

ROHIT MISHRA

EDUCATION

TEXAS A&M UNIVERSITY

JANUARY 2019-EXPECTED 2022

Doctor of Philosophy in Mechanical Engineering

Advisor: Prof. Dorrin Jarrahbashi

Relevant Coursework: Fluid Mechanics, Hydrodynamic stability, Combustion Science, Aerothermochemistry, High Speed Combustion

GPA: 4.0/4.0

UNIVERSITY OF WISCONSIN-MADISON

SEPTEMBER 2016-DECEMBER 2018

Masters in Mechanical Engineering

Advisor: Prof. Christopher J. Rutland

Thesis: Large Eddy Simulation of surface film formation during spray-wall interaction

Relevant Coursework: Computational Fluid Dynamics, Combustion Processes, Intermediate Thermodynamics, Applied Combustion, Thermal Systems Modeling, Air pollution, Turbulent heat and momentum transfer

GPA: 3.6/4.0

NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR, INDIA

2012-2016

Bachelor of Technology in Mechanical Engineering (Honors)

Thesis: Flow simulation of guide vanes of GVSTD (Guide vane swirl tumble device) at different angles to maximize the turbulence kinetic energy for a 4 valve CI engine modified for bio-diesel use

CPI: 8.36/10.00

Relevant Coursework: Turbo Machinery, Fluid Mechanics, Finite Element Method, Numerical Techniques, Fluid Machinery, Internal Combustion engine

RESEARCH

TEXAS A&M UNIVERSITY

MAY 2019-PRESENT

AND TEACHING

Research Assistant

- Cavitation modeling for diesel injector nozzles: Funded by Cummins Inc.
- Supercritical oxy-combustion modeling : Developing finite difference solver in NGA (Fortran)

EXPERIENCE

TEXAS A&M UNIVERSITY

JANUARY 2019-MAY 2019; AUGUST 2020-PRESENT

Teaching Assistant

- MEEN-363 (Dynamics and Vibrations)
- MEEN-345 (Fluid Mechanics Lab)
- MEEN-315 (Thermodynamics)

UNIVERSITY OF WISCONSIN-MADISON

SEPTEMBER 2016-JANUARY 2019

Research Assistant

- LES of surface film formation during spray-wall interaction
- Wall interaction regimes (stick, rebound, spread, and splash) selected based on impact energy and wall temperature (Stanton-Rutland Model)
- LES model: Dynamic structure model
- Platform: *OpenFOAM*, Language: C++; Post-processing: EnSight
- Multi-processor computing, Parallelization: MPI

UNIVERSITY OF WISCONSIN-MADISON

JANUARY 2018-JANUARY 2019

Teaching Assistant

- Teaching concepts of bias, precision and accuracy for ME-368 (Engineering Measurement and Instrumentation)
- Tools used: LabView, myDAQ (Data acquisition device)

NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR, INDIA

2015-2016

Major and Minor project

- Optimized the turbulence kinetic energy in the combustion chamber by varying the vane angles in Guide vane swirl and tumble device
- Platform: ANSYS Fluent

WORK EXPERIENCE

BROAN NUTONE LLC, HARTFORD, WISCONSIN

SEPTEMBER 2017 – JANUARY 2018

Engineering Co-op

- Coded Beam-Forming and Deconvolution algorithms for clear source identification in Near-field Acoustic Holography (NAH) test
- Suggested an alternative way to test for noise identification using accelerometer data by generating FFT analysis
- Initiated a new procedure for dynamic balancing of the bath fans to reduce noise generation
- Made standard test procedures for back draft test, Near-field acoustic holography test, thermo-protection test and automated the data manipulation by developing macros

TATA MOTORS, PUNE, INDIA

AUGUST 2016 – SEPTEMBER 2016

Graduate Engineer Trainee

- Sound test engineer at Engineering Research Center
- Responsible for carrying out Noise, Vibration, and Harshness (NVH) tests
- Sending detailed reports to design team with suggestions for possible changes

UNIVERSITY OF WISCONSIN MADISON

JAN 2016 – AUG 2017

Project Assistant

- Developed course structure and website for South Asian Summer Language Institute using Microsoft Visual Studio

PUBLICATIONS/ CONFERENCES

- Submitted paper: Computational modeling of pseudo-cavitation phenomenon in diesel injector nozzles, IJER
- APS-DFD: Computational modeling of pseudo-cavitation phenomenon in diesel injector nozzles, 2019
- APS-DFD A study of the effect of shear thinning in EOR by surfactant-polymer Flooding, 2019
- SAE Technical paper: Mishra, R. and Rutland, C., "Evaluating surface film models for multi-dimensional modeling of spray-wall interaction," SAE Technical Paper 2019-01-0209, 2019.

ACHIEVEMENTS

- Suggested alternative sound test procedure estimated to save 20,000 USD for Broan NuTone LLC Product Engineering Department

SKILLS

- Computer Languages: Fortran, C++, Python-Cantera, Javascript
- Softwares: MATLAB, OpenFOAM, Ansys Fluent, Autodesk, Pro-E, CATIA, Converge, GT Power, Pulse reflex acoustic camera software, LabView
- Languages: Proficient in English and Hindi

REFERENCES

- Prof. Dorrin Jarrahbashi, Department of Mechanical Engineering, Texas A&M University
- Prof. Christopher J. Rutland, Department of Mechanical Engineering, UW Madison ((608) 262-5853, rutland@engr.wisc.edu)
- Prof. Prabir Daripa, Mathematics Department, Texas A&M University (pdaripa@tamu.edu)