

**Daniel N. Donahoe**  
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**SUMMARY:**

I offer a uniquely defined career with skills built on broad functional experience in analysis, design and management. My unifying career threads are integration (tolerance analysis, thermal-fluid analysis, shock and vibration analysis, system and product design, component selection, specifications, configuration management), intellectual property review and reliability engineering (such as accelerated testing, HALT testing, FMEA, block diagrams, fishbone diagrams, root cause analysis, failure analysis, spectroscopy, MTBF calculations, quality control charts, and supplier factory audits).

**PROFESSIONAL EXPERIENCE:**

**1000 kilometers®, North Salt Lake, UT** 4/09- present  
Engineering and scientific consulting

Owner (CEO) - A general engineering practice with specific focus on the western region defined by a radius of 1000 kilometers from Salt Lake City. This region includes cities including Denver, Las Vegas, Phoenix, Portland, San Francisco, San Jose (and Silicon Valley).

**Exponent Failure Analysis Associates, Menlo Park, CA** 5/05-3/09  
Exponent is a leading engineering and scientific consulting firm.

Managing Engineer- Working to build a practice supporting the broad electronics industry through personal promotion, leadership, technical work and communications. This work begins by finding and establishing new clients or supporting existing clients. Failure analysis techniques include standard laboratory methods such as optical microscopy, lab bench-top testing and accelerated testing but also include acoustic microscopy, SEM/EDS, XPS, FTIR. The work includes communication through numerical analysis and written and verbal means including formal reports, teleconferences, presentations and one-on-one discussions.

**University of Maryland, College Park, MD** 8/02-1/05  
CALCE, Electronic Products and Systems Center

Assistant Research Scientist- Serving technical needs of industrial member companies in a university research setting. The main projects involved ceramics, aspects of electronics industry economics, scanning electron microscopy and other failure analysis techniques. Served as an instructor for a graduate course on sensors.

**Iomega Corporation, Roy, UT** 8/00-1/02  
Iomega is the leading producer of removable storage.

Chief Technologist- Leading new technologies, providing interface between Management in Iomega and key new suppliers. Position focuses on work with Marketing on new product development and innovative applications of existing products.

**Compaq Computer Corporation, Houston, TX** 9/90-6/00  
Compaq is the leading manufacturer of Personal Computers.

Principal Member of the Technical Staff- Promoted to Senior Member 12/96 and to Principal Member 10/99 from manager of reliability. This technical leadership position provides design and reliability support across the entire Compaq product line to remedy potential or actual failures of products by determining the true root cause (the Physics of Failure Approach). Review of design often leads to the personal contribution of innovative design concepts.

- Achieved Compaq's "Customer Advocate Award" in March of 2000 for work on improving engineering processes across all Divisions.
- Lead a team to change the PCMCIA Card Standard for thermal rating and worked to change UL1950

***Teledyne, CME, Santa Clara, CA***

5/89-9/90

Teledyne, CME built military electronic countermeasures equipment.

Mechanical Engineering Section Manager - Responsible for Mechanical Design and Analysis of CME's electronic products. Project Management of the design process included proposal activity, analysis, documentation and troubleshooting.

***Ford Aerospace Corporation, San Jose, CA***

2/88-5/89

Ford Aerospace built a wide variety of military and commercial communications electronics.

Engineering Specialist - Design Engineer for electronic Ground Equipment Systems.

- Performed worldwide facilities tour for thermal, structural, facilities and electrical upgrades and served as cognitive engineer on thermal design for building scale and rack scale design.

***Motorola, GEG, Scottsdale, AZ***

7/83-2/88

Motorola, GEG built a wide of military electronics with emphasis on leading edge high technology applications.

Sr. Staff Engineer - Served as Design Engineer, Assistant Project Leader and Systems Engineer on a wide variety of rugged electronics systems.

- Worked on challenging very "high g" packaging in artillery fuzes.

***Lockheed, Missiles and Space Corporation, Sunnyvale, CA***

3/79-7/83

LMSC built a variety of military and commercial products including the Polaris Missile and the Hubble Space Telescope.

Sr. Engineer - Thermal Analyst for Life Support Systems and spacecraft thermal control.

***University of Illinois, Urbana, IL***

6/77-3/79

Graduate Assistant - Researcher on campus energy conservation project and Teaching Assistant.

