

# Pinaki Acharya

pacharya@ncsu.edu

3506-102 Ivy Commons Drive Raleigh, NC 27606

| 919-916-9772

## SUMMARY

- Mechanical Engineering graduate student at NC State University seeking entry-level opportunities.
- Areas of Interest: HVAC, Energy modeling, and Thermal systems design.
- Skills: AutoCAD, Carrier HAP, Revit, ASHRAE Standards- 90.1, 189.1, 62.1

## EDUCATION

### M.S. Mechanical Engineering

North Carolina State University, Raleigh

CGPA: 3.83/4

**Relevant Courses:** HVAC, Convective Heat Transfer, CFD  
Microfluidics and Nanofluids, Building Energy Optimization

**Thesis:** Study of Spray Cooling in Liquid Piston Compressor for Ocean Compressed Air Energy System

### B.E. (Hons.) Mechanical Engineering

BITS Pilani, K. K. Birla Goa Campus, India

CGPA 7.68/10

## WORK EXPERIENCE

- **AO RESEARCH INSTITUTE, DAVOS** June 17-July 17  
*“Numerical Simulations of 3D printer needle to study shear stress distribution”*
  - Worked in the Bio-Mechanical Development Group, to study the effect of shear stress on biological cells through the Bio-3D printer nozzle.
  - Simulated in OpenFoam 4.1 for different pressure, tip diameter, and viscosity.
- **INDIAN INSTITUTE OF TECHNOLOGY, KANPUR** Jul’15 –Dec’15  
*“Direct Numerical Simulations of Rectangular Synthetic Jets”*
  - Studied the phenomenon of axial switching and vortex bifurcation in the flow visualization.
  - Simulated Jet for aspect ratio 1, 2 in a 2-D domain. Observed bifurcation and strong trailing jet.
- **INSTITUTE OF MINERALS AND MATERIAL TECHNOLOGY, BHUBANESWAR** May’14-Jul’14  
*“Study of Entrained Flow Gasification of F-Grade Coal and Dolochar” under Department of D&RT*
  - Optimization of F-grade Coal and Dolochar for Entrained Flow Gasification.
  - Calculated an optimum ratio of 85% fuel with 15% moisture for Gasification process for 80:20 mass ratio of F-grade coal and Dolochar.

## PROJECTS

- **Spray Cooling in Liquid Piston Compressors** Aug’17-present
  - Designed Table-top setup for spray cooling in liquid chamber for compression of air. Performing experiments with design parameters- full and hollow cone, variation in diameter, and angle.
  - Compression Efficiency improved by 9-13% with shift of compression curve from polytropic to near isothermal curve. Polytropic index changed from 1.2 to 1.04-1.08
- **Design of Net-Zero Energy Building-Integrated Sustainable Building Design (ASHRAE Student Design Project)** Jan’17- May17
  - Worked on passive building structures, use of on-site renewable energy and water conservation initiatives to create a net zero energy building in compliance with LEED standard.
  - Designed Building Envelope, Lighting Loads, and performed Baseline Energy Modeling on Carrier HAP according to ASHRAE 90.1 G Appendix. Improved Energy Performance using ASHRAE 189.1
  - Worked on the building cost and life cycle analysis for the proposed design.

## TECHNICAL SKILLS

Carrier HAP, ICEM CFD, Revit, Solidworks, eQUEST, AutoCAD, Tecplot360, ANSYS Fluent, Maple, MATLAB, Microsoft Office, OpenFOAM, Fortran

## ACADEMIC POSITIONS

- Graduate Teaching Assistant –Course MAE 306 at NC State –Fluid Thermal Lab Jan’18 - present
- Graduate Teaching Assistant –Course MAE 201 at NC State –Thermodynamics Aug’17- Dec’17
- Teaching Assistant for the Course MEF441 at BITS Goa –Automotive Vehicle Dynamics Jan’16 - May 16

## AWARD

- Recipient of Paul Stahl Scholarship from ASHRAE Triangle Chapter for the academic year 2017-18 May 17