

Contact Details:

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Education:

1992: B.S.M.E. (Summa Cum Laude) from The Ohio State University
1993: M.S.M.E. from The Ohio State University
1997: Ph.D. in Mechanical Engineering from The Ohio State University

Work Experience:

1991 – 1997 Graduate research fellow in the Department of Mechanical Engineering at The Ohio State University. Research topic for Masters and Ph.D. programs involved optical diagnostics in internal combustion engines. Primary researcher on projects funded by Honda R&D of Japan and several U.S. Tier I automotive suppliers. Graduate studies supported by a National Science Foundation Fellowship, Ohio State University Presidential Scholars Program, and yearly grants from Honda of America. Completed two summer internships at General Motors during undergraduate studies.

1997 - 1998 Caterpillar Engine Research, Alternative Fuels Group, Peoria Illinois. Work included thermodynamic and fluid dynamic modeling, engine testing, and design of natural gas and special fuel engines for heavy duty mobile and stationary applications.

1998 - 1999 Post-doctoral research fellow at Trinity College, Dublin, Ireland. Primary researcher on European Union funded project aimed at minimizing emissions from pulse combustors for stationary applications. Designed and fabricated optical test combustor as well as conducting detailed chemical kinetic and fluid dynamic modeling.

1999 - 2000 Visiting research fellow at University of California at Berkeley. Worked with team of researchers developing Homogeneous Charge Compression Ignition engine for high efficiency, low NO_x operation. Project included cycle simulation as well as development of engine test facility and extensive engine testing.

2000 - 2001 Visiting fellow, RMIT University, Melbourne, Australia. Developed and taught a senior level class on engines and drive trains. Worked with local automotive industry (Ford of Australia, GM Holden) to develop engine test cell for future research and student instruction. Created web enabled course content to allow distance learning by students worldwide through RMIT.

1998 – Present Engineer and managing partner at Hiltner Combustion Systems LLC. Work focused on efficiency and emissions improvements through combustion system development for heavy duty spark ignited engines. Efforts include modeling of non-traditional engines and engine cycles, optimization of spark ignited natural gas engines for stationary power generation, and the development of experimental and analysis tools for engine test cell applications.

Selected Publications:

Hiltner, J.D., and Samimy, M., "A Study of In-Cylinder Mixing in a Natural Gas Powered Engine by Planar Laser Induced Fluorescence", SAE Paper Number 961102, 1996.

Hiltner, J.D., and Samimy, M., "The Impact of Injection Timing on Mixture Formation in a Natural Gas Powered Engine", SAE Paper Number 971708, 1997.

Hiltner, J.D., "The Impact of Fuel Distribution on Cyclic Combustion Variations in a Natural Gas Fueled, Spark Ignition Engine", Ph.D. Dissertation, The Ohio State University, 1997.

Hiltner, J.D., Fiveland, S.B., Willi, M.L., Agama J.R., "System Efficiency Issues for Natural Gas Fueled HCCI Engines in Heavy-Duty Stationary Applications", SAE Paper #2002-01-0417.

Hiltner, J.D., Mauss, F., Johansson, B., Agama, J.R., "HCCI Operation with Natural Gas: Fuel Composition Implications", ASME Journal of Engineering for Gas Turbines and Power, July 2003, pages 837-844.

Hiltner, J.D., Fiveland, S.B., "Development Considerations for Lean Burn Natural Gas Engines Employing the Miller Cycle", 24th CIMAC World Congress on Combustion Engine Technology, Kyoto, June 2004.

Hiltner, J.D., "Combustion System Development and Simulation Tools for Engines Operating on Gasified Biomass Fuels", 5th Dessau Gas Engine Conference, Dessau, March, 2007.

Flory, M.S., Hiltner, J.D., "Engine Control System Development Using Rapid Prototyping Hardware and Software", 25th CIMAC World Congress on Combustion Engine Technology, Vienna, May 2007.

Hiltner, J.D., Flory, M.S., "Stoichiometric Operation of Natural Gas Engines for Very Low Emissions Applications", 26th CIMAC World Congress on Combustion Engine Technology, Bergen, Norway, June 2010.