Jonathan Cagan, Ph.D., P.E., NAE

David and Susan Coulter Head of Mechanical Engineering
George Tallman and Florence Barrett Ladd Professor of Mechanical Engineering
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Education

Ph.D.	University of California, Berkeley, CA, April, 1990, Mechanical Engineering
M.S.	University of Rochester, Rochester, NY, January, 1985, Mechanical Engineering
B.S.	University of Rochester, Rochester, NY, December, 1983, Mechanical Engineering

Positions Held

4/26-present	**University Professor**
11/22-present	**David and Susan Coulter Head of Mechanical Engineering,** Department of Mechanical Engineering
1/22-10/22	**Interim Head,** Department of Mechanical Engineering
1/24-present	**Associate Director**, Human+AI Design Initiative
1/20-12/21	**Strategic Advisor to the Provost**
1/19-12/19	**Interim Dean**, College of Engineering
9/18-12/18	**Chief Academic Officer**, College of Engineering
4/17-12/18	**Associate Dean for Graduate and Faculty Affairs,** College of Engineering
8/16-6/18	**Faculty Co-Director**, Swartz Center for Entrepreneurship
7/16-10/17	**Head,** MS in Technology Ventures, Bi-Coastal Program
9/15-3/17	**Associate Dean for Strategic Initiatives,** College of Engineering
10/13-10/17	**Head,** MS in Software Management, Silicon Valley
8/13-10/17	**Co-Director,** Integrated Innovation Institute
7/13-9/15	**Director of Innovation and Entrepreneurship,** College of Engineering
5/13-8/14	**Co-Chair of Strategic Planning,** College of Engineering
5/08-12/11	**Co-Director**, Center for Product Strategy and Innovation
11/07-present	**George Tallman and Florence Barrett Ladd Professor of Mechanical Engineering**
7/03-2/17	**Co-Director**, Master of Integrated Innovation for Products and Services (formerly MPD)
7/99- present	**Professor**, Dept. of Mechanical Engineering
6/00 - present	**Faculty Appointment**, School of Design
9/97-6/99	**George Tallman and Florence Barrett Ladd Associate Professor in Engineering**
1/97-12/06	**Faculty Appointment**, Biomedical Engineering
7/95-6/99	**Associate Professor**, Dept. of Mechanical Engineering
12/93-12/13	**Courtesy Appointment**, Dept. of Computer Science
7/90-6/95	**Assistant Professor**, Dept. of Mechanical Engineering Carnegie Mellon University, Pittsburgh, PA
1/23-present	**Co-Founder and Chief Technology Officer** Placenta AI, LLC, Pittsburgh, PA
10/02-4/09	**Co-Founder and Chief Technologist** DesignAdvance Systems, Inc., Pittsburgh, PA [formerly called Desantage, Inc.] *(company acquired by EMA Design Automation)*
11/84-7/86	**Applied Research Engineer**, Engineering Technology Laboratory
5/81-10/84	**Cooperative Intern** Eastman Kodak Company, Rochester, NY

Research Interests

Design theory, methods, and automation; product design; concurrent engineering; problem solving, teams: spatial synthesis and layout, formal design synthesis, traditional, qualitative, and stochastic optimization techniques; computer-aided innovative and creative design; design representations; design grammars; product design methodologies; cognition and problem solving; agent-based design; machine learning; integrated product development; industrial and service design; entrepreneurship; strategic planning, brand strategy; design preference; neuroscience applied to design; internet of things; bio-based design synthesis; computational medical diagnostics.

Teaching Experience

Graduate Courses:	AI in Design (introduced course) Optimization in Mechanical Engineering (introduced course) Healthcare Engineering for Independent Living (introduced course) Product Research and Conceptualization (introduced course) Emotion-based Product Research (introduced course) Design for Manufacturing and the Environment (introduced course) Grand Challenges: Technology Identification and Product Design (introduced course) Technology-based Product Innovation and Enterprise Creation (introduced course) Grand Challenge Innovation (introduced course) Telling Your Story - Methods and Skills for Communicating Compelling Research (introduced course) Design for the Fourth Industrial Revolution (introduced course)
Undergraduate Courses:	Introduction to Mechanical Engineering Statics and Dynamics Engineering Design Design for Manufacturing Manufacturing Sciences
Integrated Innovation Courses:	Integrated Product Development (graduates and seniors; co-taught with business school and industrial design) Integrated Product Development Methods (co-introduced course)
Professional Development:	User-Centered Integrated Product Development Faculty-to-faculty course: Designing for the Human Experience Executive and team training to: Jarden Corp., Ford Motor Company, Procter & Gamble, Navistar (International Truck), Alcoa Corp., Industrial Scientific Corp., Giant Eagle Corp., Respironics Corp., Lubrizol Corp., Dormont Manufacturing, HP, Bayer, MSA, Lockheed Martin, CMU Tepper Executive Education Program, CMU Carnegie Bosch Institute, Global Management for Engineers
Notes:	Several dozen US patent applications filed by Ford, Navistar/International Truck and Engine, Kennametal, Alcoa, Respironics, McKesson Automation, Jarden, from student project courses at Carnegie Mellon

