MANOJIT PAL

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EDUCATIONAL QUALIFICATION

YEAR	Degree	Institute/Board	Grades
2018-Present	M.Tech. (Mechanical Engineering)	Indian Institute of Technology Kanpur	7.33/10
2013-2017	B.Tech. (Mechanical Engineering)	Jalpaiguri Government Engineering College	73%
2013	Higher Secondary Examination	Council for the Indian School Certificate Examinations	84%
2011	Secondary Examination	Council for the Indian School Certificate Examinations	67%

AREAS OF RESEARCH

Study of Spray Characterization | Conventional Compression Ignition Engine | Engine Combustion and Emission

M.TECH. THESIS

Thesis Supervisor: **Dr. Avinash Kumar Agarwal**, Dept. of Mechanical Engineering, IIT Kanpur

- Simulation and Experimental Investigation of Spray Characteristics of different blends of Diesel and Diethyl ether fuel *June'19-Present*

  Objective:
  - **To develop an experimental setup using mechanical fuel injection system** for macroscopic and microscopic study of spray of different fuel blends
  - To validate the results **by developing a simulation model** using **Converge CFD** software that can reduce the number of experiments by changing different parameters and to develop correlation between simulation result and experimental result of spray characteristics
- Dimethyl ether as fuel for Compression Ignition engine

  Objective:
  - **To develop fuel injection system** for Dimethyl ether fueled Compression Ignition Engine **for zero emission**
  - Tuning of fuel injection timing and experimental investigation of performance, combustion and emission characteristics of Dimethy ether fueled tractor engine

PROJECTS

- Automatic Traffic Control using Image Acquisition by Labview *March'19*

  Term Paper | Project Supervisor: Dr. Kamal Poddar, Dept.of AE, IIT Kanpur
  - **Developed a LabVIEW program** using LabVIEW Vision that can efficiently manage traffic in busy area giving more preference to busy lane **without any human assistance**
  - The developed program can **effectively sense any traffic movement** in the lane
- Thermodynamic analysis of effect of solar refrigeration on reduction of consumption of cooling water in an existing power plant *January'17*

  B. Tech Project | Supervisor: Prof. Asim Mahapatra, Dept. of Mechanical Engineering, Jalpaiguri Govt. Engineering College
  - Studied mathematical feasibility of solar refrigeration system in **National Thermal Power Plant**, Farakka
  - Concluded that installing Vapor Absorption Refrigeration system in power plant is more feasible than installing Vapor Compression Cycle
- Investigation of Surface Finish on different parameters of Turning *July'16*

  Industrial Project | Project Supervisor: Sumantra Bhattacharya, Scientific Officer, **Variable Energy Cyclotron Centre**
  - Experimentally verified effects of cutting parameters on surface roughness during machining
  - Concluded that increase in tool radius, cutting velocity and decrease in feed decreases surface roughness

SOFTWARE SKILLS

Converge CFD | Labview | SolidWorks | Microsoft Excel | Origin | Java | C | Fortran

TECHNICAL SKILLS AND HANDS ON EXPERIENCE

Phase Doppler Interferometry(PDI) | Horiba Gas Analyzer (EXSA-1500) | Engine Exhaust Particle Sizer (EEPS)
PC-based data acquisition (DAQ) | Engine dynamometer | FTIR Motor Exhaust Gas Analyzer MEXA-6000FT-E

RELEVANT COURSES

Alternative Fuels Advances in IC Engine(on going) | Viscous Flow Theory | Computational Fluid Dynamics | Virtual Instrumentation

POSITIONS OF RESPONSIBILITY

- Teaching Assistantship in UG courses: Mechanics of Solids, Engineering Thermodynamics *January'19-Present*
- Volunteered in organizing Third ISEES International conference on Sustainable Energy & Environmental Challenges held in IIT Roorkee *December'18*
- **Class Representative**: Arranged meetings to solve difficulties related to course work *August'13- May'17*

EXTRACURRICULAR ACTIVITIES

- Took initiative and accomplished plantation drive in abundant areas inside college campus *March'17*
- Participated and secured a third rank in TAIJATU WARS of Technical Festival IIT Guwahati *September'14*
  - **Coordinated in a team** and **built a wire controlled bot** that can efficiently pick and place solid cubes at appropriate place
- Computer Hardware and Software Troubleshooting

HOBBIES AND INTERESTS

Swimming | Playing Badminton | Playing Drums and Flute | Reading Autobiographies