- Experience with computer operating systems, source code, system simulation applications, thermal modeling and statistical analysis

**PART TIME EXPERIENCE:**

Instructor, Scottsdale and Glendale Community Colleges in Statistics and Electronics. 9/85-12/87

- My "Toastmasters experience"

## **EDUCATION:**

B.S., 1977, General Engineering, University of Illinois at Urbana.  
M.S., 1979, Mechanical Engineering, University of Illinois at Urbana.  
M.B.A., 1983, Business Administration, Santa Clara University.  
Ph.D., 2005, Mechanical Engineering, University of Maryland, College Park.

## **PROFESSIONAL STATUS:**

Registered Professional Engineer (P.E.) in Arizona, California and Utah  
Certified Reliability Engineer (CRE) by the American Society for Quality (ASQ)

## **PERSONAL INFORMATION:**

Member, American Mensa (the high IQ society)  
2012 Candidate, Utah House District 20

## **PROFESSIONAL MEMBERSHIPS and ACTIVITIES:**

- Senior Member, American Society for Quality (ASQ)
- Senior Member, Institute for Electrical and Electronics Engineers;
  - Associate Editor, IEEE Transactions on Components, Packaging, and Manufacturing Technology (CPMT) since February 1998,
  - Member-at-Large, IEEE CPMT Board of Governors, 2010-2012.
  - Member, organizing committee of the 2011 IEEE Workshop on Accelerated Stress Testing (ASTR), San Francisco 12-14 October, 2011 <http://www.ieee-astr.org/comm.html>.
  - Member, Consultants Network of Silicon Valley 2009-2011.
  - Member, IEEE-USA Career and Workforce Policy Committee (CWPC)
- Member, Society of Automotive Engineers (SAE)
  - Automotive Electronic System Reliability Standards
- Member, Materials Research Society (MRS)
- Member, American Society of Mechanical Engineers (ASME),
- Member, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
- Member, International Microelectronics and Packaging Society (IMAPS)
- Member, the Electrochemical Society (ECS)
- Utah Engineers Council (UEC), Fundraising Committee Chair (2011)
- Friends of the J. Willard Marriott Library (2011-2012)
  
- Past:
- Member, Utah Technology Council (UTC) 2009-2010
- ASME: Session Chair 2007 Interpack
- IEEE: Chairman, Santa Clara Valley CPMT Chapter 2007-2008, Granted "2008 CPMT Chapter of the Year" award, Vice Chair 2009, Secretary, Santa Clara Valley CPMT Chapter 2006; Member of the IEEE Nanotechnology Council Executive Committee 2008-2009
- Sub Vice Chair Committee ASTM D15.25 Diesel Exhaust Fluid (2011)
- Director of the Silicon Valley Engineering Council (SVEC) 2008-2009,
  - 2008 and 2009 Engineers Banquet Committee; Chief Editor SVEC 2009 Journal, <http://www.svec.org>, Feb. 2009

## **PUBLICATIONS:**

### Published:

“Utah Flying High on Wings of Fiber”, Utah Business in Utah, 10 April 2012. pp. 24-30.

“Reversing the Loss of STEM Careers”, Today’s Engineer, IEEE-USA, March 12, 2012, <http://www.todaysengineer.org/>.

“Growing Utah’s Economy by Technology Guilds” (with Marshall N. Wright), Utah Engineers Council Journal, 2012, Feb. 2012, pp. 21-24, <http://utahengineerscouncil.org/UECJournal> 2012.

“Personal Reflections on IEEE Membership”, CPMT Santa Clara Valley Newsletter, Volume 1, No. 2, Summer 2011, pp 1-5, <http://www.cpmc.org/scv/docs/nstl-1108.pdf>

“Moisture in Electronics Packaging” (with Poliskie, G.), Advancing Microelectronics, Vol. 38, No. 2, March/April 2011, pp. 8-10.

“The Magic of Surface Science in Electronic Products”, Silicon Valley Engineering Council Journal, Vol. 3, <http://www.svec.org>, February 2011, pp. 18-26.

“Ceramics in Modern Electronics” (with Poliskie, G.), Advancing Microelectronics, Vol. 37, No. 2, March/April 2010, pp. 6-8.

“Plastics in Electronics” (with Poliskie, G.), Silicon Valley Engineering Council Journal, Vol. 2, <http://www.svec.org>, February 2010, pp. 22-31.