Awards

- *University Professor, Carnegie Mellon University, elevated in 2026*
- *National Academy of Engineering (NAE), elected class of 2026*
- *ASME Computers and Information in Engineering Division Lifetime Achievement Award, 2025*
- *Fellow, American Association for the Advancement of Science, 2022*
- *Reviewers' Favourite Award, 2021 International Conference on Engineering Design*
- *College of Engineering Outstanding Service Award, 2021*
- *2020 JMD Reviewer With Distinction, ASME, 2021*
- *ASME Ruth and Joel Spira Outstanding Design Educator Award, 2020*
- *ASME Design Automation Award, 2019*
- *Reviewers' Favourite Award, 2019 International Conference on Engineering Design*
- *Robert A. Doherty Award for Sustained Contributions to Excellence in Education, Carnegie Mellon University, 2018*
- *Reviewers' Favourite Award, 2017 International Conference on Engineering Design*
- *ASME Design Theory and Methodology Award, 2016*
- *Best Paper Award in Design Computation, 2016 International Conference of Design Computation and Cognition*
- *Reviewers' Favourite Award, 2015 International Conference on Engineering Design (Two Awards given for separate papers)*
- *Best Paper Award, 2015 ASME Virtual Environments and Systems, CIE Conference*
- *Best Paper Award, 2014 ASME Design Theory and Methodology Conference*
- *Reviewers' Favourite Award, 2013 International Conference on Engineering Design*
- *Best Paper Award, 2012 ASME Design Theory and Methodology Conference*
- *Best Paper Award in Design Cognition, 2012 International Conference of Design Computation and Cognition*
- *Best Paper Award, 2011 ASME Design Theory and Methodology Conference*
- *Best Paper Award, 2010 ASME Design Automation Conference*
- *Best Paper Award, 2008 ASME Design Theory and Methodology Conference*
- *Carnegie Institute of Technology Outstanding Research Award, 2007*
- *George Tallman and Florence Barrett Ladd Professorship in Engineering. 2007*
- *DesignVision Award - Printed Circuit Board Design Tools category, International Engineering Consortium, 2006 (awarded to DesignAdvance Systems)*
- *ASME Curriculum Innovation Award, 2003 (w/ C. Vogel & L. Weingart)*
- *Winner, EnterPrize Business Plan Competition, 2003 (w/ R. Eager)*
- *B.R. Teare Teaching Award, Carnegie Institute of Technology, 2002*
- *In Appreciation Award, Mon Valley Initiative, 2002*
- *Fellow of the ASME, elected 2000*
- *Philip L. Dowd Fellowship Award, Carnegie Institute of Technology, 2000*
- *Xerox Best Paper Award, 1998 ASME Design Theory and Methodology Conference*
- *Professor of the Year, 1997 - voted on by CMU's Mechanical Engineering graduating class*
- *George Tallman and Florence Barrett Ladd Development Professorship in Engineering, 1997*
- *Distinguished Paper Award, 1996 ASME Design Theory and Methodology Conference*
- *SAE Ralph R. Teetor Educational Award, 1996*
- *National Science Foundation Young Investigator Award, 1992*
- *National Science Foundation Research Initiation Award, 1991*

Professional Associations and Service

Member - *National Academy of Engineering (NAE)*

Professional Engineer - *Pennsylvania license no. PE-040885-R*

Member -	*ASME ME Department Heads Executive Committee, 2023-present*
Co-Organizer -	*ASME Mechanical Engineering (Department Heads) Education Summit (MEEd), March 19-20, 2024; March 27-29, 2025*
Chairperson-	*External Advisory Board of Engineering Product Development Pillar at Singapore University of Technology and Design, 2013-2015*
Member -	*American Society of Mechanical Engineers (Fellow); American Association for the Advancement of Science (Fellow); Industrial Designer Society of America; Design Society; American Society for Engineering Education; Digital Pathology Association*
Member-	*Board of Directors, DesignAdvance Systems, Inc., Pittsburgh, PA, 2002-2009*
Member-	*Advisory Board, The Design Society, 2005-2011*
Member-	*Advisory Board, RedZone Robotics, Inc., Pittsburgh, PA, 2003-2006*
Member-	*Advisory Board, Pittsburgh Product Strategy Network, 2003-2005*
Chair -	*ASME Design Theory and Methodology Committee, 1996-1998*
Member -	*Phi Beta Kappa, Tau Beta Pi, and Sigma Xi National Honor Societies*
Participant-	*NAE/DFG First German-American Frontiers of Engineering Symposium, May 13-16, Dresden, Germany, 1998.*

Selected Editorial Roles

Major Roles

Co-Editor-in-Chief, *Design Science Journal*, 2025-present
Board of Reviewing Editors, *PNAS Nexus*, 2026-present
Senior Editor: *Journal of Engineering Design*, 2022 – 2024
Associate Editor: *Journal of Engineering Design*, 2018 - 2022
Associate Editor: *Design Science Journal*, 2014 - 2021.
Associate Editor: *Design Studies*, 2012 - 2018.
Associate Technical Editor: *Transactions of the ASME Journal of Mechanical Design*, 1998-2001 and 2008 - 2014.
Advisory Editor: *Research in Engineering Design*, 1999 - present.
Advisory Board: *Artificial Intelligence in Engineering Design, Analysis and Manufacturing*, 2001-present.
Editorial Board: *Journal of Engineering Design*, 2003 – present
Editorial Board: *Design Studies*, 2008-2012; 2018-2023
Editorial Board: *Computer Aided Design*, 2002 - 2004
Area Editor: *Transactions of the SDPS Journal of Integrated Design & Process Science,* 1996-1998.
Advisory Board: Design Society, 2005-2011
Workshop Co-chair: *NSF Workshop: Discussion on Individual and Team-Based Innovation*, Knoxville, TN, January 7, 2008.
Organizing Committee: *NSF Workshop on Science of Innovation and Discovery*, Washington, DC, May 17-18, 2006.
Steering Committee: *NSF Planning Workshop on Engineering Design in 2030*, Gold Canyon, AZ, March 26-29, 2004.
Conference Chair: *ASME 1996 Design Theory and Methodology Conference*, Irvine, CA, August 18-21.

Other Roles

Member - *Program Committee: AAAI Symposium on Design from Physical Principles, Cambridge, MA, October, 1992.*

Session co-organizer and chair*: "Quality and Tolerancing: The Link Between Design and Manufacturing", ASME Design Theory and Methodology Conference, Minneapolis, September, 1994.*

Session organizer and chair*: "Methodology for Design Automation: Application and Theory", ASME International Mechanical Engineering Congress and Exposition, Chicago, November 6-11, 1994.*

Review Coordinator*: ASME Design Theory and Methodology Conferences.*

Conference Vice-Chair and Member of Best Presentation Award Committee*: 1996 International Conference on Artificial Intelligence in Design, Palo Alto, CA, June, 1996.*

Member, International Scientific and Advisory Board: *JSME International Symposium on Optimization and Innovative Design, Tokyo, July 28-30, 1997.*

Conference Vice-Chair and Member of Best Presentation Award Committee*: 1998 International Conference on Artificial Intelligence in Design, Portugal, July 19-21, 1988.*

Conference Vice-Chair*: 2000 International Conference on Artificial Intelligence in Design, Worcester, MA, July, 2000.*

Workshop Committee Member: *International Workshop on Agents in Design at MIT, Cambridge, 28-30 August 2002.*

Member, Scientific Advisory Panel: *ICED 03: International Conference on Engineering Design, August 19-21, Stockholm, Sweden, 2003.*

Member, Steering Committee: *Strategic Planning Workshop for NSF's Engineering Design Program, March 26-29, AZ, 2004.*

Conference Vice-Char*: International Conference on Design Computing and Cognition, MIT, Cambridge, July 2004*

Member, Scientific Advisory Board: *ICED 07: International Conference on Engineering Design, August 28-31, Paris, France, 2007.*

Member, Advisory Board: *DCC 08: 3rd International Conference on Design Computing & Cognition '08, July 22-25, Atlanta, GA, 2008.*

Member, Advisory Board: *DCC 10: 5th International Conference on Design Computing & Cognition '12, June 7-9, College Station, TX, 2012.*

Proposal Reviews - *NSF, ASME, Ben Franklin Technology Center of Western PA, Georgia Tech, CMI (UK)*

Reviewer, *Graduate Program of the Design, Architecture and Planning School*, *the University of Cincinnati,* 2008.

