



Exponent®
Engineering & Scientific Consulting

Melissa Mendias, Ph.D., P.E., CFEI

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Professional Profile

Dr. Melissa Mendias is an experienced electronics engineer who spent nearly ten years working in a high-volume semiconductor manufacturing environment in which she helped to implement Intel's first Tri-Gate processes.

Dr. Mendias has worked in both process and yield engineering, and she specialized in the development of automated systems for trend analysis, fault detection, and predictive maintenance through custom metrics and statistical analysis methods as well as in the maintenance and improvement of ion implantation equipment.

At Exponent, Dr. Mendias has established expertise in automotive electronics, including advanced driver assistance systems (ADAS), as well as integrated data systems for a variety of applications. She has worked on vehicle network infrastructure and data model development for military applications using model-based systems engineering tools. She has developed hardware and firmware for microcontroller-based devices used in both military and consumer electronics applications. Her experience also includes safety studies and failure analysis investigations of electronic devices including biomedical systems, modeling the behavior of electronic devices and electromagnetic fields, and post-incident inspections of vehicles, structures, and infrastructure facilities. Dr. Mendias is a licensed professional engineer in the state of Arizona and is also a certified fire and explosion investigator.

Dr. Mendias received her Ph.D. in Electrical Engineering from Michigan Technological University. Her doctoral research involved technology development, design, and simulation of CMOS-integrated MEMS sensors with an emphasis on accelerometers. She also did VLSI design work for the Pierre Auger Cosmic Ray Observatory. She has taught Engineering, Materials Science, and Computer Programming courses at the university level and was one of the lead faculty members responsible for developing the ABET-accredited undergraduate electrical engineering program at Grand Canyon University.

Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, Michigan Technological University, 2007

M.S., Electrical Engineering, Michigan Technological University, 2001

B.S., Electrical Engineering, Michigan Technological University, 2000

National Defense Science and Engineering Graduate Fellow, 2001-2004.

Licenses and Certifications

Professional Engineer Electrical, Arizona, #73014

Certified Fire and Explosion Investigator (CFEI)

Certified Vehicle Fire Investigator (CVFI)

Certificate in Modern Language and Area Study (Spanish)

Prior Experience

Faculty and Subject Matter Expert, Grand Canyon University, 2015-2019

Yield Engineer, Intel, 2010-2015

Process Engineer, Intel, 2006-2010

Professional Affiliations

National Association of Fire Investigators

Society of Automotive Engineers

Institute of Electrical and Electronics Engineers

National Engineering Honor Society, Tau Beta Pi

National Electrical and Computer Engineering Honor Society, Eta Kappa Nu

Languages

Spanish

Patents

US Patent 7,193,193: Magnetic Annealing of Ferromagnetic Thin Films using Induction Heating, March 2007 (M. Trombley, P. Bergstrom)

US Patent 6,878,909: Induction Heating of Thin Films, April 2005 (M. Trombley, P. Bergstrom)

Publications

M. L. Trombley, B. P. Gogoi, and P. L. Bergstrom, "Inductively Heated Thin Ferromagnetic Films for Localized Microstructural Annealing," published and presented at International Materials Research Congress 2003, Cancun, Mexico, August 2003.

J. Abraham, et al, "Properties and performance of the prototype instrument for the Pierre Auger observatory," Nuclear Instruments and Methods in Physics Research A: Accelerators, Spectrometers, Detectors and Associated Equipment 523, May 2004

M. L. Trombley and P. L. Bergstrom, "Optimization of Inductively Heated Thin Ferromagnetic Films toward the Localized Annealing of Polysilicon Microstructures," published and presented at International Materials Research Congress 2004, Cancun, Mexico, August 2004.

M. Mendias, S. Lele, and A. Arora, “Functional Safety & Safety Critical Systems – An Overview,” published and presented at SAE WCX Digital Summit, April 2021.

M. L. Trombley, B. P. Gogoi, and P. L. Bergstrom, “Inductively Heated Thin Ferromagnetic Films for Localized Microstructural Annealing,” published and presented at International Materials Research Congress 2003, Cancun, Mexico, August 2003.

Additional Education & Training

SysML 101/201 BLS: Model-Based Engineering Fundamentals: Understanding and Creating SysML Models, Georgia Tech