

EDUCATION

- **Indian Institute of Technology Madras** Chennai, India
Master of Science (by research) in Mechanical Engineering; CGPA:8.8/10 Jan '16 – Current
- **Vishwakarma Institute of Technology** Pune, India
Bachelor of Technology in Mechanical Engineering; CGPA: 9.31/10 July '11 – May '15

ACADEMIC EXPERIENCE

- **Development of a surrogate mechanism for biodiesel** IIT Madras, India
Advisors: Dr. Krithika Narayanaswamy and Dr. Anand Krishnasamy Jan '16 – Current
 - A well validated surrogate mechanism has been developed as a part of this project, which can be employed in engine CFD studies to understand NO_x formation.
 - This surrogate kinetic mechanism comprises of kinetic schemes for methyl butanoate, a well studied methyl ester, and *n*-dodecane, which is found to be promising as a biodiesel surrogate.
 - Measurements of pressure, temperature and NO_x are being obtained in an actual engine to assess the correctness of the kinetic model description.
 - Skills acquired : Combustion kinetic modeling, Model reduction, Engine CFD modeling
- **Ignition delay time measurement for Methyl Butanoate in RCM** PTB, Germany
Advisors: Prof. Ravi Fernandes and Dr. Kai Moshhammer May '17 – July '17
 - Ignition delay time measurements were performed in a single piston Rapid Compression Machine (RCM) to investigate auto-ignition behavior of methyl esters complementing surrogate mechanism development as a part of master's thesis project.
 - These experiments involved measurements with low vapour pressure fuel (Methyl Butanoate) in previously unexplored conditions.
 - Skills acquired : Auto-ignition experimentation, pressure and temperature measurement
- **Development of Thermoacoustic Refrigerator** VIT, Pune, India
Advisor: Prof. Kedar Sant Jan '14 – May '15
 - Use of moving parts in refrigeration systems of spacecrafts is undesirable. Thermoacoustic refrigerator makes use of pressure fluctuations generated by acoustic energy to achieve refrigeration.
 - A thermoacoustic refrigerator device was designed, developed and tested as a part of this project.
 - Skills acquired : Design and development of high pressure vessels

RESEARCH OUTPUT

- **A.D. Lele**, S. K. Vallabhuni, K. Moshhammer, R. X. Fernandes, K. Anand, and K. Narayanaswamy, "Experimental and chemical kinetic modeling investigation of methyl butanoate as a biodiesel surrogate", (*Under review in Combustion and Flame*).
- S. K. Vallabhuni, **A. D. Lele**, Arnas Lucassen, Kai Moshhammer, R. X. Fernandes, Muhammad Al-Abbad and Aamir Farooq. "Autoignition of Liquefied Natural Gas (LNG) in Shock Tube and Rapid Compression Machine", (*Accepted in Fuel*).
- **A. D. Lele**, K. Anand, K. Narayanaswamy, Surrogates for biodiesel: review and challenges, in: Biofuels A. Agarwal, R. Agarwal, T. Gupta, B. Gurjar (Eds), Biofuels, Green Energy and Technology, Springer, Singapore, 2017, pp. 177-199.
- **A. D. Lele**, K. Anand, K. Narayanaswamy, Development of a chemical kinetic mechanism for biodiesel surrogate, 10 th US National Combustion Meeting (2017), Paper 2D02.

PROFESSIONAL EXPERIENCE

- **Gear Shift Quality Assessment Tool**

Eaton India Pvt. Ltd.

Jul '15 – Dec '15

- Assessed gear shift quality for driver comfort in long haul heavy duty vehicles.
- An excel tool was developed to investigate effect of gearbox design parameters on gear shift quality.

- **Single Minute Exchange of Die**

Panse Autocomp Pvt. Ltd.

May '13 – Jul '13

- Implemented resource management strategies to optimize production of an assembly.
- Existing assembly process was assessed for time critical sub-processes and a solution was developed to improve efficiency of these sub-processes.

TECHNICAL SKILLS

- **Simulation tools:** FlameMaster, ChemKin, Forte, Pro/ENGINEER
- **Programming Languages:** C++, Perl
- **Other:** Linux, L^AT_EX, MS Excel, MATLAB

TEACHING EXPERIENCE

- **Teaching assistant:** Numerical Methods for Thermal Engineering (IIT Madras, Spring 2017)
- **Mentoring:** Mentored an undergraduate intern on “Fuel surrogate optimization” project

RELEVANT COURSEWORK

- **Regular courses:** IC Engine Combustion and Pollution (Fall 2016), Alternate Fuels for IC Engines (Spring 2016), Combustion Technology (Spring 2016), Applied Thermodynamics (Fall 2016)
- **Short term courses:**
 - Combustion in Engines: conducted by Prof. Malcom Lawes, University of Leeds
 - Theoretical and Kinetic Aspects of Combustion: conducted by Prof. Kalyan Seshadri, University of California San Diego

SCHOLASTIC ACHIEVEMENTS

- Received “Indo-German Centre for Sustainability” scholarship for a short term research stay in Germany, 2017.
- Received HTRA (Research Assistantship) for the entire duration of M.S. degree
- One among 750 students from a pool of about 350,000 students to be awarded National Talent Search Examination Scholarship by the Government of India, 2008
- 9th state rank in High school Scholarship exam by State Government of Maharashtra, 2006.

OTHER INTERESTS

- **Dramatics:** Worked as a playwright for inter collegiate drama competition.
- **Long distance running:** Completed Pune International Half Marathon in 2015.