Conference Vice-Chair*: International Conference on Design Computing and Cognition, Northwestern, Chicago, July 2016.*

Conference Vice-Chair*: International Conference on Design Computing and Cognition, Milan, Italy, July 2018.*

Conference Vice-Chair*: International Conference on Design Computing and Cognition, online, December 2020.*

Scientific Advisory Board: *16th International Design Conference (DESIGN2020)*, online, October 2020.

Organizing Committee: ASME MEEd (Mechanical Engineering Education) Conference, Atlanta, March 18-21, 2024.

Journal Reviews - *ASME Journal of Mechanical Design; Research in Engineering Design; Artificial Intelligence in Design, Analysis, and Manufacturing; Computer Aided Design, AI Journal; AIAA Journal; IEEE Transactions on Components, Packaging, and Manufacturing Technology Society, International Journal of Design Computing, Environment and Planning B, ASME Journal of Computing and Information Science in Engineering, ASCE Journal of Structural Engineering, Design Studies, Journal of Engineering Design, Design Issues, Journal of Aerospace Engineering, ASME Journal of Energy Resource Technology, Design Science*

Conference Reviews - *International Conference on Artificial Intelligence in Design, ASME Design Theory and Methodology Conference, ASME Design Automation Conference, ASME Computers and Information in Engineering Conference, IFIP WG 5.2 1991 Working Conference on Intelligent CAD, ASME Design Automation Conference, IJCAI-93, IFIP 1993 Conference Towards World Class Manufacturing, ASME International Mechanical Engineering Congress and Exposition, ASME Design for Manufacturing Conference, International Conference on Engineering Design, International Conference on Design Computing and Cognition, DESIGN*

Students Advised

Postdoctoral Students/Research Scientists

Zachary Ball, Changing Teams in Industry *(3/20-3/21) – now Senior Mechanical Engineer at ARCCA*
Emrah Bayrak, Game Theory and Control Modeling of Problem Solving Processes *(1/18-12/18) – now assistant Professor at Stevens Institute*
Kenneth Brown, A Shape Annealing Approach to Process Planning *(94-95) - now Lecturer at University of Aberdeen*
Jay McCormick, Shape Grammar Interpreters for Product Design *(6/03-5/04) - now Associate Professor at Rose-Hulman*
Shraddha Joshi, Design of Connected Products *(9/14 – 8/16) – now Assistant Professor at James Madison University*
Kosa Goucher-Lambert, Team-based Problem Solving *(co-advised with K. Kotovsky) (7/17-12/18) – now Assistant Professor at UC Berkeley*
Chris McComb, Computational Team Design *(co-advised with K. Kotovsky) (8/16-8/17) – Now Assistant Professor at Penn State University*
Jarrod Moss, Research on Open Goals in Creative Problem Solving *(co-advised with K. Kotovsky) (6/06-5/07) - now Associate Professor at Mississippi State University*
Joshua Gyory, Computationally Facilitating the Problem-Solving Design Process Via Real-Time Process Management *(9/21-7/22) – now Consultant at Boston Consulting*
Ut Na Sio, Team-based Problem Solving *(co-advised with K. Kotovsky) (9/12-8/17) – now Assistant Professor at The Education University of Hong Kong)*
Guanglu Zhang, Design Systems Modeling and Optimization *(7/19-present)*

Ph.D. Students

Manish Agarwal, Supporting Automated Design Generation: Function Based Shape Grammars and Insightful Optimization *(9/99) - now Senior Vice President at AXA Equitable Life Insurance Co*
Chandankumar Aladahalli, Improved Pattern Search Algorithm Using an Objective Function Effect

Based Move Schedule for 3D Component Layout *(co-advised with K. Shimada) (12/04) – now Lead Engineer at GE India*

Bolutito Babatunde, Investigating a flexible framework for automating structural multilayer DNA origami designs *(co-advised with R. Taylor) (8/24)- now Postdoctoral Fellow at La Jolla Institute for Immunology*

Ethan Brownell, Designing Better Design Teams: Studying Relative Contribution in Engineering Design with Proficient Heterogeneous Computational Agents *(co-advised with K. Kotovsky) (5/23)*

Matthew Campbell, A-Design: An Agent-Based Conceptual Design Methodology *(co-advised with K. Kotovsky) (7/00) – now Professor at Oregon State University*

Yu-Hsuan (Sean) Chen, Geometric Representation Learning for Accelerated Design Analysis in Data-scarce Environments *(co-advised with L. B. Kara) (5/25) – now Lead Software Engineering at Cadence*

Jack (Woncheol) Choi, Determination of Optimal Inspection Point Locations *(co-advised with T.R. Kurfess; Kurfess primary advisor) (5/96) – now President and CEO of Anatomage*

Leah Chong, Exploration of Human-Computer Partnerships for Problem Solving Methodology *(co-advised with K. Kotovsky) (5/22) – now PostDoc at MIT*

Daniel Clymer, Hierarchical Deep Learning for Disease Identification in High-Resolution Medical Imaging, *(co-advised with P. LeDuc) (10/19) – now Data Scientist at BAE Systems*

Bryony DuPont, Exploring the Application of an Advanced Extended Pattern Search Algorithm within a Multi-Agent System to Wind Farm Optimization *(5/13) – now Associate Professor at Oregon State University*

Paul Egan, Emergent Computational and Cognitive Model of Multi-Scale BioMechanics Design *(co-advised with P. LeDuc) (5/14) – now Assistant Professor at Texas Tech University*

Mitchell Fogelson, The Expanse: Advances in Design, Optimization, and Simulation of Linkage-Based Systems *(Z. Manchester primary advisor) (6/25)*

Katherine Fu, Discovering and Exploring Structure in Design Databases and Its Role in Stimulating Design *(co-advised with K. Kotovsky) (5/12) – now Associate Professor at University of Wisconsin at Madison*