“Thermal Aspects of LED Automotive Headlamps”, IEEE Vehicle Power and Propulsion Conference, 7-11 Sept 2009, Dearborn, MI, pp. 1193-1199.

“The Chemistry of Halogen Free Electronics” (with Poliskie, G.), Advancing Microelectronics, Vol. 36, No. 4, July/August, 2009, pp. 22-24.

“Silicon Valley Engineering Council Journal”, Volume 1, <http://www.svec.org>, February 2009 (Editor).

“Contributions of the University of Illinois to Silicon Valley”, Engineering at Illinois, <http://engineering.illinois.edu>, January 2009.

“Electronics Reliability, More than Temperature”. Continuity, Newsletter of the Electronics and Communication Division, ASQ, Winter 2008, January 2009, pp.5-7.

“Accelerated Life Testing” (with Zhao, K., Murray, S., Ray, R.), Wiley Encyclopedia of Quantitative Risk Assessment, 2008.

“Engineers Week: How Things Have Changed Since 1952.” Utah Engineers Council Journal, pp. 30-35, February 2007.

“Moisture Induced Degradation of Multilayer Ceramic Capacitors” (with M. Pecht, I. Lloyd and S. Ganesan)., Journal of Microelectronics Reliability, Vol. 46, Issues 2-4, pp. 400-408, February–April 2006.

“New Aging Mechanism in Multilayer Ceramic Capacitors” 2005 (with M. Pecht), Advanced Packaging Magazine, June 2005.

“Moisture in Multilayer Ceramic Capacitors,” Ph.D. Thesis, University of Maryland at College Park, January 2005. (Note: Dissertation has been downloaded from the university library over 3000 times.)

"The Transition of Electronics to China," Chapter 13 in China's Electronic Industry, M. Pecht, and Y. Chan (eds.), CALCE Press, pp. 261-275, College Park, MD, 2004.

"Determination of the Life Cycle Environment," Chapter 12 in Parts Selection and Management, M. Pecht (ed.), Wiley-Interscience, pp. 145-170, Hoboken, NJ, 2004 (with N. Vijayaragavan and M. Pecht).

"Are U.S. Jobs Moving to China?" (with M. Pecht), IEEE CPT, pp. 682–686, September 2003.

"Failures in Base Metal Electrode (BME) Capacitors" (with C. Hillman and M. Pecht), 23<sup>rd</sup> Annual CARTS Proceedings, pp. 129–133, April 2, 2003).

"China's Electronic Manufacturing Services," Chapter 6 in China's Electronic Industry, M. Pecht and Y. Chan (eds.), CALCE Press, College Park, MD, pp. 261-275, 2003 (with J. Wu, Q. Haiyu, and D. Donahoe).

"Reliability and Assessment of Electronic Systems and Equipment," IEEE CPT, pp. 127–128, March 1999 (with J. Cartwright and M. Jackson).

"Bedrock of Electronics," Mechanical Engineer, pp. 62–63, November. 1986.

"CERDIPS as Gun Rugged Artillery Fuze Components," ASME Winter Annual Meeting, December 1984 (with A. Meyer and K. Hanson).

"A Computer Model of a Campus Building," M.S. Thesis, University of Illinois at Urbana-Champaign, May 1979.

"Energy Survey—Reduction of Energy Consumption" (with G. Bloomberg, S. Mair, and D. Nelson), B.S. Thesis, University of Illinois at Urbana-Champaign, May 1977

#### **PRESENTATIONS:**

(planned) Excel VBA, ASHRAE, 4 May, 2012.

"It's Time for Planning Your Engineering Career", University of Utah ECE 3900 (The Junior Seminar by Professor O. Gandhi), 25 October 2011.

"Useful Metrics for Failure Rate as a Function of Time", San Jose, ASQ Quality Conference 2010, 22 October 2010 (with Harry White).

"Technology Showdown", Utah ASHRAE Annual Sustainability Conference, Salt Lake, UT, 7 May 2010.

"Economics of Technology and the Engineering Career," Joint Meeting of IEEE GOLD and the University of Utah IEEE Student Branch, Salt Lake, UT, 29 October 2009.

"Thermal Aspects of LED Automotive Headlamps", IEEE Vehicle Power and Propulsion Conference, Dearborn, MI, 11 Sept 2009.

"LED Automotive Headlights", IEEE Utah Section, Salt Lake, 12 August, 2009.

