

**Daniel D. Frey**  
**Professor of Mechanical Engineering and Engineering Systems, MIT**

**Education:**

Ph.D. in Mechanical Engineering, May, 1997  
Massachusetts Institute of Technology, Cambridge, MA  
S.M. in Mechanical Engineering, May, 1994  
University of Colorado, Boulder, CO  
B.S. in Aeronautical Engineering  
Rensselaer Polytechnic Institute, Troy, NY

**Work History:**

2010-present	Professor of Mechanical Engineering and Engineering Systems
2006-2010	Associate Professor of Mechanical Engineering and Engineering Systems
2003-2006	Assistant Professor of Mechanical Engineering and Engineering Systems
2000-2003	Assistant Professor, Olin College of Engineering
1998-2000	Assistant Professor of Aerospace Engineering
1997-1998	Lecturer and Assistant Director, System Design and Management Program
1987-1991	Naval Officer

**Patents:**

Frey, D. D., and T. Hykes, 1997, "A method for virtual machining," patent #5,691,909.  
Frey, D. D., E. S. Brown, and L. E. Carlson, 1998, "Locking mechanism for a voluntary closing prosthetic prehensor," patent #5,800,571.  
Winter, A. G., Mario A. Bollini, Danielle M. Delatte, Harrison F. O'Hanley, Natasha K. Scolnik, Gwyndaf M. Jones, Daniel D. Frey, Benjamin Judge, Benjamin H. Gallup, Danielle Hicks, Nydia Ruleman, Xuefeng Chen, 2010, "Wheelchair with Lever Drivetrain", patent application #95428.0027

**Selected Publications:**

1. Dym, C. L., A. M. Agogino, O. Eris, D. D. Frey, and L. J. Leifer, 2005, "Engineering Design Thinking, Teaching, and Learning," *ASEE Journal of Engineering Education* 94(1):103-120.
2. Frey, D. D., and R. Jugulum, 2006, "The Mechanisms by which Adaptive One-Factor-at-a-Time Experimentation Leads to Improvement," accepted for *ASME Journal of Mechanical Design*.
3. Frey, D. D., and H. Wang, 2006, "Adaptive One-Factor-at-a-Time Experimentation and Expected Value of Improvement", *Technometrics*.
4. Frey, D. D., and N. Sudarsanam, 2008, "An Adaptive One-factor-at-a-time Method for Robust Parameter Design: Comparison with Crossed Arrays via Case Studies," *ASME Journal of Mechanical Design* **130**(2):915-928
5. Frey, D. D., and X. Li, 2008, "Using Hierarchical Probability Models to Evaluate Robust Parameter Design Methods," *Journal of Quality Technology* **40**(1):1-19.
6. Frey, D.D., P. M Herder, Y. Wijnia, E. Subramanian, K. Katsikopoulos, and D. P. Clausing, 2009, "The Pugh Controlled Convergence Method: Model-Based Evaluation and Implications for Design Theory," *Research in Engineering Design* **20**(1):41-50.

7. Frey, D. D., and B. Powers, 2012, "Designing Design Squad: Developing and Assessing a Television Program about Engineering," *Journal of Precollege Engineering Education Research*. **2**(1): 1-20.
8. Savoie, Troy B. and D. D. Frey, 2012, "Detecting Mistakes in Engineering Models: The Effects of Experimental Design," *Research in Engineering Design* **23**:155-175.
9. Frey, D. D., 2013, "Discussion: Dimensional Analysis and Experimentation as a Catalyst to Learning from Data" *Technometrics* **55**(3):275-278.
10. Cardin, M.-A., Kolfshoten, G. L., de Neufville, R., Frey, D. D., de Weck, O. L., Geltner, D. M., 2013, "Empirical Evaluation of Procedures to Generate Flexibility in Engineering Systems and Improve Lifecycle Performance", *Research in Engineering Design* **24**:277-295.

**Honors & Awards:**

INCOSE ASME, ASEE, and IEEE best paper awards

R&D 100 Awards (1997 and 2010)

NSF CAREER Award (2004)

Baker Teaching Award, Aero/Astro Teaching Award, Junior Bose Award for Excellence in Teaching,

Martore Award for Contributions to Engineering Systems Education

**Professional Accomplishments and Contributions to the Profession / ASME:**

Founding co-Director of the SUTD/MIT International Design Center

Commercial Pilot, Certification #94660723, 2000

(with WGBH team) George Foster Peabody Award for Design Squad Season #1

General Chair, Concurrent Engineering 2011 Conference, International Society of Productivity Enhancement

Visiting Committee Member, Mechanical Engineering Programme, Chalmers University of Technology, Gothenburg Sweden

MIT Reserve Officer Training Corps Oversight Committee Member

ASME Fellow