Kosa Goucher-Lambert, Investigating Decision Making in Engineering Design Through Complementary Behavioral and Cognitive Neuroimaging Experiments *(8/17) – now Assistant Professor at UC Berkeley*

Joshua Gyory, Computationally Facilitating the Problem-Solving Design Process Via Real-Time Process Management *(co-advised with K. Kotovsky) (8/21) – now Consultant at Boston Consulting*

Lindsay Hanna Landry, Combinatory Adaptive Optimization with Multi-Agent Systems *(12/09) – now engineer at United Technologies*

Ernest Kabuye, A Mixed Reality System Combining Augmented Reality, 3D Bio Printed Physical Environments, and Inertial Measurement Unit Sensors for Task Planning *(co-advised with P. LeDuc) (5/23) – now Consultant at Bain & Company.*

Chris McComb, Designing the Characteristics of Design Teams via Cognitively Inspired Computational Modeling, *(co-advised with K. Kotovsky) (8/16) – now Associate Professor at CMU* – Winner, CMU Mechanical Engineering Doctoral Research Award, 2017

Jay McCormick, Implementing Parametric Shape Grammars to Capture and Explore Product Languages *(5/03) – now Professor at Rose-Hullman*

Scotty McGee, An AI-based Approach to Guide Teams in Real Time *(co-advised with C. McComb) (5/27, est)*

Jarrod Moss, The Role of Open Goals in Noticing Relevant Information in Problem Solving *(Psychology student, co-advised with K. Kotovsky) (5/06) – now Associate Professor at Mississippi State University*

Jesse Olson, The Collective Potential: Achieving Organizational Potential by Design *(co-advised with K. Kotovsky) (6/06) – now Principal Technical Architect, USAA*

Seth Orsborn, Quantifying Aesthetic Preference Through Statistics Applied to an Agent-based Shape Grammar Implementation *(11/07) – now Research Professor, Southern Methodist University*

Lucas Puentes, Multi-tier Grammars, *(Penn State University student; co-advised with C. McComb) (LOA)*

Ayush Raina, Towards Deep Learning Guided Search Agents for Sequentially Generative Design Problems *(co-advised by C. McComb) (1/22) – now Senior Machine Learning Engineer, Sony Playstation*

Sean Rismiller, Using Multi Agent Systems to Computationally Study Set-Based Concurrent Engineering and its Interactions with Team Organization and Problem Structure*(co-advised with C. McComb) (5/23) – now Software Engineer at L3Harris*

Mangalam Sahai, Diagnostics via Deep Learning *(co-advised with P. LeDuc) (5/29, expected)*
Linda Schmidt, An Implementation Using Grammars of an Abstraction-Based Model of Mechanical Design for Design Optimization and Design Space Characterization *(5/95) – former Professor at University of Maryland at College Park*
Qihang Shan, GPU-Based Global Optimization *(co-advised with G. Zhang) (5/30 est.)*
Kristina Shea, Essays of Discrete Structures: Purposeful Design of Grammatical Structures by Directed Stochastic Search *(8/97) – now Professor at ETH Zurich.*
Brian Sylcott, Understanding the Role of Aesthetic Judgment in Consumer Choice and Preference Modeling *(5/13) – now Assistant Professor at East Carolina University*
Simon Szykman, Optimal Product Layout Using Simulated Annealing *(5/95) – now Chief Technology Officer, Federal Services at Attain*
Ian Tseng, The Unification of Stylistic Form & Function *(co-advised with K. Kotovsky) (5/11) – now Engineer at Nuclear Regulatory Commission*
Hubert Vasseur, Manufacturing Quality and Process Capability: a Cost-Based Analysis *(co-advised with T.R. Kurfess) (8/94) – now Engineer at Renault*
A.J. Vetturini, Automated Generation of DNA Origami *(co-advised with R. Taylor) (5/27 est.)*
Lisha White, *A Method to Design Hybrid Lattice Support Structures for LPBF Additive Manufacturing (co-advised with J. Zheng) (12/23) – now Mechanical Engineer at the National Institute of Standards and Technology*
Mark Whiting, Anomaly Classification Through Automated Shape Grammar Representation *(Co-advised with P, LeDuc) (8/17) – now Post Doc at University of Pennsylvania*
Matthew Wood, Problem Representation and Team Mental Model Development in Individual and Team Problem Solving Performance *(Psychology student, co-advised with K. Kotovsky) (5/13) – now Research Scientist at US Army Corps of Engineers)*
Xiangyang Xin, Product Innovation in A Cultural Context - A Method Applied To Chinese Product Development (Design student co-advised w/ C. Vogel) (8/06) – now Professor and Dean at Jiangnan University, China
Su Yin, A Pattern Search-Based Algorithm for Automated Product Layout *(5/00) – now Principal Engineer at Parker Aerospace*

M.S. Project Students

Manish Agarwal, A Language of Coffee Makers *(5/97)*
Ashwini Asokan Design Languages for Cultural Context (*Design student, 5/05*)
Chandankumar Aladahalli, Characterizing Layout Spaces *(co-advised with K. Shimada) (5/01)*
Matthew Campbell, A-Design: An Agent-Based Conceptual Design Methodology *(co-advised with K. Kotovsky) (5/97)*
Hillary Carey, A Corporate Decision Model of the Product Design Process *(Design student, C. Vogel primary advisor) (5/03)*
Steven (Pinzhi) Chen, fMRI Studies and Data Mapping of Form-Function Reasoning *(12/13)*
Daniel Clymer, Process Specification Design for Additive Manufacturing *(8/16) (co-advised with J. Beuth)*
Drew Degentesh, Effective Computational Structural Design and Analysis *(co-advised with P. Steif) (5/96)*
Saurabh Deshpande, Agent-Based Optimal Process Planning *(5/01)*
Quan Ding, Optimal Packing of Automobile Trunks *(12/01)*
Bradley Feng, Region-based Optimization *(5/23 expected)*
Ashish Kolli, Layout of Non-linear Shapes *(5/96)*
Gyuho Kwak, A User-Interactive Optimizing Routing Algorithm*, (5/97)*
Rosa Lopez, Quality Estimation Through Neural Networks *(5/94)*
Jay McCormick, Shape Grammars for Product Design *(5/00)*
Jesse Olson, A Collaborative Approach to Agent-based Design *(5/03)*
Luis Oms, Investigation of Hip Fractures in the Elderly and Hip Pad Solution *(co-advised with P. Steif) (12/98)*
Seth Orsborn, Using Shape Grammars to Model Product Characteristics *(5/05)*
Shashvat Prakash, Hierarchical Method for Approximating MEMS Analysis *(12/99)*
Giridhar Reddy, Topological Generation of Truss Structures *(8/93)*
Julie Reyer, Computer Aided Systems Simulation *(co-advised with T.R. Kurfess) (5/93)*
Jamie Rugnetta, Innovative Design of Walkers for Elders *(co-advised with K. Kotovsky) (5/00)*
Mangalam Sahai, Diagnostics via Deep Learning *(co-advised with P. LeDuc) (5/23)*

