

GIANLUCA PULITI

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SENIOR AEROSPACE AND MECHANICAL ENGINEER / PROJECT MANAGER

Accomplished and enthusiastic engineer and scientist with significant industrial and academic experience in fluid and thermal sciences, heat transfer, thermodynamics, computational fluid dynamics, aerodynamics, multi-phase flows, and numerical methods. Proactive team player and competent team leader with an exceptional work ethic. Confident and articulate technical and interpersonal communications skills, and quick learner. Possess entrepreneurial spirit and well developed skills in prioritizing, organization, decision making, and time management.

PROFESSIONAL EXPERIENCE

PIRAMAL CRITICAL CARE, Bethlehem, Pennsylvania

February 2013 to Present

R&D Project Manager

Senior Mechanical Engineer

- Manage three diverse multi-million dollar projects from product conception to commercialization, for medical devices and pharmaceutical products.
- Directed a project that received five European approvals to date for a new inhalation anesthetic agent, Desflurane.
- Lead a team of engineers in the design of a new anesthetic gas delivery system with cutting edge technology.
- Model multiphase flow analysis using computational fluid dynamics (CFD) in their laminar and turbulent regimes.
- Manage cross-functional collaborations, project development, project funding, and process improvement.
- Collaborate with the Regulatory Department in preparation of devices 510(k), CE marks and ANDA applications.
- Plan and host meetings with international partners in the United States, Europe, and India.
- Formulate and pursue timelines and development plans for joint ventures.
- Negotiate with contract manufacturers to improve reliability and lower costs, while supporting product validation and scale-up.

PIRAMAL CRITICAL CARE, Orchard Park, New York

May 2012 to February 2013

R&D Mechanical Engineer

- Designed and tested working and non-working prototypes of new and cutting edge medical devices for the delivery of anesthesia, some of which were presented at international conferences.
- Modeled multiphase flows through vaporizers and other complex flow paths, using state-of-the-art CFD packages such as COMSOL.
- Analyzed and modeled with finite element methods (FEM) the structural integrity of complex structures undergoing creep, high cycle fatigue, and chemical corrosion.
- Implemented design inputs through extensive use of CAD packages, such as SolidWorks.
- Coordinated toxicology and safety studies of engineering materials with national and international laboratories.

TEACHING EXPERIENCE

NORTHAMPTON COMMUNITY COLLEGE, Bethlehem, Pennsylvania

January 2015 to Present

Adjunct Professor of Statistics and Physics

- Provide challenging course work, innovative projects, and stimulating exercises while utilizing novel active learning techniques and a hands-on approach.
- Promote the use of the latest technology and cultivate greater general education skills such as critical thinking.
- Earned recognition as a knowledgeable professor with well-organized, stimulating, and student-centered courses.

EDUCATION

UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana
Ph.D., Aerospace and Mechanical Engineering
Master of Science, Mechanical Engineering
GPA: 3.97/4.00

May 2012
May 2010

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY, Daytona Beach, Florida
Bachelor of Science, Aerospace Engineering
Bachelor of Science, Engineering Physics
GPA: 3.93/4.00

May 2006
May 2006

ADDITIONAL RELEVANT EXPERIENCE

UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana
Research Assistant

August 2006 to May 2012

- Modeled the physics of nanofluids using equilibrium molecular dynamics and computational fluid dynamics.
- Pioneered complex numerical algorithms to extract thermodynamic, rheological, and transport properties of fluids from raw equilibrium molecular dynamics data.
- Presented the work on nanofluid at over 15 international conferences, and received various awards for its novelty and multi-billion-dollars market potential.
- Pursued, under a grant from the United States Department of Energy, the feasibility study of using ionic liquids with a suspension of nanoparticles in an absorption refrigeration cycle and for CO₂ capture.

UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana
Undergraduate Research Assistant Intern

Summer 2003 and Summer 2005

- Designed and implemented an open source educational simulation toolbox using Simulink to allow undergraduates to have a visual understanding of the physics behind an absorption refrigeration thermodynamic cycle.
- Developed and implemented a model to provide some basic understanding of the dynamics of combustion, through a simplified mathematical representation of the complicated reaction processes.

