

Barry Matthew Kudrowitz

Assistant Professor
Director of Product Design Graduate Studies Minor
Department of Design, Housing and Apparel
College of Design
University of Minnesota

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Research Interests

Creativity and Idea Generation Tools
Concept Visualization and Sketching
Play and Humor in Design
Designed Experiences and Interactive Entertainment

Education

PhD, Mechanical Engineering, Massachusetts Institute of Technology, 2010
Dissertation: HaHa and Aha! Creativity, Idea Generation, Improvisational Humor, and Product Design
Advisor: Dr. David Wallace
Minor: Comparative Media Studies

Exchange Student (*i.e.* Free Mover), Industrial Design Engineering, TU Delft, Netherlands, 2006

MS, Mechanical Engineering, Massachusetts Institute of Technology (MIT), 2006
Thesis: An Exploration of Concepts for Projectile Toys
Advisor: Dr. David Wallace

BS, Mechanical Engineering, University of Central Florida, 2004
Thesis: The Application of Pneumatic Capsule Pipelines in Conjunction with Linear Induction Motors towards the Enhancement of the Thrill Ride Industry

Positions Held

2011-present, Assistant Professor, Product Design, University of Minnesota, Twin Cities, MN, USA

2011-present, Affiliate Member, Mechanical Engineering Graduate Faculty, University of Minnesota, MN, USA

2011-present, Director of Graduate Studies, Product Design Minor, University of Minnesota, Twin Cities, MN, USA

2011-present, Co-Founder and Creative Director, Popcorn Tuba LLP, Minneapolis, MN, USA

2011-present, Fellow, Philadelphia University, College of Design Engineering and Commerce, Philadelphia, PA, USA

2011-present, Colleagues Advisory Board Member, Weisman Art Museum, Minneapolis, MN, USA

2011 - Post Doctoral Associate, Mechanical Engineering, MIT, Cambridge, MA, USA

2009 – 2010, Instructor-G, Mechanical Engineering, MIT, Cambridge, MA, USA

2007-2008, Teaching Assistant, Mechanical Engineering, MIT, Cambridge, MA, USA

2005-2006, Research Assistant, Mechanical Engineering, MIT, Cambridge, MA, USA

Awards

Teaching

Goodwin Medal for Conspicuously Effective Teaching, MIT Institute Award (2009)

Each year, MIT awards the Goodwin Medal to a graduate TA or Instructor (G) who has performed above and beyond the norm, and whose teaching efforts can truly be characterized as “conspicuously effective.”

Department Service Award, MIT (2009)

Each year, the MIT Mechanical Engineering Department awards a student for outstanding service to the department. This award was related to the efforts in developing a class, Toy Product Design.

Academic

Research Slam, 2nd place, College of Design, University of Minnesota (2011)

Each year the faculty of the College of Design present research. The awarded presentation was of work leading to an app/software to teach basics of sketching

Lemelson-MIT Student Prize Finalist (2010)

A student prize is awarded annually to an MIT student, who has created or improved a product or process, applied a technology in a new way, redesigned a system, or in other ways displayed a portfolio of inventiveness.

Carl G. Sontheimer Prize for Creativity and Innovation in Design, MIT (2010)

Each year, the MIT Mechanical Engineering Department awards a student for their creativity and innovation.

Rohsenow Graduate Fellowship at MIT (2004-2005)

Top Honors Graduate/*summa cum laude* at the University of Central Florida (2004)

Order of Pegasus - Highest award offered to a student at the University of Central Florida (2004)

Extracurricular

1st Place in the First Annual Unuseful Competition for the “Catsup Crapper,” MIT Architecture Dept. (2005)

“The Orlando Grand Slam Master” - Highest Ranked Slam Poet, Orlando, FL (2003-2004)

Scholarship - Publications

Refereed Publications

Kudrowitz, B. & Wallace, D. (2010). The Play Pyramid: A Play Classification and Ideation Tool for Toy Design. *The Journal of Arts and Technology*. 3 (1), 36-56.

Refereed Publications – In Press

Ludden, G., Kudrowitz, B., Schifferstein, H., & Hekkert, P. (In Press). Surprise and Humor in Product Design. *Humor: The International Journal of Humor*.

Kudrowitz, B. & Wallace, D. (In Press). Assessing the Quality of Ideas from Prolific, Early Stage Product Ideation. *Journal of Engineering Design: Special Issue on Design Creativity*.

Refereed Publications - In Preparation

Kudrowitz, B., Te, P., & Wallace, D. (In Preparation). The Influence of Sketch Quality on Perception of Product-Idea Creativity. *Artificial Intelligence for Engineering Design and Manufacturing: Special Issue on Design Creativity*.