Vedant Singh, Generative Design of Preferred DNA Structures Using Machine Learning (*5/26, expected*)
Noah Tovares, Virtual Preference Function-based Design *(5/14)*
Yu Wan, GPU-based Multi-Objective Optimization (*(co-advised w G. Zhang) (5/26 est)*
Erika Wetzel, Understanding Chaos in the Design Process *(5/04)*
Andrew Whittam, Formal Criteria for Robust Optimality *(8/94)*
Ryan Yeh, Inducing Grammar Rules with Deep Learning *(co-advised with P. LeDuc) (5/21)*

M.S. Coursework-based Project Students

Edwin Comparini, Development of a Curriculum in Green Design for the Mechanical Engineering Capstone Design Course *(8/98)*
Kathy Constantine, Manufacturing Costs for Shape Grammar Design *(5/97)*
Mike Cummings, Application of Taguchi Methods to Sheet Metal Stamping *(8/92)*
Michael DeGuire, 3-D Layout of Electronic-Mechanical Designs *(5/95)*
David Eyvazzadeh, Understanding the SET Factors in Industrial Products*(5/03)*
Mark Hamblin, Social Impact Analysis in Product Development *(12/03)*
Jiun-Tza Han, Applying Robust Activity Analysis to Bulk Manufacturing Process Planning *(5/99)*
Alan Leung, Development of a Shape Grammar for Bulk Manufacturing Processes *(5/99)*
Simone Mauri, Understanding the SET Factors in Industrial Products*(5/03)*
Michael Pugliese, Modeling Complexities in the Product Development Process *(6/01)*
Jeff Tucker, Dimension and Tolerance Selection for Minimal Manufacturing Costs *(co-advised with T.R. Kurfess) (8/91)*

Undergraduate Students (Project Students)

Mark Baptista, A Utility Function for Value Opportunities *(5/03)*
Dan Boggard, A Utility Function for Value Opportunities *(5/03)*
Brian Campbell (University of Virginia), REU project: Computer Aided Systems Simulator *(8/92)*
Matt Campbell, Layout of 3-D Electronic Components *(co-advised with C. Amon) (5/95)*
Felix Chiu, Computational Implementation of Multi-Scale Myosin-Based Design *(5/13 est)*
Alison Coleman (CFA), CASS: Computer Aided Systems Simulator *(co-advised with T.R. Kurfess) (8/92)*
Andrew Concilio, Agent Models of Spacecraft *(5/06)*
Aubrey Donnellan, Value of Product Packaging *(5/07 est)*
Jason Fung, Product Opportunity Gaps in the Biomedical Field *(5/03)*
Stephen Goode, Generation of Coffee Makers using the Coffee Maker Shape Grammar *(5/00)*
Tiffany Ho, A Study of Multi-scale Myosin-based Design in Engineers and Medical Students *(5/13)*
Sydney Howard, Neural Networks in Design (5/19 est)
Becky Lee, A Kinect-based VR environment to Derive Consumer Preference *(5/94 est)*
Todd Jerry, An Improved 3-D Tube Routing Algorithm with Shape Annealing *(5/94)*
Gary Liu, An Implementation of the First Order Necessary Conditions of Robust Optimality *(5/94)*
Jeremy Michalek, Implementation of the Coffee Maker Grammar *(5/99)*
Scotty McGee, Design Structured Matrix Analysis of Design Evolution *(5/22)*
Volus McKenna, Understanding and Designing Walkers for the Elderly Population *(5/98)*
Klaus Moser, Understanding and Designing Walkers for the Elderly Population *(5/98)*
Bijal Patel, CASS: Computer Aided Systems Simulator *(co-advised with T.R. Kurfess) (5/93)*
Michael Pugliese, The Development of Shape Grammars to model Engineering Artifacts *(5/00)*
Joe Sanders, CASS: Computer Aided Systems Simulator *(co-advised with T.R. Kurfess) (5/92)*
Qihang Shan, GPU-Based Global Optimization *(co-advised with G. Zhang) (5/25 est.)*
Kristina Shea, 3-D Tube Routing with Shape Annealing *(5/93)*
Guochen Shen, Computational Modeling of Internet of Things Systems for Design *(5/16)*
Ed Wilcox, Innovative design of a Bicycle Frame *(5/94)*
Emily Tolmer, Assessing Manager Strategies (8/17)
Jenny Williams, Component Selection During Product Layout *(5/96)*
David Wynne, Mapping Design Organizations to Product Organization *(5/04)*
Wing Tong Wong, Design Conceptualization Through Crowd Sourcing *(5/16)*

Patents

Cagan, J., A. Kolli, S. Szykman and R. Rutenbar, "Method of Optimizing Component Layout Using A Hierarchical Series of Models, " United States Patent No. 5,825,660, issued October 20, 1998.

Yin, S. and J. Cagan, "Method of Optimizing Component Layout Using a Pattern Based Search," United States Patent No. 5,953,517, issued September 14, 1999.

McCormack, J., and J. Cagan, "Parametric Shape Grammar Interpreter," United States Patent No. 7,050,051, issued May 23, 2006.

McCormack, J., and J. Cagan, "Parametric Shape Grammar Interpreter," United States Patent No. 7,415,156, issued August 19, 2008.

McCormack, J., and J. Cagan, "Parametric Shape Grammar Interpreter," United States Patent No. 7,502,511 issued March 10, 2009.

Cagan, J., A. Concilio, L. Hoxie, F. Humbert, E. Kemner, N. Kim, M. Langdon, K. Shin, "Shopping Cart," United States Patent No. 8,066,291, issued November 29, 2011.

Byrne, D., J. Cagan, S. Krotseng, and S. Joshi, "Internet-Connected Storage Container and System and Method of Dispensing Articles," United States Patent No. 10,836,545, issued November 17, 2020

Cagan, J., P.R. LeDuc, and M. Whiting, "Searching of Data Structures in Pre-Processing Data for a Machine Learning Classifier," United States Patent No. US 11,899,669 B2, issued February 13, 2024.

