

ARNAB ROY

7192 Brookwood Valley Circle NE, Atlanta, GA 30309 · (352) 871 7206 · arnab.royufl@gmail.com
<http://plaza.ufl.edu/arnab1985>

OBJECTIVE

Seeking a full-time position in industry where my experiences and training can be appropriately used

SUMMARY

- Extensive experience in thermodynamics, heat transfer, fluid mechanics, data measurement and analysis
- Strong publication record in reputed peer-reviewed journals and several international conferences
- Proficient computer skills in MATLAB, LabView, C, AutoCAD, and Microsoft Word, Excel and Powerpoint
- Expert in planar laser induced fluorescence (PLIF) optical diagnostic technique and image processing
- Over 4 years of experience as teaching assistant for several undergraduate/graduate courses and labs
- Excellent verbal and written communication skills - Ability to work in teams or groups, manage multiple projects

EDUCATION

Ph.D. Aerospace Engineering, University of Florida, Gainesville, FL *December 2012*
Dissertation: Supercritical Fuel Injection and Mixing in Single and Binary Species Systems
GPA: 3.97/4.00

B.S. Mechanical Engineering, Jadavpur University, Calcutta, India *June 2007*
GPA: 8.29/10.00

EXPERIENCE

Georgia Institute of Technology

Postdoctoral Fellow, Sustainable Thermal Systems Laboratory *January 2013 – present*

- Developing microchannel absorption chillers, heat pumps and refrigeration methods for residential applications
- Investigating novel compact heat exchangers, writing technical reports for sponsors, managing multiple projects

University of Florida

Research Assistant, Combustion and Fluid Dynamics Laboratory *August 2007 – December 2012*

- Experimentally investigated high pressure and high temperature fuel injection/fuel-air mixing in the combustion chambers of rockets, gas turbines and diesel engines using laser diagnostics. Project funded by NASA
- Designed test facility, visualization equipment and data acquisition systems using AutoCAD/LabView
- Applied PLIF for optical diagnostics and used MATLAB extensively for image processing/data analysis
- Developed methods to measure jet core length/spray angle and their dependence on injection conditions
- Analyzed stability and drop/droplet size of supercritical fuel sprays using a unique numerical approach
- Formulated calibration model for laser absorption and non-linear fluorescence for high energy lasers
- Assisted and mentored junior colleagues in building apparatus for high-power heater facility

University of Florida

Teaching Assistant *January 2008 – August 2012*

- Assisted teaching of several undergraduate and graduate courses including *Aerospace Propulsion, Classical Thermodynamics, Data Measurement & Signal Processing* and *Introduction to Compressible flow*
- Evaluated homework and exams, tutored students and lectured periodically a class of 120 students
- Supervised 30 undergraduate students for *Thermo-Fluids Design and Lab*
- Performed experiments including detailed characterization of pipe losses, performance evaluation of turbomachinery such as centrifugal compressors, analysis of refrigeration systems, and other fluids machinery

Jadavpur University

Research Co-Worker *January 2007 – May 2007*

- Generated curvilinear meshing/grids for a CFD code for liquid flow over a cylinder using FORTRAN
- Designed components for an internal combustion engine involving preliminary stress analysis

ARNAB ROY

7192 Brookwood Valley Circle NE, Atlanta, GA 30309 · (352) 871 7206 · arnab.royufl@gmail.com

<http://plaza.ufl.edu/arnab1985>

PEER REVIEWED JOURNAL PUBLICATIONS

- **Roy, A.**, Joly, C., Segal, C., "Spreading Angle and Core Length Analysis of Supercritical Jets", *AIAA Journal*, 2013 (*Being finalized for publication*)
- **Roy, A.**, Joly, C., Segal, C., "Disintegrating Supercritical Jets in a Subcritical Environment", *Journal of Fluid Mechanics*, 2013, Vol. 717, pp. 193-202
- **Roy, A.**, Segal, C., "Linear Stability Analysis of a Sub-to-Supercritical Jet", *Physics of Fluids*, 2012, Vol. 24 (3), pp. 0341041-0341048
- **Roy, A.**, Gustavsson, J.P.R., Segal, C., "Spectroscopic Properties of a Perfluorinated Ketone for PLIF Applications", *Experiments in Fluids*, 2011, Vol. 51(5), pp. 1455-1463
- **Roy, A.**, Segal, C., "An Experimental Study of Fluid Jet Mixing at Supercritical Conditions", *Journal of Propulsion and Power*, 2010, Vol. 26 (6), pp. 1205-1211

SELECTED CONFERENCE PUBLICATIONS AND POSTER PRESENTATIONS

- **Roy, A.**, Joly, C., Segal, C., "Supercritical Fuel Injection in Multi-Species Systems", *48th AIAA Joint Propulsion Conference*, 29 July - 1 August 2012, Atlanta, GA, AIAA-2012-4091
- **Roy, A.**, Segal, C., "Supercritical Mixing in Single and Dual Species Systems", *3rd Annual FCAAP Symposium and Exhibition*, 26-27 April 2012, Tallahassee, FL (*Poster*)
- **Roy, A.**, Segal, C., "Sub-to-Supercritical Mixing in Single and Dual Component Systems", *50th AIAA Aerospace Sciences Meeting*, 9-12 January 2012, Nashville, TN, AIAA-2012-346
- **Roy, A.**, Segal, C., "Sub-to-Supercritical Mixing and Core Length Analysis of a Single Round Jet", *49th AIAA Aerospace Sciences Meeting*, 4 - 7 January 2011, Orlando, FL, AIAA-2011-792

PROFESSIONAL ASSOCIATIONS

- Member of the *American Institute of Aeronautics and Astronautics* (AIAA) since 2009
- Member of the *Society of Hispanic Professional Engineers* (SHPE)
- Reviewer for the *International Journal of Hydrogen Energy*
- Trained by *Continuum Lasers* company to operate, align and maintain pulsed and tunable laser sources

SKILLS

Technical: Experimental Fluid Dynamics, Laser Diagnostics, Optics, Data Analysis, Heat Transfer

Computer: MATLAB, LabVIEW, AutoCAD, C, and MS Excel, Word & PowerPoint

Languages: English (Fluent), Bengali (Native speaker), Hindi (Fluent), Spanish (Beginner)

RELEVANT COURSEWORK

Heat Transfer: Classical Thermodynamics, Conduction, Convection, Combustion, Gas Turbines and Jet Engines

Fluid Flow: Fluid Mechanics I and II, Turbulent Fluid Flow, Compressible Flow I and II, Multiphase Flow, Flow Control

Special Topics: Laser Based Diagnostics, Optics, Hydrodynamic Stability, Data Measurement and Analysis

LEADERSHIP ACTIVITIES

Team Member, Graduate Student Council, University of Florida

January 2011-December 2012

- Conducted mentoring workshops with department colleagues for approximately 35 new graduate students
- Led and organized laboratory tours and other departmental events for students and faculty

Team Member, Tae Kwon Do Club, University of Florida

January 2011-December 2012

- Organized training workshops and assisted in teaching classes
- Performed social service activities in and around Gainesville

Choreographer, Indian Dance Group, University of Florida

December 2010-December 2012