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Engineering & Scientific Consulting

Serge Li Hoi Foo-Gregory, Ph.D., P.E.

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Professional Profile

Dr. Gregory's automotive experience includes integrating drive systems into autonomous vehicles, durability testing on a variety of automotive components, analyzing vehicle safety systems, testing components for recall implementation, and designing and building formula race cars. His experience outside of the automotive field includes: air quality monitoring, working in a clean-room, building prototype military technologies, and statistics and quality control.

Dr. Gregory's research allowed him to develop expertise in the field of micro-device manufacturing, supply chain systems and design, and the development of rapid prototyping systems for automotive bodies and interiors.

Dr. Gregory's education, training, and experience includes traffic crash reconstruction, computer aided design, manufacturing and engineering software (CAD, CAM, CAE), manufacturing systems, mechatronics, and fabrication. He completed his doctoral dissertation at the University of Michigan after developing a reconfigurable manufacturing system for micro-device fabrication using two-photon polymerization.

While at the University of Michigan, Dr. Gregory assisted with the instruction of mechanical engineering design courses that included laboratory work, global manufacturing, and he led student research groups. He has also worked as a research assistant in the Engineering Research Center for Reconfigurable Manufacturing Systems (ERC/RMS).

Academic Credentials & Professional Honors

Ph.D., Mechanical Engineering, University of Michigan, Ann Arbor, 2012

M.S., Mechanical Engineering, University of Michigan, Ann Arbor, 2006

B.S., Carnegie Mellon University, 2004

ScholarPower Award (University of Michigan)

Pi Tau Sigma Engineering Honor Society

Prior Experience

Graduate Student Instructor and Research Assistant, University of Michigan, 2006-2012

Crew Member, Big Ten Network, 2010-2012

Stress Lab Engineer, Chrysler Automotive, 2004

Research Assistant and Clean Room Technician, Monitoring Airborne Pollution, Carnegie Mellon University, 2002

Professional Affiliations

American Society of Mechanical Engineers—ASME

Institute of Electrical and Electronics Engineers—IEEE

Society of Automotive Engineers—SAE

Languages

French

Indonesian

Mauritian Creole

Publications

Gregory S, Kannatey-Asibu E. Analysis of voxel size during two-photon polymerization. International Manufacturing Science and Engineering Conference, MSEC2012-7374, 2012.

Presentations

Gregory S. Micro-device manufacturing using two-photon polymerization. Engineering Graduate Symposium, University of Michigan, MI, 2009.

Gregory S. Introduction to two-photon polymerization. Engineering Graduate Symposium, University of Michigan, MI, 2007.

Project Experience

Analyzed vehicle safety structures and other occupant protection systems. Compared Anthropomorphic Test Dummy (ATD) loads in crash tests for potential injury levels based on crash condition.

Tested vehicle components for recall implementation and effectiveness.

Developed prototype military technologies for U.S. Army. Built and fielded equipment for soldiers in Afghanistan.

Developed autonomous off-road vehicle as part of REDteam for DARPA Grand Challenge. Integrated drive systems into autonomous vehicle which raced across the desert between Los Angeles and Las Vegas.

Simulated and calculated vehicle durability as a stress lab engineer at Chrysler. Determined damage level over expected vehicle lifetime based on vehicle specifications and popular after-market modifications.

Lead the chassis team at CMU for the development and fabrication of FormulaSAE race cars. Designed and fabricated chassis, suspension, and steering components for formula cars. Participated in FormulaSAE during both undergraduate and graduate studies.

Monitored air pollution around Pittsburgh, PA for types and concentration of metal particulates. Worked in clean rooms to prepare and measure samples, and at monitoring sites to manage test apparatus.

Designed and built mechatronic toy using non-traditional joystick. Toy car designed for children was controlled using a flexible rod to determine direction and speed.

Additional Education & Training

Accessing and Interpreting Heavy Vehicle Event Data Recorders, SAE International, 2018

Traffic Crash Reconstruction for the Forensic Engineer, Northwestern University, 2015