

Jordan Farina, PhD
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EDUCATION

PhD, Mechanical Engineering, Virginia Polytechnic Institute and State University, 2013
Dissertation: "Application of Multi-Port Mixing for Passive Suppression of Thermo-Acoustic Instabilities in Premixed Combustors"

M.S., Mechanical Engineering, Virginia Polytechnic Institute and State University, 2010
Thesis: "Conversion of a Gas Turbine Engine to Operate on Lean-Premixed Hydrogen-Air: Design and Characterization"

B.S, Mechanical and Aerospace Engineering, University of Alabama in Huntsville, 2006
Minor in Mathematics

PROFESSIONAL EMPLOYMENT

2018-present, Assistant Professor, University of Portland

2015-2018, Instructor, University of Portland

2013-2017, Engineering Consultant, Electric Jet, LLC
Design, fabrication, and testing of gas turbine components. Designed, built, and instrumented testing facility. Data acquisition and digital engine control with LabView.

2012-2013, Engineer, Electric Jet, LLC
Design and testing of gas turbine combustor and rotor assembly. In conjunction with Virginia Tech, designed and tested engine combustor in a custom testing facility. Design and fabrication of test rig and components. Instrumentation and combustion diagnostics.

PUBLICATIONS

Farina, J., Manderson, C., Tran, P., Dillon, D., "Design and Testing of a Micro-Bubble Separation System," *ASME IMECE 2018*, Pittsburg, PA, November 2018.

Farina, J. T., "Application of Multi-Port Mixing for Passive Suppression of Thermo-Acoustic Instabilities in Premixed Combustors," PhD Dissertation, Virginia Tech, Feb. 2013.

Farina, J. T., "Conversion of a Gas Turbine Engine to Operate on Lean-Premixed Hydrogen-Air: Design and Characterization," Master's Thesis, Virginia Tech, January 2010.

Farina, J. T., Perry, M. V., LePera, S. D., O'Brien, W. F., and Vandsburger, U., "Design of a Lean Premixed Hydrogen Combustor for a Gas Turbine Engine," *AIAA Joint Propulsion Conference, Denver, CO.*, August 2009.

Perry, M. V., Farina, J. T., LePera, S. D., O'Brien, W. F., and Vandsburger, U., "Instrumentation, Modeling, and Testing of a Gas Turbine Engine Using Lean Premixed Hydrogen Combustion," *AIAA Joint Propulsion Conference, Denver, CO.*, August 2009.

PATENTS

Perry, M. V., Farina, J. T., LePera, S. D., Ferrar, A. M., O'Brien, W. F., & Shiver, S. (2014). *Micro gas turbine engine for powering a generator*. U.S. Patent 9,267,437, filed Feb 26, 2014, and issued Feb 23, 2016.

AWARDS, HONORS, AND FELLOWSHIPS

2010, 2006, Pratt Fellowship, Virginia Polytechnic Institute and State University

2006, Award for Academic Excellence in Aerospace Engineering, University of Alabama in Huntsville

2006, Outstanding Undergraduate Student Award for the Aerospace Engineering Program, University of Alabama in Huntsville

2004, Tau Beta Pi, University of Alabama Huntsville

2004, Pi Tau Sigma, University of Alabama Huntsville

2002, Tennessee Valley Authority Fellowship, TVA

TEACHING EXPERIENCE

Instructor, ME 336, *Heat Transfer*, UP

Instructor, ME 332, *Applied Thermodynamics*, UP

Instructor, ME 331, *Thermodynamics*, UP

Instructor, EGR 322, *Strengths of Materials*, UP

Instructor, ME 376, *Thermal Systems Lab*, UP

Instructor, ME 374, *Fluids Lab*, UP, Spring 2016

Instructor, ME 351, *Mechanical Systems Lab*, UP, Fall 2015, Fall 2016

Instructor, EGR 483/484, *Multidisciplinary Engineering Capstone*, UP, Fall 2015, Spring 2016

Instructor, BUS 364, *Innovation*, UP, Fall 2015

Instructor, ME 2124, *Introduction to Thermal Fluids*, Virginia Tech Department of Mechanical Engineering, Fall 2009.

Teaching Assistant, ENGE 1114, *Exploration Engineering Design*, Virginia Tech Department of Engineering Education, Spring 2008.

Instructor, *Student Transition Engineering Program*, Virginia Tech College of Engineering, Summer 2007.

Teaching Assistant, ENGE 1024, *Engineering Exploration*, Virginia Tech Department of Engineering Education, Spring 2007.

Teaching Assistant, ENGE 1434, *Fundamentals of Engineering*, Virginia Tech Department of Engineering Education, Fall 2006.

Advisor, *Undergraduate Student Research*, Virginia Tech Department of Mechanical Engineering, seven students from 2007-2012.

RESEARCH EXPERIENCE

2015 – Present, Instructor, Department of Mechanical Engineering, University of Portland. Research to support the design of a novel isothermal compression technology – thermodynamic cycle analysis, natural gas off-gassing, two-phase fluid flow, and prototype sensor development.

2013 – 2007, Graduate Research Assistant, Department of Mechanical Engineering, Virginia Tech. Research in lean premixed combustion, thermo-acoustic instabilities, hydrogen combustion, exhaust gas recirculation for gas turbine power generation plants, liquid atomizers and combustors, flame resistant fuel operability in diesel engines. Overall facility operations, i.e. high pressure fuel systems for natural gas, hydrogen, and Jet-A, air system (1200 SCFM) with water separation and air preheat to 1100K, liquid water spray combustion cooling, high pressure/temperature combustion test rigs, diagnostics, instrumentation, and controls.

2006 – 2004, Research Technician, Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville. Technician for research projects that included thermal stability of aviation fuels, electric propulsion thrusters, and hybrid rockets. Aided in the fabrication, instrumentation, maintenance, and operation of a liquid and hybrid rocket test facility, 6-foot diameter vacuum chamber, and water tunnel.

EXTRACURRICULAR UNIVERSITY SERVICE

2008, Volunteer, Virginia Tech Big Event

2006, Captain, ASCE Steel Bridge Team, University of Alabama Huntsville

2005, Vice President, ASCE, University of Alabama Huntsville

2006-2004, Member/Paddler, ASCE Concrete Canoe (placed 3rd in National 2004), University of Alabama Huntsville

2005, Member, Tau Beta Pi, Bike project, University of Alabama Huntsville

PROFESSIONAL SKILLS

Areas of Expertise (Thermal Fluid Systems, Combustion, Heat Transfer, Gas Turbines, Instrumentation, Digital Signals Processing)

Computer skills (MATLAB, LabVIEW, Mathcad, Unigraphics NX, SolidWorks, Autodesk Inventor, ANSYS, FLUENT, MS office)

Laboratory skills (General mechanics, Electrical, Welding, Manual and CNC machining, High pressure plumbing, Air and Fuel (liquid and gaseous) systems, Combustion experiments, Diagnostics, Instrumentation, and Controls)

TEACHING AREAS

Thermodynamics

Fluid Mechanics

Heat and Mass Transfer

Compressible Flow

Aerodynamics

Propulsion

Turbomachinery

Combustion

Statics

Dynamics

Mechanics of Materials

Machine Design

PROFESSIONAL MEMBERSHIPS

2012-2007, AIAA, Student Member, Virginia Tech

2006-2004, ASCE, Student Member, University of Alabama in Huntsville