Clymer, D., J. Cagan, P. R. LeDuc, "Method for Object Detection Using Hierarchical Deep Learning," United States Patent No. 11,367,189, issued June 21, 2022.

Clymer, D., J. Cagan, P. R. LeDuc, L. Pantanowitz, J. Catov, "Method for Object Detection Using Hierarchical Deep Learning," United States Patent 11,893,811, continuation in patent, issued February 6, 2024.

Clymer, D., J. Cagan, P. R. LeDuc, "Method for Object Detection Using Hierarchical Deep Learning," United States Patent 12,494,071, continuation in patent, issued on December 9, 2025.

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"Capturing and Generating the Essence of Brand," General Motors ($50,000), 7/01-12/01 (PI w/ C. Vogel).

"A Model for Strategic Decision Making in New Product Development," Whirlpool Corporation ($75,000), 1/02-6/02 (PI w/ C. Vogel, C. Pelly, J. Gregor).

"Integrated Product Development Course Sponsorship: Escape," Ford Motor Company ($80,000), 1/02-5/02 (PI w/ C. Vogel, L. Weingart).

"Shape Grammars in Design," General Motors gift ($50,000), 2002 (PI).

"Integrated Product Development Course Sponsorship," Respironics Corporation ($15,000), 1/03-5/03 (PI w/ C. Vogel and L. Weingart).

"GOALI: Capturing, Implementing, and Generating Product Brand Through Shape Grammars," NSF ($295,227), 4/03-3/06 (PI w/ R. Smith).

"Mechanical Engineering Senior Design Course Sponsorship," Kennametal Corporation ($30,000), 8/03-12/03 (PI).

"Cognitive Approaches to Automated Engineering Design," AFOSR ($323,774), 1/04-12/06 (PI w/ K. Kotovsky).

"Integrated Product Development Course Sponsorship," New Balance Corporation ($50,000), 1/04-5/04 (PI w/ P. Boatwright, C. Vogel and L. Weingart).

"Integrated Product Development mini-project," Angeles Group ($25,000), 1/04-5/04 (PI w/ C. Vogel).

"Integrated Product Development mini-project," Alcan Corporation ($30,000), 1/04-5/04 (PI w/ C. Vogel).

"IPD Consortium Membership," General Motors ($40,000), 4/04-3/05 (PI).

"A Decomposition Based Approach to Optimal Layout of Complex Systems such as UAV's and Satellites – Phase I", STTR – AFOSR, subcontract to DesignAdvance Systems, Inc., ($100,000), 9/04-3/05 (PI w/ J. McCormack).

"Mechanical Engineering Design Course Sponsorship" Alcoa ($40,000), 8/04-12/04 (PI).

"Integrated Product Development mini-project," International Truck & Engine Corporation ($70,000), 8/04-12/04 (PI w/ P. Boatwright).

"Integrated Product Development Course Sponsorship," International Truck & Engine Corporation ($90,000),1/05-5/05 (PI w/ E. Anderson, P. Boatwright and L. Weingart).

"A Decomposition Based Approach to Optimal Layout of Complex Systems such as UAV's and Satellites – Phase II," STTR – AFOSR, subcontract to DesignAdvance Systems, Inc., ($750,000), 9/05-6/07 (PI w/ J. McCormack).

"Mechanical Engineering Senior Design Course Sponsorship," RedZone Robotics, ($15,000) 8/05-12/05 (PI).

"Product Research and Conceptualization Course Sponsorship," Respironics, Inc., ($25,000) 8/05-12/05 (PI).

"Product Research and Realization Course Sponsorship," Respironics, Inc., ($15,000) 1/06-5/06 (PI).

"Integrated Product Development Course Sponsorship," International Truck & Engine Corporation ($90,000),1/06-5/06 (PI w/ E. Anderson, P. Boatwright and L. Weingart).

"IPD Consortium Membership," General Motors ($40,000), 4/05-3/06 (PI).

"IPD Consortium Membership," General Motors ($25,000), 4/06-3/07 (PI).

"Understanding the Role of Impasses and Representation Changes in Creative Design: An Initial Study," NSF ($153,702), 7/06-6/07 (PI w/ K. Kotovsky) .

"Mechanical Engineering Senior Design Course Sponsorship," International Truck and Engine ($40,000), 8/06-12/06 (PI).

"Integrated Product Development Course Sponsorship," Dormont Manufacturing ($70,000), 1/07-5/07 (PI w/ E. Anderson, P. Boatwright and L. Weingart).

"A Geometry-based Approach to Scheduling and Packing Cargo Delivery." AFOSR ($177,872), 4/1/07-12/31/08 (PI).

"Overcoming Impasses in Design Problem Solving: Environmental Input and Sources of Design Breakthroughs," NSF ($499,999), 9/07-8/10 (PI w/ K. Kotovsky).

"Stimulating Creative Insight: A Cohesive Model of Design Innovation Across Individuals, Groups and Computer Agents," NSF ($212,000), 1/08-12/10 (PI w/ K. Kotovsky).

"Workshop: Discussion on Individual and Team-Based Innovation," NSF ($25,860), 9/07-8/08 (PI w/ K. Wood).

"Integrated Product Development Course Sponsorship," International Truck ($80,000), 1/08-5/08 (PI w/ P. Boatwright).

"Integrated Product Development Course Sponsorship," MSA ($100,000), 1/09-5/09 (PI w/ P. Boatwright).

Center for Product Strategy and Innovation – Basic Membership, International Truck ($25,000),

9/08-8/09 (PI w/ P/ Boatwright).

Center for Product Strategy and Innovation – Basic Membership, MSA ($25,000), 9/08-8/09 (PI w/ P/ Boatwright).

"Advanced Analogical Search With Integrated Function And Form: The Verrocchio Project," NSF ($237,107; CMU portion), 7/09-6/12 (collaborative project with K. Wood and C. Schunn); Graduate Research Student supplements $65,138 and $77,063 (PI).

"Integrated Product Development Course Sponsorship," Nissan ($30,000), 1/10-5/10 (PI w/ P. Boatwright).

GlaxoSmithKline gift, $15,000, 1/10 (PI w/ P. Boatwright).

"EAGER: Innovative Energy Farm Design," NSF ($66,167), 7/09-2/11 (PI).

"Integrated Product Development Course Sponsorship," P&G ($35,000), 1/11-5/11 (PI).

