Professional Staff

1. Dr. Jinjuan She; Ph.D. Mechanical Engineering from ISU; Responsibilities include coordinating workshop on Consider-then-Choose modeling of consumer behavior in engineering design and creating python-based webtool as Solar Marketplace demonstration piece; Supervised Winter 2014-Spring 2014. Funded from Iowa EPSCOR (NSF). Now the User Experience and Interface Designer at INVIA Medical Imaging Solutions in Ann Arbor, Michigan (begins April 7th 2014).
2. Dr. Tahira Reid; Ph.D. Design Science from University of Michigan; Responsibilities included setting up eye-tracking laboratory equipment, conducting initial eye-tracking studies, training Ph.D. students in experiment design and statistical analysis, and teaching ME 270; Supervised Fall 2010-Summer 2011. Funded from an Associate Dean of Graduate Education Postdoctoral Fellowship of $15,000, start-up funds, and an Instructor position in ME. Now an Assistant Professor in the Department of Mechanical Engineering at Purdue University.

F. Supervision of Undergraduate Research and Independent Study

1. Chloe McPherson, expected B.S. ISU ME, Science Undergraduate Laboratory Internship (SULI), The Ames Laboratory, Department of Energy, Winter 2014
2. Daniel Concannon, expected B.S. ISU ME, Independent Study, Fall 2013
3. Matthew Sierra, ISU Industrial Engineering, Freshman Honors Program Mentee, Winter 2013
4. Lyndsay Adams, B.S. ME, Independent Study Fall 2011-Spring 2012
5. Jacob Uptain, expected B.S. ME, Paid summer research position and then Independent Study, Summer 2010-Spring 2011
6. Nick Howard, B.S. ISU ME, Independent study, Fall 2009, upon graduation: System Engineer at Exelon Nuclear

7. Drew Robinson, B.S. ISU ME, Paid research position, upon graduation: Design Engineer at Vermeer Manufacturing
8. Sarah Woolf, B.S. ME, Rochester Institute of Technology , NSF REU Wind Energy, Summer 2010
9. Matt Galeano, B.S. ME, Louisiana State University, NSF REU Wind Energy, Summer 2010

G. Other Contributions to Instructional Programs

Supervision of students while at MIT (as Postdoctoral Researcher) and University of Michigan

1. Kevin Wang, M.S. Computer Science, Graduate researcher, MIT, Fall 2008 - Summer 2009
2. Jong-Moon Kim, M.S. Computer Science, MIT, Graduate researcher, Fall 2008 - Summer 2009
3. Chris Perciballi, M.S. Computer Science, MIT, Graduate researcher, Summer 2009
4. Ele Ocholi, M.S. Computer Science, MIT, Graduate researcher, Fall 2008 - Spring 2009
5. Marisa Leipa, B.S. UM, Marian Sarah Parker Researcher, Fall 2006 - Spring 2007
6. Martin Backsell, M.S. Linköping University, IAESTE Researcher, Spring 2006 - Summer 2006

IV. SERVICE (PUBLIC, PROFESSIONAL/DISCIPLINARY, AND UNIVERSITY)

A. Service to Disciplinary and Professional Societies or Associations

- **Journal Paper Reviewer**

  Artificial Intelligence for Engineering Design, Analysis, and Manufacturing: 2013 (2)

  ASME Journal of Computing and Information Science in Engineering: 2013

  ASME Journal of Energy Resources Technology: 2013

  ASME Journal of Mechanical Design: 2010, 2011 (3), 2012 (4), 2013 (2), 2014 (2)

  Displays: 2012

  Energy Conversion and Management: 2013

  Journal of Cleaner Production: 2013

  Journal of Engineering Design: 2007, 2008, 2010

  Renewable Energy: 2013 (2)

  Sustainability: 2013

- **Conference Paper Reviewer**

  ASME International Design Engineering Technical Conferences (Design Automation, Design Theory and Methodology, and Computers and Information in Engineering Conferences combined): 2008 (2), 2009 (4), 2010 (4), 2011 (6), 2012 (5), 2013 (6), 2014 (4)

  International Design Conference DESIGN 2014 (4)

  International Conference on Engineering Design (ICED) 2013 (3)

  WINVR 2010

- **Conference Session Chair/co-Chair**

  Scientific Advisory Board, International Design Conference DESIGN: 2014

  Session Co-Chair/Organizer, “Consideration and Strategy,” INFORMS Marketing Science Conference: 2014

Session co-chair, ASME International Design Engineering Technical Conference, Design Theory and Methodology: 2010, 2012, 2013

Session co-chair, ASME International Design Engineering Technical Conference, Design Automation Committee: 2010, 2013

Scientific Committee Member, International Conference on Engineering Design (ICED): 2013

B. Service-related Workshops

Co-Organizer, Workshop on Complex Consumer Choice and Transportation Energy Policy, Ann Arbor, Michigan, September 28-30, 2014. Funded by NSF. Advisory board includes representatives from Toyota Motor North America, U.S. Environmental Protection Agency, U.S. Volpe National Transportation Systems Center, Max Planck Institute, Booz Allen Hamilton, Carnegie Mellon University, University of Michigan, and The RAND Corporation.

Invited participant, Epicenter Research Summit on entrepreneurship education, Stanford, CA, to be held August 4-5, 2014.

Invited participant, Department of Energy Workshop on Assessing the Social Acceptability of Bioenergy, Washington DC, April 24, 2012

Invited participant, NSF Workshop Series on Graduate Design Education, Chicago and Ann Arbor, 2008 – 2011

Invited participant, NSF Workshop on managing Graduate Research Groups, Virginia Tech, July 11-12, 2011

Invited participant, NSF Workshop on Design Methods for Sustainability, Montreal, August 15, 2010

C. Grant Review Panels (e.g., for Governmental Agencies, Educational Institutions)
NSF 2011, 2012 (details confidential)

D. University/Campus Service

- **ISU University Committees:**
  1. Council on Sustainability, 2011 – 2013
  2. Bioeconomy Institute Faculty Advisory Board, 2009 – 2012
- **ISU ME Department Committees:**
  1. Design Expo Co-organizer, Department of Mechanical Engineering, 2010 – Present
  2. Graduate Education Committee, Department of Mechanical Engineering, 2010 – 2013
  3. Mechanical Engineering 170 Curriculum Development Committee, 2009 - 2011

E. Other Service

Wind Energy Institute Faculty Member, ISU 2011 – 2014

Director and Co-Director, Graduate Society of Women Engineers Chapter, UM, 2004 – 2007

Graduate ME Women's Peer Advisor, Mechanical Engineering, UM, Fall - Winter 2006, 2007

Director and Co-Director, Graduate Society of Women Engineers Chapter, UM, 2004 - 2007

Marian Sarah Parker Research Advisor, UM, 2006 – 2007

Teacher, Detroit Area Pre-College Engineering Program (DAPCEP) 2005, 2006

Rackham Graduate Student Forum Representative, Mechanical Engineering Department, UM, 2007

Council Member, College of Engineering Graduate Student Advisory Council, UM, 2004

Professional Society Memberships

American Society of Mechanical Engineers
The Design Society