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Engineering & Scientific Consulting

Daniel Vasquez, Ph.D.

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Professional Profile

Dr. Vasquez has a diverse area of expertise including MEMS sensor design and fabrication, magnetic materials, electrostatic discharge (ESD) design and modeling, semiconductor devices, inertial sensor design, and algorithm development for non-deterministic problem sets. He has years of experience in ESD design and modeling for both system level (IEC EN 61000-4), and device level protection (HBM, CDM).

Dr. Vasquez has extensive experience modeling ESD events in consumer electronics devices using a commercial 3D finite integration solver and has developed a custom-built ESD simulation tool. He has developed ESD protection solutions in consumer electronics and accessories, medical devices, and LED modules. He has also performed product EMI failure analysis in precision sensors for heavy equipment manufacturers.

Dr. Vasquez has developed technologies used in MEMS magnetometers including patented work in anisotropic magnetoresistive (AMR) MEMS magnetometers. He has a strong background in MEMS and semiconductor manufacturing processes. He has worked as a technical expert in semiconductor manufacturing trade-secret disputes and has conducted quality audits of semiconductor subcontractors in Taiwan. In addition to trade secret disputes, Dr. Vasquez has served as a technical expert in technical disputes related to best design practices for resonator circuits. He also has experience in development and characterization of non-linear polymer materials. This experience includes algorithmic development for predicting the behavior of polymers based on the distribution and properties of loaded particles. He also developed image analysis routines to determine the size and spacing of particles in cross-sections and to detect particle agglomerates.

Dr. Vasquez has experience in product development for inertial sensors including 6 DOF gyro-compensated tilt sensors and 9 DOF inertial measurement units (IMU) and attitude heading and reference systems (AHRS).

Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, University of California, Los Angeles (UCLA), 2007

M.S., Electrical Engineering, University of California, Los Angeles (UCLA), 2004

B.S., Electrical Engineering / Computer Engineering, University of California, Los Angeles (UCLA), 2001

Prior Experience

MEMSIC, Milpitas, Strategic Marketing Manager (Inertial and Navigation Systems), 2013-2015

Shocking Technologies, San Jose, Applications Group Manager, 2009-2013

University of California, Berkeley, Postdoctoral Researcher, 2007-2009

Technical Consultant, Los Angeles, CA, 2007-2009

TRW Space and Electronics, System Engineer, 2001-2002

Professional Affiliations

IEEE

Patents

Patent US20110211319: Electric Discharge Protection for Surface Mounted and Embedded Components, Feb. 2011, Inventors: Lex Kosowsky, Robert Fleming, Bhret Graydon, Daniel Vasquez.

Patent US 13/096,860: Embedded Protection Against Spurious Electrical Events, April 2011, Inventors: Lex Kosowsky, Robert Fleming, Bhret Graydon, Daniel Vasquez.

Patent US 13/115,068: Circuit Element Comprising Ferroic Materials, May 2011, Inventors: Robert Fleming, Bhret Graydon, Daniel Vasquez, Junjun Wu, Farhad Razavi.

Patent US 20120200963 A1: System and Method for Protecting a Computing Device using VSD Material, and Method for Designing Same, Nov. 2011, Inventors: Daniel Vasquez, Lex Kosowsky.

Patent US20120211773 A1: Light-Emitting Devices Comprising Non-Linear Electrically Protected Material, Jan. 2012, Inventors: Robert Fleming, Daniel Vasquez, Michael Glickman.

Patent WO 2013044096 A3: Vertical Switching Formations for ESD Protection, Sept. 2012, Inventors: Robert Fleming, Michael Glickman, Bhret Graydon, Junjun Wu, Daniel Vasquez.

Patent WO 2013070806 A1: Voltage Switchable Dielectric Material Formations and Supporting Impedance Elements for ESD Protection, Nov. 2012, Inventors: Joan Vrtis, Daniel Vasquez, Robert Fleming, Lex Kosowsky.

Publications

Vasquez DJ, Judy JW. Zero-power magnetometer with remote optical interrogation. 17th IEEE International Conference on Micro Electro Mechanical Systems, MEMS 2004, Maastricht, The Netherlands, January 25-29, 2004.

Vasquez DJ, Judy JW. Optically-interrogated zero-power MEMS magnetometer. Journal of Microelectromechanical Systems 2007 April; 16(2):336-343.

Vasquez DJ, Judy JW. Scaling magnetic actuators beyond the single-domain limit. 1st IEEE International Conference on Nano/Micro Engineered and Molecular Systems, NEMS 2006, Zhuhai, China, January 18-21, 2006.

Lee SA, Vasquez DJ, Bergsneider M, Judy JW. Magnetic microactuators for MEMS-enabled ventricular catheters for hydrocephalus. 28th International Conference of the Engineering in Medicine and Biology

Society, EMBS 2006, New York City, NY, August 30-September 3, 2006.

Vasquez DJ, Judy JW. Flexure-based nanomagnetic actuators and their ultimate scaling limits. 21st IEEE International Conference on Micro Electro Mechanical Systems, MEMS 2008, Tucson, AZ, January 13-17, 2008.