"Integrated Product Development Course Sponsorship," Navistar ($40,000), 1/11-5/11 (PI w/ P. Boatwright).

GlaxoSmithKline gift, $15,000, 1/11 (PI w/ P. Boatwright).

"Integrated Product Development Course Sponsorship," Navistar ($100,000), 1/11-5/11 (PI w/ P. Boatwright and E. Anderson).

"Computational Design of Complex Multi-Scale Systems: Design of synthetic muscle with shape grammars and agent-based search," NSF ($424,928), 7/12-6/14 (PI w/ P. LeDuc)

"The Cognitive and Computational Modeling of Team Problem Solving for Decision Making Under Complex and Dynamic Conditions," AFOSR ($598,920), 7/12-6/15 (PI w/ K. Kotovsky).

"Determining Consumer Preference Through an Interactive Virtual Reality Experience," NSF ($375,000), 9/12-8/14 (PI).

"An Integrated Leadership and Innovation Curriculum for Undergraduate Mechanical Engineering," NSF ($199,975), 10/13-11/15 (PI w/ J. Beuth, M. Lovett, M. Cofield).

"Integrated Product Development Course Sponsorship," MSA ($30,000), 1/13-5/13 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," McKesson Automation ($25,000), 1/13-5/13 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," Jarden Consumer Products ($50,000), 1/14-5/14 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," Weatherford ($33,333), 1/14-5/14 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," Jarden Corp. ($100,000), 1/15-5/15 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," Opus Mach (45,000), 1/15-5/15 (PI w/ E. Anderson and P. Boatwright).

"Integrated Product Development Course Sponsorship," Volvo Construction Equipment ($45,000), 1/15-5/15 (PI w/ E. Anderson and P. Boatwright).

"Shelter Development," gift from PJ Dick Inc., 5/15 ($53,000) (PI)

"A Synergistic Partnership Between Human Teams and Computer Agents," AFOSR ($446,405), 11/15-10/17 (PI w/ K. Kotovsky).

"A synergistic engineered 3D tissue and computational approach to surgical training", ONR (1,894,565), 6/1/17-5/30/20 (co-PI w P.R. LeDuc (PI), A. Feinberg, C. Schunn).

"A Hybrid Computer Platform to Design, Guide, and Partner with Humans in the Team Problem-Solving Process," DARPA ($6,878,940), 8/7/17-12/319/21 (PI w/ C. McComb).

"Empowering the problem solving team through a computer-human partnership," AFOSR

($1,430,217), 11/1/17-10/31/22 (PI w/ K. Kotovsky).

"Identification of Potential Placenta Abnormalities Using a Structure-based Convolutional Neural Network," UPMC Enterprises ($341,637), 4/1/19-3/31/20 (PI w/ P.R. LeDuc).

"A Shape Annealing Approach to DNA Origami Design," NSF ($899,000), 9/1/21-8/31/24 (PI w/ R. Taylor).

"Developing an Extendable Bi-Directional Model of Human-AI Trust for Joint Action," AFOSR ($100,000), 10/1/21-9/30/22 (Co-PI w K. Goucher-Lambert (PI)).

"A Deep Learning Method for the Identification of the Attribution of Artists," JWA Investments gift ($150,000), 5/8/23 (joint PI w P.R. LeDuc)

"A Deep Learning Method for the Identification of the Attribution of Artists," JWA Investments gift ($150,000), 12/1/24 (joint PI w P.R. LeDuc)

"A Deep Learning Method for the Identification of the Attribution of Artists," JWA Investments gift ($150,000), 12/1/25 (joint PI w P.R. LeDuc)

Internal Funded

"A Graph-Based Representation for Mechanical Design," CMU Faculty Development Fund ($2500) (PI)

"A Behavioral Grammar for Mechanical Design," CMU Adamson Faculty Award ($4980) (PI)

"Conceptual Design of Mechanical Systems," EDRC - CMU ($55,021, 5/91-4/92; $60,183, 5/92-4/93; $63,286, 5/93-4/94; $66,097, 5/94-4/95; $69,454, 5/95-4/96; $50,228, 5/96-4/97) (annual renewal) (PI)

"The Process of Integrated Product Development – An Emphasis on Collaboration between Engineering and Design," *UEC - CMU* ($10,000) (PI w/ C. Vogel)

"Using Computational Approaches to Diagnose Labral Tears of the Shoulder through Morphological Shape Grammar Analysis of Unenhanced MRI with ANSYS," 7/16-6/17, PITA (CMU) ($60,284), (PI w/ P. LeDuc)

"Morphological Shape Grammar Analysis of Unenhanced MRI to Diagnose Labral Tears of the Shoulder," DHTI ($50,000), 10/1/16-9/30/17 (PI w/ P. LeDuc; S, Akhavan, J. Long, and C. Latona (collaborators from AHN)

"Topology optimization towards manufacturability with the aid of neural network," PITA (CMU) ($50,000), 8/23-5/24 (co-PI w L. B. Kara)

University Committee Work

University

Tuition Committee, 1/91-12/93
Treasurer, Faculty Senate (Chair, Social and Welfare Committee), 5/95 - 5/97
University Committee On Special Faculty Appointments, 1/97 - 12/99
University Choice Program (Co-Director), 5/97 - 5/99
Educational Affairs & Enrollment Committee of the Board of Trustees, 10/97 - 9/99
Taskforce to Capitalize on the Strengths of the Fine Arts and Humanities at CMU, 8/98 - 10/98
University Committee on Non-Tenure Appointments, 1998
Innovation & Entrepreneurship Planning Committee, 2015
Innovation Palooza, 2014 & 2015 (co-founder and co-organizer of annual event)
Faculty Co-Director, Swartz Center for Entrepreneurship, 2016-present
NDAs & Education Agreement Task Force, 2017
Provost's Committee for Academic Matters**,** 2/20-present; Co-Chair 2/20-12/21

Engineering College (CIT)

Program Coordinator - 1994 CIT Industrial Liaison Program
Ad-Hoc Committee on Faculty Promotion and Tenure, 1999, 2000, 2002, 2009, 2011
Ad-Hoc Committee to Plan BHE Major
Chairman-Elect of the CIT Faculty, 2000-2001
Chairman of the CIT Faculty, 2001-2002
Co-Chair of Strategic Planning for CIT, 2013-2014
Director of Innovation and Entrepreneurship, CIT, 2013-2015
Co-Director of Integrated Innovation Institute, 2011-2017
Head - MS in Software Management – Silicon Valley, 2013-2017
Associate Dean for Strategic Initiatives, CIT, 2015-2017
Head – MS in Technology Ventures - Silicon Valley, 2016-2017
Associate Dean for Graduate and Faculty Affairs, CIT, 2017-2018
Chair – Search Committee for Associate Dean for Diversity, Equity and Inclusion, 2020

