

# Aashutosh Mistry

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## EDUCATION

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### Indian Institute of Technology Kanpur

2012 – 2014 Master of Technology in *Fluid and Thermal Sciences* GPA: **10.00/10.00**  
(Mechanical Engineering) (Gold medalist)

### Sardar Vallabhbhai National Institute of Technology Surat

2008 – 2012 Bachelor of Technology in *Mechanical Engineering* GPA: **9.95/10.00**  
(Gold medalist)

### Class XII

2008 Gujarat Secondary and Higher Secondary Education Board % marks: **93.80%**  
(State rank 9<sup>th</sup>)

### Class X

2006 Gujarat Secondary Education Board % marks: **93.14%**

## RESEARCH EXPERIENCE

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### Project Associate

June – December 2014 *AnuPravaha I*

Principal Investigator: Dr. Malay Das (IIT Kanpur)

Duties: To speed up *AnuPravaha I* – a general purpose structured CFD solver through code parallelization and faster matrix inverter

### Master's Thesis

*Generalized Lagrangian Model for Drop Spreading on Textured Surfaces*

Supervisor: Dr. Krishnamurthy Muralidhar (IIT Kanpur)

Keywords: Surface tension, Contact line motion, Dynamic contact angle, Integral analysis

### Bachelor's Project

*Numerical and Experimental Investigation on Heat Transfer in Nanofluids*

Guide: Dr. Jyotirmay Banerjee (SVNIT Surat)

Keywords: Thermal and hydrodynamic behavior of Nanofluids, Laminar, Incompressible flow, Natural convection, Forced convection, Nusselt number, Single-phase model, Two-fluid model, Semi-explicit Finite Volume Navier-Stokes solver

### Publications

1. (Under review) Mistry, A., Muralidhar, K., 2014, *Axisymmetric Model of Drop Spreading on a Textured Surface*, Physics of Fluids
2. (In progress) Mistry, A., Muralidhar, K., 2015, *Non-isothermal Spreading of Liquid Drops: Effect of Fluid Convection*, Proceedings of Asian Symposium on Computational Heat Transfer and Fluid Flow, June 2015
3. (In progress) Mistry, A., Verma, A., Das, M., 2014, *Finite Reaction Space Model for PEM Fuel Cell Cathode Assembly*
4. Mistry, A., Muralidhar, K., 2013, *Study of Front Tracking Methodology for Simulation of Multiphase Flow*, Proceedings of Fortieth National Conference on Fluid Mechanics and Fluid Power, December 2013
5. Mistry, A., Verma, A., Das, M. K., 2013, *Modeling of Polymer Electrolyte Membrane (PEM) Fuel Cell Cathode with Agglomerate Catalyst Layer*, Proceedings of Fortieth National Conference on Fluid Mechanics and Fluid Power, December 2013
6. Mistry, A., Banerjee, J., 2012, *A Comparative Analysis of Single-phase and Two-fluid Model for Nanofluid Heat Transfer in Forced Convection Regime*, Proceedings of Thirty Ninth National Conference on Fluid Mechanics and Fluid Power, December 2012

### Poster Presentations

1. Mistry, A., Muralidhar, K., March, 21<sup>st</sup>, 2014, *Prediction of Drop Spreading in a Lagrangian Framework*, Departmental Poster Presentation, IIT Kanpur

### Term Papers

1. *Closed-loop Position Control of a DC motor using LabVIEW*  
Guide: Dr. Kamal Poddar (IIT Kanpur)  
Keywords: Closed loop position control, DC motor(12V), Potentiometer feedback loop, L293D(Driver IC), LabVIEW, DAQ board
2. *Performance of PEM Fuel Cell Cathode*  
Guide: Dr. Malay Das (IIT Kanpur)  
Keywords: Polymer Electrolyte Membrane fuel cell cathode, Gas diffusion layer, Catalyst layer, Agglomerate model, Distributed cell reaction, One-dimensional, Two-phase, Multicomponent, Non-isothermal, Finite Volume Method
3. *Modeling of Turbulent Flows*  
Guide: Dr. Jyotirmay Banerjee (SVNIT Surat)  
Keywords: Study of turbulence and turbulence modeling, Hydrodynamic stability theory, Transition to turbulence, Statistical theory of turbulence – RANS, LES, DNS

### TEACHING EXPERIENCE

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#### Teaching Assistantships

1. Spring 2014: *Experimental Methods in Thermal Sciences* (ME 649) class strength – 18
2. Fall 2013: *Programming and Numerical Analysis* (ME 685) class strength – 22
3. Spring 2013: *Fluid Mechanics* (ME 231) class strength – 105

#### Talks/Presentations

1. Sept, 1<sup>st</sup>-5<sup>th</sup>, 2014: *Making friends with MATLAB* (IIT Kanpur)
2. Aug, 27<sup>th</sup>-31<sup>st</sup>, 2013: *Basics of MATLAB programming* (IIT Kanpur)
3. Mar, 28<sup>th</sup>, 2012: *Application of Mathematics in “Real-life Problems”* (SVNIT Surat)
4. Sept, 15<sup>th</sup>, 2010: *Steering and Differential* (SVNIT Surat)

### MISCELLANEOUS

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#### Programming Expertise

Languages known: C/C++, Fortran 77/90/95, python, MATLAB, LabVIEW, LaTeX, Asyptote  
Programming style: modular, parallel programming (OpenMP, CUDA and MPI parallelization)

#### Language Proficiency

1. English (fluent)
2. Hindi (native)
3. Gujarati (native)

**TOEFL** score: **109/120** (June, 2013)

**GRE** score: **327/340** (July, 2013)

**Hobbies:** Sketching & Painting, Programming, Electronics

#### Extra-curricular Activities:

1. Planning, designing and coordinating events in technical festivals  
e.g., conceptualized, planned and organized a two days conference *IITK Student Research Convention 2014* for undergraduate and graduate students of IIT Kanpur on Aug, 9<sup>th</sup>-10<sup>th</sup>, 2014
2. Managing activities of student chapters

### REFERENCES

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1. Dr. Krishnamurthy Muralidhar  
Professor, Dept. Mech. Engg., IIT Kanpur ([kmurli@iitk.ac.in](mailto:kmurli@iitk.ac.in))
2. Dr. Malay Das  
Assistant Professor, Dept. Mech. Engg., IIT Kanpur ([mkdas@iitk.ac.in](mailto:mkdas@iitk.ac.in))
3. Dr. Jyotirmay Banerjee  
Associate Professor, Dept. Mech. Engg., SVNIT Surat ([jbaner@gmail.com](mailto:jbaner@gmail.com))