Refereed Conference Publications

Kudrowitz, B., Te, P., & Wallace, D. (2011, October). The Influence of Sketch Quality on Perception of Product-Idea Creativity.” *IASDR2011, the 4th World Conference on Design Research*. Delft, the Netherlands. (Reviewer’s Favorite)

Kudrowitz, B. & Wallace, D. (2010, October). Improvisational Comedy and Product Design Ideation: Making Non-Obvious Connections between Seemingly Unrelated Things.” *International Conference on Design and Emotion*. Chicago. (Nominated for Best Paper)

Kudrowitz, B. & Wallace, D. (2010, August) Assessing the Quality of Ideas from Prolific, Early Stage Product Ideation.” *2010 International Design Engineering Technical Conferences*. Montreal, Canada. Pg. 381-391.

Kudrowitz, B. & Wallace, D. (July, 2008). The Play Pyramid: A Play Classification and Ideation Tool for Toy Design. *International Toy Research Association 5th World Congress 'Toys and Culture'*. Napflion, Greece.

Gutowski, T., Taplett, A., Kudrowitz, B, et al. (2008, May). Environmental Life Style Analysis (ELSA). *IEEE International Symposium on Electronics and the Environment*. San Francisco, USA.

Invited Professional Presentations

International

- "Designing Discovery-Enriched Curriculum." Keynote. City University of Hong Kong. April 18, 2011.
- "Ideating Discovery-Enriched Curriculum." Workshop. City University of Hong Kong. April 19-20, 2011.
- "Creative Toy Design and Engineering." 5-Day Workshop. The Hong Kong Institute of Vocational Education (IVE). Hong Kong. June 21-25, 2010.
- "Design for Play. Play for Design." Speaker. International Conference on Toys and Children's Products. Alicante, Spain. May 14-15, 2009.
- "Gathering Ideas: Product Design and Innovation." Speaker. Design Cork Seminar. Lisbon, Portugal. May 16, 2008.

National

- "The Importance of Play and Humor in Creative Design Practice." Lecture. Innovation Learning Network (ILN) InPerson. Detroit, IL. May 15, 2012.
- "A Hands-on Introduction to a Creative Product Design Process." Workshop. Innovation Learning Network (ILN) InPerson. Detroit, IL. May 16, 2012.
- "Play, Humor and Creativity." Lecture. Vanderbilt University. Nashville, TN. March 26-27, 2012.
- "Play, Humor and Creativity." Lecture. Philadelphia University. Philadelphia, PA. May 19, 2011.
- "Increasing Creativity and Fluency in Product Design Idea Generation." Lecture. MIT, Mechanical Engineering. Cambridge, MA. March 14, 2011.
- "Play and Idea Generation." Workshop. Seminar for Mechanical Engineering Students in Computer Aided Design. Purdue University, West Lafayette. January 28, 2011.
- "Fueling Design Innovation: Relationships Between Creativity, Humor and Play." Lecture. MIT, Media Lab. March 10, 2010.

Local – Industry

- "The Importance of Play and Humor in Creative Design Practice." Speaker. Target Engineer Week. Target Headquarters. Minneapolis, MN. Feb 20, 2012.
- "The Importance of Play and Humor in Creative Design Practice." Lecture. Mayo Clinic, Systems Engineering and Operations Research Collaborative. Rochester, MN. Jan 13, 2012.
- "Improv and Idea Generation." Workshop. Mayo Clinic, Center for Innovation. Rochester, MN. Jan 13, 2012.
- "Play and Creative Design." Speaker. The Works, Science and Engineering Museum. Bloomington, MN. Dec 8, 2011.
- "Play, Humor and Creativity." Speaker. Pixel Farm Digital. Minneapolis, MN. Dec 8, 2011.
- "Play, Humor and Creativity." Workshop and Lecture. Creative Kid Stuff Corporate, Minneapolis, MN. July 14, 2011
- "Play, Humor and Creativity." Lecture. Logic Product Design. Minneapolis, MN. May 25, 2011.
- "Play, Humor and Creativity." Workshop and Lecture. 3M. St. Paul, MN. May 18, 2011.

