NAMWOO KANG

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EDUCATION

University of Michigan — Ann Arbor, MI
Ph.D. Design Science (concentration in Mechanical Engineering and Marketing) — 2011 – 2014

Seoul National University — Seoul, Korea
M.S. Technology and Management — 2005 – 2007
B.S. Mechanical and Aerospace Engineering — 2000 – 2005

ACADEMIC APPOINTMENTS

KAIST — Daejeon, Korea
- **Assistant Professor**, K-School — 2016 – Present
- **Joint Professor**, Mechanical Engineering — 2017 – Present

University of Michigan — Ann Arbor, MI, USA
- **Research Fellow and Adjunct Lecturer**, Mechanical Engineering — 2014 – 2016

INDUSTRIAL EXPERIENCE

Hyundai Motor Company — Jeonbuk, Korea
Project Management & Process Design, R&D Center — 2007 – 2010

TEACHING EXPERIENCES

KAIST — 2016 - Present
- **Advanced Multidisciplinary Capstone design** (KEI501, Graduate course)
- **Multidisciplinary Capstone design I** (CD401, Undergraduate course)
- **Multidisciplinary Capstone design II** (CD402, Undergraduate course)
- **Entrepreneurship** (CC010, Graduate course)

University of Michigan — 2012 – 2016
- **Design Optimization** (ME555/MFG555, Graduate course)
- **Analytical Product Design** (ME455/DESCI501, Graduate course) - Guest
- **Product Design Process** (DESCI502, Graduate course) - Guest
- **Design and Manufacturing** (ME450, Undergraduate course) - Guest

Others
- **Intrapreneurship** (Undergraduate course, Sookmyung Women's University) – Guest, 2016
- **Creative Engineering Design** (Undergraduate course, University of Seoul) – Guest, 2010
- **Production and Operation Management** (Undergraduate course, Korea Polytechnic University) – Guest, 2010

RESEARCH PAPERS (Downloads are available at the web: namwookang.com)

Journal Papers under Review

[1] **Kang, N.**, Bayrak, A., and Papalambros, P. Y. "A Real Options Approach to Hybrid Electric Vehicle Architecture Design for Flexibility", *Journal of Mechanical Design* (submitted)

[2] **Kang, N.**, Ren, Y., Feinberg, F. M., and Papalambros, P. Y. "Form + Function: Optimizing Aesthetic Product Design via Adaptive, Geometrized Preference Elicitation", *Marketing Science* (submitted) (presented in 2016 Marketing Science Conference, Shanghai, China, Jun 16-Jun 18)

[3] **Kang, N.**, Burnap, A., Kim, K. H., Reed, M. P., and Papalambros, P. Y. "Influence of Seat Form and Comfort Rating on Willingness to Pay", *International Journal of Vehicle Design* (submitted)

[4] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. "Designing Profitable Joint Product-Service Channels", *Industrial Management & Data Systems* (submitted)

Journal Papers

[1] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. (2017) "Autonomous Electric Vehicle Sharing System Design", *Journal of Mechanical Design*, Vol. 139, No. 1, 011402.

[2] D'Souza, K., Bayrak, A. E., **Kang, N.**, Wang, H., Altin, B., Barton, K., Hu, J., Papalambros, P. Y., Epureanu, B. I., and Gerth, R. (2016) "An Integrated Design Approach for Evaluating the Effectiveness and Cost of a Conventional and Modular Fleet", *Journal of Defense Modeling and Simulation*, Vol. 13, No. 4, pp. 381-397.

[3] Bayrak, A., **Kang, N.***, and Papalambros, P. Y. (2016) "Decomposition Based Design Optimization of Hybrid Electric Powertrain Architectures: Simultaneous Configuration and Sizing Design", *Journal of Mechanical Design*, Vol. 138, No. 7, 071405 (*corresponding author)

[4] **Kang, N.**, Ren, Y., Feinberg, F. M., and Papalambros, P. Y. (2016) "Public Investment and Electric Vehicle Design: A Model-based Market Analysis Framework with Application to a USA-China Comparison Study", *Design Science*, Vol. 2, e6, doi:10.1017/dsj.2016.7.

[5] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. (2015) "Integrated Decision Making in Electric Vehicle and Charging Station Location Network Design", *Journal of Mechanical Design,* Vol. 137, No. 6, 061402.

[6] **Kang, N.**, Kokkolaras, M., Papalambros, P. Y., Park, J., Na, W., Yoo, S., and Featherman, D. (2014) "Optimal Design of Commercial Vehicle Systems Using Analytical Target Cascading", *Structural and Multidisciplinary Optimization*, Vol. 50, No. 6, pp. 1103-1114.

[7] **Kang, N.**, Kokkolaras, M., and Papalambros, P. Y. (2014) "Solving Multiobjective Optimization Problem Using Quasi-separable MDO Formulations and Analytical Target Cascading", *Structural and Multidisciplinary Optimization*, Vol. 50, No. 5, pp. 849-859.

