

# Danny J. Lohan

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## Education

<b>University of Illinois at Urbana-Champaign</b> PhD in Systems and Entrepreneurial Engineering	Jan 2017-Present
<b>University of Illinois at Urbana-Champaign</b> M.S. in Systems and Entrepreneurial Engineering	Aug 2014-Dec 2016
<b>University of Illinois at Urbana-Champaign</b> B.S. in General Engineering	Aug 2011-May 2014

## Research Interests

generative algorithms · evolutionary algorithms · finite element analysis · heat transfer · topology optimization · design automation · truss optimization · design for additive manufacturing · power electronics

## Research Experiences

<b>Engineering System Design Lab</b> <i>Research Assistant</i> Researching design optimization methods for heat transfer in electronics applications.	Aug 2014-Present
<b>Toyota Research Institute of North America</b> <i>Electrical Engineering Intern</i> Investigated advanced methods for power electronics packaging.	May 2017-Aug 2017
<b>Toyota Research Institute of North America</b> <i>Electrical Engineering Intern</i> Integrated software for electro-thermal-magnetic system design applications.	May 2016-Aug 2016
<b>Toyota Research Institute of North America</b> <i>Electrical Engineering Intern</i> Worked with interdisciplinary team of mechanical and electrical engineers to optimize buck-converter packaging.	May 2015-Aug 2015
<b>Engineering System Design Lab</b> <i>Undergraduate Researcher</i> Utilized CNC machinery to construct custom components. Implemented control schemes via Matlab Simulink. Produced quality diagrams and animations for national conference publications and presentations.	Aug 2012-May 2014

## Work Experiences

<b>Illinois MakerLab</b> <i>Guru</i> Instructed on use of and performed maintenance to 3D printers. Presented capabilities of additive manufacturing to visiting universities and businesses. Worked as a consultant developing 3D printable parts for clients.	Jan 2013-May 2014
<b>Abercrombie and Fitch</b> <i>Associate</i> Assisted customers with sales concerns through great customer service. Trained seasonal employees to company standards.	May 2010-Aug 2011

## Journal Articles

- J2* Danny J. Lohan, Ercan M. Dede, James T. Allison. ‘Topology Optimization for Heat Conduction Using Generative Design Algorithms’ Structural and Multidisciplinary Optimization, to appear in print, 2016.
- J1* Ashish Khetan, Danny J Lohan, James T Allison. ‘Managing Variable-Dimension Structural Optimization Problems Using Generative Algorithms.’ Structural and Multidisciplinary Optimization, October 2015.

## Conference Proceedings

- C6* Anand P Deshmukh, Danny J Lohan, James T Allison. ‘Design of a Reconfigurable Dynamic Testbed for Co-Design Method Validation.’ In ASME 2017 International Design Engineering Technical Conferences, to appear, DETC2016-67319, Cleveland, OH, USA, Aug 2017.
- C5* Danny J Lohan, James T Allison. ‘Temperature Constraint Formulations for Heat Conduction Topology Optimization.’ In ISSMO 12th World Congress of Structural and Multidisciplinary Optimisation, Braunschweig, Germany, Jun 2017
- C4* Danny J Lohan, Masanori Ishigaki, Ercan M Dede, James T Allison. ‘Combined Lumped and Continuum Parameter Design Optimization of Electro-Thermal Systems.’ In ASME 2016 International Design Engineering Technical Conferences, to appear, IDETC2016-60218, Charlotte, NC, USA, Aug 2016.
- C3* Danny J Lohan, Ercan M Dede, James T Allison. ‘Topology Optimization Formulations for Circuit Board Heat Spreader Design.’ In 2016 AIAA Aviation and Aeronautics Forum and Exposition, to appear, Washington, DC, USA, June 2016
- C2* Danny J. Lohan, Ercan M. Dede, James T. Allison. ‘Topology Optimization for Heat Conduction Using Generative Design Algorithms.’ To appear in the Proceedings of the 11th World Congress on Structural and Multidisciplinary Optimization. June 7-12, 2015.
- C1* James T. Allison, Ashish Khetan, Danny Lohan. ‘Managing Variable-Dimension Structural Optimization Problems using Generative Algorithms’ WCSMO - 10 May 2013

## Poster Presentations

- P6* Danny. J. Lohan. ‘Heat Spreader Design Electrical Optimization’, Presented at: Annual Meeting for the Power Optimization of Electro-Thermal System Research Center, October 27, 2016.
- P5* Danny. J. Lohan, Daniel R. Herber, Ercan M. Dede, James T. Allison. ‘Topology Optimization in Electro-Thermal Power Systems’, Presented at: Kickoff Meeting for the Power Optimization of Electro-Thermal System Research Center, October 14, 2015.
- P4* Daniel R. Herber, Danny. J. Lohan, Dr. James Allison, Masanori Ishigaki, Ercan M. Dede. ‘Integrated Design Methods for Electro-Thermal Power Electronics’, Presented at: Kickoff Meeting for the Power Optimization of Electro-Thermal System Research Center, October 14, 2015.
- P3* Danny. J. Lohan. ‘Generative Design of Optimal Thermal Management Systems’, Presented at: National Science Foundation Review for the Power Optimization of Electro-Thermal System Research Center, October 29, 2014.
- P2* Danny J. Lohan. ‘Use of Generative Algorithms in Heat Transfer Application’. Presented at: Undergraduate Research Symposium; April 17, 2014, Champaign IL.
- P1* Danny J. Lohan, Anand Deshmukh, Jason McDonald, Adam Cornell. ‘Design of Actively-Controlled Reconfigurable Mechatronics System’. Presented at: Undergraduate Research Symposium; April 17, 2014. Champaign IL.

## Coursework

### Graduate

ME 520 Heat Conduction • CEE 570 Finite Element Analysis • GE 598 Engineering Design Science • ECE 464 Power Electronics • CSE 401 Numerical Analysis • GE 521 Multivariable Control Design • ME 570 Nonlinear Solid Mechanics • AE 504 Optimal Aerospace Systems • GE 598 Dynamic System Modeling and Design • GE 413 Engineering Design Optimization • GE 450 Decision Analysis • AE 402 Orbital Mechanics • ECE 515 Control System Theory and Design • CS 446 Machine Learning

### Undergraduate

GE 424 State Space Design for Control • GE 402 Computer Aided Product Realization • GE 410 Component Design • GE 423 Mechatronics

## Leadership

<b>Center for Power Optimization of Electro-Thermal Systems, Conference Chair</b>	Spring 2017
<b>IEEE Jerry Sanders Creative Design Robotics Team, Team Captain</b>	Spring 2015
<b>UI-Innovate, Founder / Vice-President</b>	Fall 2014/ Spring 2015
<b>ISE Curriculum Development, Student Contributor</b>	Summer 2013
<b>Omega Delta Fraternity, Vice-President</b>	Spring/Fall 2012
<b>UIC Advisory Board Student Panel, Solicitor</b>	Spring 2011
<b>UIC ENG 100 BP Presentation, Investigator</b>	Fall 2010

## Service | Outreach

<b>Junior Scientist Day, Event Coordinator</b>	April 2014, 2015, 2016, 2017
<b>Habitat for Humanity, Charity Event Coordinator</b>	March 2014
<b>Champaign Urbana Mini-Maker Faire, MakerLab Representative</b>	September 2013