Mechanical Engineering
Academy of Distinguished Alumni

Terrence F. Alger, Ph.D.

Distinguished Mechanical Engineer, 2018

BSME, The United States Military Academy, 1992
MSME, The University of Texas at Austin, 1999
Ph.D., ME, The University of Texas at Austin, 2001
MBA, The University of Texas at San Antonio, 2008

Director, Spark Ignited Engine R&D
Powertrain Engineering Division
Southwest Research Institute

Dr. Terrence F. Alger is the director of the Spark Ignited Engine Research and Development Department in the Powertrain Engineering Division at Southwest Research Institute (SwRI) in San Antonio. He oversees a team improving engine efficiency and emissions through in-cylinder combustion processes and advanced engine technologies. Dr. Alger is best known as the technical leader and manager of the HEDGE (High Efficiency Dilute Gasoline Engine) Consortium, now entering its 14th year of operation. The consortium is dedicated to improving gasoline engine fuel consumption and is credited with popularizing the use of cooled EGR in light-duty vehicles. During his work on the HEDGE program, Dr. Alger led the team that invented SwRI's DCO® (Dual Coil Offset) Ignition system and the D-EGR® (Dedicated Exhaust Gas Recirculation) engine, both winners of R&D 100 Awards. To develop more efficient gasoline engines, Alger researches ignition systems, abnormal combustion in gasoline engines, boosting systems (turbochargers), and fluids for advanced engine concepts.

Alger graduated from the United States Military Academy as a distinguished cadet in 1992 and was commissioned as a 2nd Lieutenant in the U.S. Army Corps of Engineers. During his five years in the Army, Alger served as a platoon leader and task force engineer for the 3/325th Infantry (Airborne Battalion Combat Team) and participated in operations in Bosnia and Africa. In 1996, he was assigned to the U.S. Army Corps of Engineers Southwest Division as a project officer.

After resigning from the Army, Alger began his graduate studies at The University of Texas at Austin. He holds doctorate and master's degrees in Mechanical Engineering from UT Austin, a Master of Business Administration degree from The University of Texas at San Antonio, and a bachelor's degree in Mechanical Engineering from the U.S. Military Academy.

Alger is a Fellow of the Society of Automotive Engineers (SAE). His professional honors include the Brigadier General Clifton C. Carter Award for Excellence in Mechanical Engineering; the Daughters of the American Revolution Medal (for academic achievement); a National Science Foundation Fellowship; a National Defense Science and Engineering Fellowship; the SAE Excellence in Oral Presentation Award; the SAE Lloyd L. Withrow Distinguished Speaker Award; the SAE McFarland Award; the SAE Horning Award; and the 2016 Internal Combustion Engine Award given by the American Society of Mechanical Engineers.

Alger has been awarded 23 patents and published over 50 papers on topics covering engine efficiency and emissions.