Department of Mechanical Engineering

Graduate Committee, 8/91-8/94, 9/95 – 5/00, 9/04-8/09 (Chair, 1998 – 2000)
Undergraduate Committee, 8/90-7/91, 9/94 - 8/95, 8/02-5/08, 9/09-present
Strategic Planning Agenda Committee: 10/96-2/97; Head - Information Technology Strategic Planning Committee, 3/97-4/97
Department Head Search Committee, 2005
Miscellaneous Committees including: Chairman, 1994 Qualifying Examinations; Computer Committee: 1993; Space Committee: 1993; Faculty Search Committee: 1994, 2001-2003; seminar organizer: 2003.
Advisor, ASME student section, 6/93 - 5/96
Co-developer and co-director, Master of Integrated Innovation for Products and Services (renamed from Master of Product Development in 2011), 2003-2017
Co-founder and Co-director, Center for Product Strategy and Innovation, 2008-2011

Government Service

ASME-IEEE Congressional Briefing - Senate AI caucus - "AI and National STEM Workforce Development Needs," speaker and moderator, September 27, 2023.

Consulting

Timken Company
Xerox Palo Alto Research Center
ASME Press
Daimler-Benz AG
United Technologies Carrier
Daimler-Benz AG/Freightliner
Mine Safety Appliances (MSA)
Ford Motor Company
General Motors
Crown Equipment Corporation
University of Pittsburgh McGowan Center for Artificial Organ Development
Close & Farles, Co.
Southwestern Pennsylvania Industry Resource Council
Philips Respironics
Lubrizol
Decision Coaches
Alcoa
Kennametal
RedZone
Procter & Gamble
Industrial Scientific, Inc.
Navistar International Truck
DesignAdvance Systems

Ansys
Apple
Hewlett-Packard
Dormont Manufacturing
Bayer MaterialScience
GlaxoSmithKline
Manulife
Miscellaneous intellectual property and liability Expert Witness cases

Significant Media Appearances

- The Sunday Business Page, KDKA TV, Pittsburgh, PA, November 11, 2001
- Morning Marketplace Report, NPR, January 19, 2002
- The Todd Mundt Show, NPR, February 11, 2002
- On Q, WQED TV, Pittsburgh, PA, March 2, 2002
- The Sunday Business Page, KDKA TV, Pittsburgh, PA, August 17, 2003
- The Sunday Business Page, KDKA TV, Pittsburgh, PA, August 21, 2005
- Our Region's Business, WPXI TV, Pittsburgh, PA, September 18, 2005
- Small Business, Bloomberg TV, September 23, 2005
- Tech Nation, NPR, September 27, 2007
- The Real Story, thestreet.com blog, October 1, 2010
- Thestreet.com, video: *Love the Product? Buy the Stock*, October 8, 2010
- WTOP radio: NAE interview on *Built to Love*, November 7, 2010
- WTAE television afternoon news: "Shoppers Let Emotions be Your Guide (Sometimes), November 30, 2010
- Our Region's Business, WPXI TV, Pittsburgh, PA, December 26, 2010
- Blog Talk Radio with Wayne Hurlbert, Feb 4, 2011
- The Sunday Business Page, KDKA TV, Pittsburgh, PA, April 7, 2013
- Our Region's Business, WPXI TV, Pittsburgh, PA, April 14, 2013
- High, P, "Carnegie Mellon's Integrated Innovation Institute's Vision To Build Innovators Of Tomorrow," Forbes.com, May 27, 2014
- "Making a Muscle", NAE Engineering Innovation Podcast and Radio Series, October 1, 2017
- "From Classroom to Boardroom: Applying Innovation Principles" Leveraging Thought Leadership podcast with Bill Sherman - episode 584 July 29 2024 (w Peter Boatwright)

Significant Articles About Work

- Petroski, H., "Everyday Design", *American Scientist*, Vol. 89, No. 6, 2002, pp. 495-499.
- Sharke, P., "Seeing Eye to Eye", *Mechanical Engineering Design*, ASME, March, 2002, pp.6-10.
- Hammonds, K., "Chalk Talk, How to Design the Perfect Product", Fast Company, July, 2002, pp. 122-127.
- Yeomans, M., "Product Developers are Being Born at CMU", Pittsburgh Tribune Review, December 9, 2003, Business Page.
- Advanced Elastomer Systems, *The Inn Road*, Ray Lambert, Producer, 2004 – featured in documentary on innovation.
- Shropshire, C., "Speed {They Hope} Sells", *Pittsburgh Post-Gazette*, April 29, 2004, Business Page.
- Durr, K., and L. Sullivan, *International Harvester, McCormack, International – Milestones in the Company that Helped Build America*, Graphic Arts Center Publishing Company, 2007 – analysis of International Truck form language featured.
- Ivanoff, R. N., Interview in ETF Business Review, FinancialProductsResearch.com, Vol. 1, issue 47, Dec. 13, 2010

- Postrel, V., "Love and Money", *Entrepreneur*, February, 2011, p. 18
- Robson, D., "Why Getting Distracted Can be a very Good Thing", BBC.com, June 7, 2018

Keynote Presentations

"Toward the Design of AI/Human Hybrid Design Teams: Understanding Performance and Behavioral Impact from AI as Tool, Partner & Manager"
KEYNOTE: DESIGN 2022, Croatia - online 2022

"Creating Technologies People Love"
KEYNOTE: Pathology Visions 2022, Las Vegas 2022

"Innovation – An Agent for Societal Change and for Educating a New Breed of Mechanical Engineer"
KEYNOTE: ASME Mechanical Engineering Education Summit (MEEd), San Juan, Puerto Rico 2023

"Educating a New Breed of Engineer Through Design"
KEYNOTE: 2023 Design Frontiers - Our Collective Journey Forward, Univ of Michigan 2023

"Products are alive and well ... and everywhere"
DESIGN DEBATE – Opposition Lead: International DESIGN Conference – DESIGN 2024 2024

"AI to Enable Better Designs and Better Designing"
KEYNOTE: 3rd Workshop on Trends in Human-AI Teaming for Engineering and Design, ASME IDETC 2024

"Central not secondary: Empowering Learners to Collaborate with AI"
South By South West Education (SXSW Edu) 2025