"Halogen Free Electronics," IEEE CPMT and PSES Santa Clara Valley Chapters, Sunnyvale, CA, 14 December 2008 (with G. Poliskie).

"Contributions of the University of Illinois to Silicon Valley," Technology Entrepreneur Center, Champaign, IL, 14 November 2008.

"Heat Transfer Applied to Electronics Design," Refrigeration and Air Conditioning Center, Champaign, IL, 14 November 2008.

"The rocky marriage of technology and quality, how technological maturity drives quality both up and down," ASQ Golden Gate Section, Jack London Square, February 19, 2008 and San Jose State University 21 April 2008.

"CPMT Santa Clara Valley 2007 Report," IEEE/Santa Clara Valley Section Executive Committee, 5 September 2007.

"Running a Successful Chapter," IEEE/Santa Clara Valley Section 2007 Officer Chapter Training, 20 January 2007.

"Economics of Technology and the Engineering Career," San Jose State University, 26 April 2006 (panel discussion).

"RoHS: 1 of 6, Eutectic tin-lead solder is one of 6 prohibited substances," ASME/Santa Clara Valley Chapter, Menlo Park, CA, 20 April 2006 (with A. Fasching-James).

"Economics of Technology and the Engineering Career," Joint Meeting of the IEEE CPMT and GOLD Chapters, Sunnyvale, CA, 12 April 2006 (with G. Poliskie).

"Drift in Multilayer Ceramic Capacitors," IEEE CPMT Santa Clara Valley Chapter, Sunnyvale, CA, Feb. 2006.

"Connect with and Strengthen Your Supply Chain," NEMI Sensor Technology Working Group, Herndon, VA, June 23, 2004 (with S. Ganesan and M. Pecht).

"Risks to Off-Shoring Strategic Electronic Parts," IMAPS, Baltimore, March 28, 2004 (with M. Pecht).

"Fighting the War in the Airwaves," IMAPS, Baltimore, MD, March 12–14, 2003 (with O. Ramahi and M. Pecht).

"Finance, Physics and Capacitors," IPC Chesapeake Chapter, College Park, MD, January 2003.

"MEMS Roadmapping," ASME IMECE, New York, NY, November 2001.

"Electronics Packaging," IEEE Utah Section Meeting, Roy, UT, June 2001.

Presentation at ASME (IMECE) on MEMS Roadmapping, New York, NY, November 2001.

Compaq Seminar Series, Houston, TX and College Station, TX, 2000.

Houston Hispanic Career and Education Forum, George R. Brown Convention Center, Houston, TX, January 2000.

ASME IMECE, Presentation on Engineering Education, Nashville, TN, November 1999.

"A Computer Hard Drive CFD Model: Turbulent Model Considerations," ASME IMECE EEP-1 Symposium on Benchmark Problems for CFD, 18 Nov 1998.

#### **PATENTS and TRADEMARKS:**

"1000 kilometers", Service Mark, Registration Number 3747747, February 9, 2010.

"Method to Sort Capacitors by Electrode Type," U.S. Provisional Patent Application No. 60/557,590, March 20, 2004.

"Method, System and Apparatus for Indoor and Outdoor Track and Field Split and Finish Times with Backup Features by Computer Vision," U.S. Provisional Patent Application No. 60/378,321, May 8, 2002.

"Method, System and Apparatus for Competitive Swimming Split and Finish Times with Backup Features by Computer Vision," U.S. Provisional Patent Application No. 60/359,749, February 27, 2002.

"Apparatus for Liquid Cooling of Specific Computer Components," U.S. Patent No. 6496367, December 17, 2002.

"Apparatus for Liquid Cooling of Specific Computer Components," U.S. Patent No. 6333849, December 25, 2001.

"Apparatus Including Heat Sink Structure for Removing Heat From a Printed Circuit Board," U.S. Patent No. 5953211, September 14, 1999.

"Method and Apparatus for Transferring Heat from a PCMCIA Card," U.S. Patent No. 5808869, September 15, 1998.

"PCMCIA Card Heat Removal Apparatus and Methods," U.S. Patent No. 5793609, August 11, 1998.

"Liquid Cooled Computer Apparatus and Associated Methods," U.S. Patent No. 5757615, May 26, 1998.

"PCMCIA Card Heat Removal Apparatus and Methods," U.S. Patent No. 5475563, December 12, 1995.