[8] **Kang, N.**, Kim, J. and Park, Y. (2007) "Integration of marketing domain and R&D domain in NPD design process", *Industrial Management & Data Systems,* Vol. 107, No. 6, pp. 780-801.

Conference Proceedings

[1] **Kang, N.**, Bayrak, A., and Papalambros, P. Y. (2016) "A Real Options Approach to Hybrid Electric Vehicle Architecture Design for Flexibility", *Proceedings of the ASME 2016 International Design & Engineering Technical Conferences*, Charlotte, Aug 21-Aug 24, DETC2016-60247.

[2] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. (2015) "Autonomous Electric Vehicle Sharing System Design", *Proceedings of the ASME 2015 International Design & Engineering Technical Conferences*, Boston, Aug 2-Aug 5, DETC2015-46491 (*Dow Distinguished Award*)

[3] Bayrak, A., **Kang, N.**, and Papalambros, P. Y. (2015) "Decomposition Based Design Optimization of Hybrid Electric Powertrain Architectures: Simultaneous Configuration and Sizing Design", *Proceedings of the ASME 2015 International Design & Engineering Technical Conferences*, Boston, Aug 2-Aug 5, DETC2015-46861 (corresponding author)

[4] **Kang, N.**, Emmanoulopoulos, M., Ren, Y., Feinberg, F. M., and Papalambros, P. Y. (2015) "A Framework for Quantitative Analysis of Government Policy Influence on Electric Vehicle Market", *Proceedings of the 20th International Conference on Engineering Design*, Milan, Italy, Jul 27-Jul 30, ISBN: 978-1-904670-68-1.

[5] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. (2014) "Integrated Decision Making in Electric Vehicle and Charging Station Location Network Design", *Proceedings of the ASME 2014 International Design & Engineering Technical Conferences*,

Buffalo, Aug 17-Aug 20, doi:10.1115/DETC2014-35270.

[6] **Kang, N.**, Feinberg, F. M., and Papalambros, P. Y. (2013) "A Framework for Enterprise-driven Product Service Systems Design", *Proceedings of the 19th International Conference on Engineering Design*, Seoul, Korea, Aug 4-Aug 7, ISBN: 978-1-904670-47-6.

[7] **Kang, N.**, Kokkolaras, M., and Papalambros, P. Y. (2013) "Solving Multiobjective Optimization Problem Using Quasi-separable MDO Formulations and Analytical Target Cascading", *Proceedings to the 10th World Congress on Structural and Multidisciplinary Optimization*, Orlando, May 19-24.

[8] **Kang, N.**, Kokkolaras, M., Papalambros, P. Y., Park, J., Na, W., Yoo, S., and Featherman, D. (2012) "Optimal Design of Commercial Vehicle Systems Using Analytical Target Cascading", *Proceedings of the 14th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, Indianapolis, Sep 17-19, AIAA 2012-5524.

[9] Kim, J., **Kang, N.** and Park, Y. (2009) "Integrated design process of conjoint analysis and TRIZ", *The Korean Society for Technology Management and Economics,* Daejeon, Korea, Feb 27, pp. 627-647.

[10] **Kang, N.**, Kim, J. and Park, Y. (2006) "Integrated design solution of marketing domain and manufacturing domain in NPD", *The Korean Institute of Industrial Engineers*, Daejeon, Korea, May 19, Vol. 2006, No. 5, pp. 365-372.

PROFESSIONAL SERVICE

Reviewing

- Journal of Mechanical Design
- Journal of Mechanical Engineering Science
- Design Science
- Research in Engineering Design
- ASME International Design Engineering Technical Conference (IDETC)
- International Conference on Engineering Design (ICED)

Memberships

- American Society of Mechanical Engineers (ASME)
- Korean Society of Mechanical Engineers (KSME)
- Design Society

PROFESSIONAL AND INVITED PRESENTATIONS

- KAIST, Industrial & Systems Engineering, "Enterprise-driven Design Thinking" Dec, 2015
- INFORMS, Annual Meeting, Philadelphia, "Design for EV Market Systems" Nov, 2015
- Seoul National University, Mechanical Engineering, Korea, "Design Science" May, 2015
- Seoul National University, Industrial Engineering, Korea, "Design Science" May, 2015
- KAIST, Mechanical Engineering, Korea, "Design Science" May, 2015
- KAIST, Graduate School of Culture Technology, Korea, "Design Science" June, 2015
- Hanyang University, Mechanical Engineering, Korea, "Design Science" June, 2015
- Altair Engineering, Symposium, Ann Arbor, "Optimal Design of Commercial Vehicle Systems Using Analytical Target Cascading and HyperWorks" April, 2015

AWARDS & FELLOWSHIPS

Awards

- Dow Distinguished Award, Dow Sustainability Fellows, University of Michigan 2014

Fellowships

- Altair University Fellowship, Altair Engineering 2013 – 2015
- Graham Doctoral Fellowship, University of Michigan 2011 – 2013
- Design Science Fellowship, University of Michigan 2011 – 2014
- Rackham Graduate Student Research Grant, University of Michigan 2012, 2014
- Semester Honor Scholarship, Seoul National University 2000 – 2005