Local – Academia

- "Title TBD." Lecture and Workshop. Council of Educational Facility Planners International, Midwest Regional Conference. Minneapolis, MN. April 24-28, 2012.
- "Design of a Nerf Blaster in 7 Minutes." Speaker. Design in 7. University of Minnesota. Minneapolis. April 14, 2011.
- "A Playful Product Design Process." Keynote Lecture. Design Intersections Symposium. Minneapolis, March 31, 2011.
- "The Humor of Innovation." Speaker and Panelist. Making, Selling, Buying, Using: Emerging Issues in Product Design. Minneapolis, MN. September 17, 2010.
- "Real Toys for an Increasing Virtual World." Panelist. Sandbox Summit: iPlay, YouPlay, WiiPlay. MIT, Cambridge, MA. May 18-19, 2010

Teaching

University of Minnesota, College of Design

Creativity, Idea Generation and Innovation (PDes 5701)

Creator and Course Instructor, 2011 - present

2 Credits, Fall Semester, First Seven Weeks

Description: introduction to a variety of creativity and idea generation tools with an emphasis on innovative product concept development

Concept Sketching and Rendering (PDes 5702)

Creator and Course Instructor, 2011 - present

2 Credits, Fall Semester, Second Seven Weeks

Description: introduction to freehand sketching and rendering for communication of conceptual product design

Toy Product Design (PDes 3711/5711)

Creator and Course Instructor, 2011 - present

4 Credits, Spring Semester

Description: project-based course that introduces undergraduates to product design process and techniques
<http://product.design.umn.edu/courses/pdes3711/>

Courses Under Development - University of Minnesota, College of Design

Model Making, Manufacturing and Materials

Description: introduction to a variety of prototyping tools and techniques for product design

Form Development

Description: developing 3-dimensional form for product aesthetics and usability

Massachusetts Institute of Technology, Department of Mechanical Engineering

Toy Product Design (2.00b/SP.778)

Co-Creator and Course Instructor, 2005 - 2010

Description: project-based course that introduces undergraduates to product design process and techniques
Three teams have filed provisional patent applications; one team won \$10,000 in the *Absolutely New* Product Contest
<http://web.mit.edu/2.00b/www>

Advanced Toy Product Design (SP.779)

Co-Creator and Course Instructor, 2008 - 2009

Description: continuation of Toy Product Design, students take designs to a more advanced prototype stage

Product Engineering Processes (2.009)

Lab Instructor and Teaching Assistant, 2005 - 2010

Description: mechanical engineering capstone undergraduate product design process course
<http://web.mit.edu/2.009/www>

Product Design (2.744)

Teaching Assistant, 2006, 2008

Description: graduate project-based course emphasizing user experience, product form, and human factors
<http://web.mit.edu/2.744/www>

Creative Production

Product Design

- 2011 - Manhattan Toy, Automoblox®
Conceptual Design and Design for Manufacture, sponsored research
Supervised UMN students: Adam Poetter, Andrew Maxwell-Parish, Colin Nelson
- 2006 - Nerf® Atom Blaster®
Hasbro sponsored research and design
Product on the market for 4 years
US Patent Application US20080078366: Toy Projectile Launching Device, 2007
Research performed with William Fienup and Advisor Dr. David Wallace
- 2005 - The Catsup Crapper or AuTomato
Design of a catsup bottle that roller skates to a plate and dispenses catsup
First place recipient in the first annual MIT Unuseless Competition
Featured on *The Martha Stewart Show* (2008) and *Conan* (2011)
<http://www.catsupcrapper.com> and <http://www.automato57.com>
- 2004 - Endoscopic Biopsy Needle Design
Coring needle design that preserves tissue histology
US Patent Application US20080300507: Biopsy Needle, 2008
Group Project for MIT Course 2.75 Precision Machine Design
Advised by Dr. William Brugge, and Dr. Alex Slocum

Digital/Software Design

- 2011 - Digital Sketching Tutorial/Game
Developing software and apps for tablet computers to teach basic sketching skills
With UMN Computer Science Graduate Student Lane Phillips
- 2011 - Word Bounce
Iphone/Ipad word game available on iTunes
Developed by Popcorn Tuba LLP, Partnership with Lane Phillips

Entertainment and Exhibit Design

- 2011 - The Works Museum of Science and Engineering
Interactive Musical Tabletop Exhibit
Project coordinator and student supervisor of James Cospers, Jesse Purvey, Colin Nelson, Annice Larkin
- 2006 - 5 Wits Interactive Entertainment
Co-Designer of an elevator simulator for interactive show installed at the Spy Museum in Washington DC
Group project for MIT course 2.744 Product Design
with Ethan Crumlin, Jessica Vechakul, Chandler Hatton, and Mika Tomczak
- 2006 - *Design Squad*
Consulting for PBS show targeted at high school students to promote engineering
Prototyping musical instruments: *Rock On*, Episode 2
- 2005 - 5 Wits Interactive Entertainment
Storyboarding, set design, and animatronics for interactive "*Tomb*" show in Boston
<http://www.5-wits.com> and <http://www.spymuseum.org/operationspy/index.php>

Intellectual Property

- 2007 - Toy Projectile Launching Device
US Patent Application US20080078366
- 2004 - Endoscopic Biopsy Needle Design
US Patent Application US20080300507

Media Exposure

Museum Installations

"Toy Product Design." *MIT Museum*. Cambridge, MA. June 2008-10.