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY, Daytona Beach, Florida
Student

August 2001 to May 2006

- Led the aerodynamics and aircraft stability team towards the design of the variable-sweep wings for the Quiet Supersonic Jet during a senior design project conducted in partnership with Gulfstream.
- Headed the design of the thermal control subsystem, and of the electrodynamic and momentum exchange tether of a space vehicle for a mission to Enceladus. This project was entered in the Revolutionary Aerospace System Concept Academic Linkage (RASC-AL) contest, organized by NASA and the National Institute of Aerospace.
- Designed the wings of a micro air vehicle, and analyzed their aerodynamic stability and control.
- Derived a perturbative solution for a massive, static, spherically-symmetric scalar field in general relativity, the Einstein-Klein-Gordon equations; presented work at an international APS conference.

SELECTED SKILLS, CERTIFICATIONS, AWARDS, AND PUBLICATIONS

SOFTWARE	SolidWorks, Pro/ENGINEER, CATIA, NASTRAN, COMSOL, Pascal, Basic, C, C++, HTML, CSS, IDL, MFIX, DL-POLY, OpenMD, LaTeX, Matlab, Simulink, Mathematica, Code V, FORTRAN, SAP, Minitab, Microsoft Excel, Word, PowerPoint, Access, and Project.
MEMBERSHIPS	AIAA, ASME, APS, SIAM, SAE, RAPS, PMI, Sigma Gamma Tau, Omicron Delta Kappa, Tau Beta Pi
AWARDS	<ul style="list-style-type: none">- 2012 Computational Science and Visualization Award, Notre Dame, Indiana- 2008 AIAA Foundation Graduate Award, Orlando, Florida- 2005 Embry-Riddle Outstanding Academic Achievement and Leadership Award
CERTIFICATIONS	<ul style="list-style-type: none">- Project Management Certificate – Penn State University (PMI Accredited), June 2015
TECHNICAL TRAINING	<ul style="list-style-type: none">- SolidWorks Essentials. Intensive training provided by CADimensions, Inc. June 2012- ISO 13485:2003. Quality management systems and regulatory requirements- FDA QSR Design Control Training. Training provided by the Emergo Group. September 2013- ISO 14971:2012. Risk management. Training provided by the Emergo Group
JOURNAL PUBLICATIONS	<ul style="list-style-type: none">- Puliti, G., <i>et al.</i> (2011). Thermodynamics properties of gold-water nanolayer mixtures using molecular dynamics. <i>Journal of Nanoparticle Research</i>, 13(9), 4277-4293- Puliti, G., <i>et al.</i> (2011). Nanofluids and their Properties. <i>Appl. Mech. Rev.</i>, 65(2):021001- Puliti, G., <i>et al.</i> (2012). Thermodynamics properties of a gold-water nanofluid using molecular dynamics. <i>Journal of Nanoparticle Research</i>, 14(12), 1296- Puliti, G., <i>et al.</i> (2016). Transport properties of a gold-water nanofluid using molecular dynamics. Under Review.
BOOKS	<ul style="list-style-type: none">- Puliti, G. and Paolucci S. "Properties of Nanofluid." <i>Heat Transfer Enhancement with Nanofluids</i>. Boca Raton, FL: CRC Press, 2015. 1-44.
INVITED LECTURES	<ul style="list-style-type: none">- <i>Transport Properties of Nanofluid</i>. Invited talk at the 47th AIAA Aerospace Sciences Meeting, Orlando, FL. January 5-8, 2009- <i>Properties of Au-H₂O Nanofluids Using Molecular Dynamics</i>. Seminar at Brown University, Providence, RI. May 20, 2014
LANGUAGES	Fluent in English and Italian.
PERSONAL INTERESTS	Photography, piano, sky watching, astrophotography, web design, tennis and traveling