"Toys and Games: More than Amusement." *Revolving Museum*. Lowell, MA. 2008.

Television/Film

"Musical Toy Story." *Daily Planet*. Discovery Canada. January 18, 2012.

"Good Question: What Toys Will Be Hot For the Holidays?" *Channel 4 News*. CBS Local. WCCO-TV. Sept 20, 2011.

"Transformers 2 – Deleted Scene." *Conan*. TBS. June 28, 2011.

"Food." *Off The Air*. Episode 2. Cartoon Network's Adult Swim. May 25, 2011.

"Creating Toys for Credit at U of M" *Fox 9 News*. M.A. Rosko Interview. FOX. May 11, 2011.

"Star Wars – Deleted Scene." *Conan*. TBS. Jan 11, 2011.

"Barry Kudrowitz: Brainstorming in the MIT Toy Lab." *Imagine It! 2*. DVD. Infinite Loop Media LLC. July, 2009.

"Unuseless Inventions." *Martha Stewart Show*. Fine Living Channel. New York. Feb 15th, 2008.

"Rock On: Episode 2." *Design Squad*. PBS. Boston. 2007

"Archimedes Death Ray: Episode 46." *Mythbusters*. Discovery Channel. San Francisco. January 25, 2006.

Magazine

Jacqueline Detwiler, Best Buys. *Hemispheres Inflight Magazine*. November 2011

Ledetta Wossen. "Toy Boy." *MADE Magazine*. Issue 2. Profile Feature. Pg. 42-45. 2011

John. B. Carnett. "PopSci's 25 Most Awesome College Labs 2011." *Popular Science*. Aug 2011

Thomas Grose. "Hot Courses." American Society for Engineering Education (*ASEE*) *PRISM*. Summer 2011.

Rena Marie Pacella. "Mind –Blowing College Labs" *Popular Science*. September 2010.

Paul McMorrow. "Good Bostonian: Barry Kudrowitz, Product Designer." *Boston's Weekly Dig*. Aug 2007.

Etienne Benson. "Toy Stories." Association for Psychological Science *Observer*. December 2006.

Paul McMorrow. "Bringing Cambridge What it Badly Needs: A Death Ray." *Boston's Weekly Dig*. Oct 19, 2005.

"20 Coolest People in Orlando." *Axis Magazine*. November 2004.

Newspaper

Alex Gaterud. "U Students Share Their Toy Stories." *Star Tribune*. May 2011.

Jessica Lussenhop. "The Land of GoBots, Pound Puppies, and Care Bears." *City Pages*. March 30, 2011.

Richard Chin. "Toys R' Him." *Pioneer Press*. March 1st, 2011.

Amanda Hamon. "Future Engineers Try Thinking Outside the Sandbox." *Lafayette Indiana News*. Jan. 29, 2011.

Katy Jordan. "Wily Wonks and the High-Tech Toy Factory." *Boston Herald*. May 16, 2010

Sarah Wright. "Toy Soldier: At Play with Barry Kudrowitz, MIT Toy Designer." *MIT Tech Talk*. Dec 12, 2007.

Anne Trafton. "Toy Designers Make Brushing Fun." *MIT Tech Talk*. May 24, 2006.

Online Publications and Blogs

Jill Jensen. "University Professor Launches New Word Game for iPhone." *The Minnesota Daily*. Sept 29, 2011.

Elizabeth Giorgi. "Jumping into Toy Design." *UMNews* Feature. May 13, 2011.

Rain Noe. "Dangerous Toys and Other Different Thinking for UofM's New Toy Design Professor." *Core 77*. Mar 1, 2011.

Christa Meland. "U of M Debuts Toy Design Class; Local Co. to Advise." *Twin Cities Business*. Jan. 26, 2011.

Mark Frauenfelder. "Ketchup Dispensing Mobile Robot." *Boing Boing*. Jan 12, 2011

Michael Tedder. "Toy Story." *FLYP Media*. Issue 30. May 26 - June 7, 2009.

John Park. "Nerf Atom Blaster from Concept to Production." *MAKE*. Nov 27, 2008

Levi Fishman. "Get a B.A. in Toy Design (Batteries not Included)." *Columbia News Service*. Dec 6, 2007.

David Pescovitz. "Archimedes's Death Ray Realized." *Boing Boing*. Oct 6, 2005.

Barb Dybwad. "The Catsup Crapper." *Engadget*. Sept 1, 2005.