Dr. Darshan Rathod

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EDUCATION

- **Indian Institute of Science** — Bengaluru, India
  PhD + M.Tech (Res), ICER; GPA: 8.6 — 2018 - 2024
  Advisors: Prof. Saptarshi Basu, Dr. Pratikash Panda
  Thesis title: Design and diagnostics of gas turbine combustors: from high shear injector to full-scale sector of annular combustor

- **Sardar Vallabhbhai National Institute of Technology** — Surat, India
  Bachelor of Technology - Mechanical Engineering; GPA: 8.7 — 2012 - 2016

FELLOWSHIPS & AWARDS

- **Fujitsu Grand Award** — Fujitsu, Bengaluru
  As a team, developed a method for improving the safegurading of an LLM — Jun-2025

- **PMRF** — IISc, Bengaluru
  Awarded the prestigious Prime Minister Research Fellowship — 2018-2023

EXPERIENCE

- **Fujitsu Research of India Pvt. Ltd.** — Bengaluru, India
  Senior Researcher — Aug 2024 - Present
  - Developed a gradient based methods to improve the defense of LLM against adversarial attacks. Methods reduces the ASR from 80~90% to ~10%.
  - Worked on Knowledge graph based prompt creation to augment red-teaming
  - Endurance testing of a specific part or system of vehicle. Specifications testing for new suppliers.
  - Characterization of competitors vehicle and engine, Accounting of production errors in development of engine; Market survey for customer feedback on applied vehicle development.

- **Honda R & D India Pvt. Ltd.** — Gurugram, India
  Research Engineer — July 2016 - July 2018
  - Development and testing of IC engine for BS-IV emission norms with optimizing driveability and mileage. Optimizing the fuel supply system with consideration of diverse Indian environment.
  - Development of race engine specific power (kW/kg).
  - Endurance testing of a specific part or system of vehicle. Specifications testing for new suppliers.
  - Characterization of competitors vehicle and engine, Accounting of production errors in development of engine; Market survey for customer feedback on applied vehicle development.

- **Schneider Electric** — Vadodara, India
  Intern — May 2015 - June 2015
  - Parts and tools storage system was manufactured for improvement in ergonomics of production line staff. Setup was conpact and could sustain the high loads of tools and parts.

- **Thermal Power Station** — Jamnagar, India
  Intern — December 2015
  - Understanding the basic functioning of thermal power plant & various sub sections of plant like boiler, turbine, cooling tower etc.

PUBLICATIONS

- Darshan D. Rathod, Samprada S. Kumbhare, Swetaprovo Chaudhuri, Pratikash Panda, Saptarshi Basu and Dalton Maurya. "Design of an optically accessible single cup sector of a full-scale annular gas turbine combustor," AIAA 2023-1062. AIAA SCITECH 2023 Forum. January 2023. https://doi.org/10.2514/6.2023-1062

- Darshan D. Rathod, Pratikash Panda and Saptarshi Basu. Flow diagnostics in real scale sector of modern annular gas turbine combustor at high Pressures. NAPC 2022, IIT Bombay.

- Kumar S., Rathod D., & Basu S. (2022). Experimental investigation of performance of high-shear atomizer with discrete radial-jet fuel nozzle: Mean and dynamic characteristics. Flow, 2, E31. doi:10.1017/flo.2022.25

PROJECTS

- **Development of Python GUI for experiment control system** Tkinter python code developed for control and data acquisition from NI DAQ. Code integrates various hardware like NI cDAQ-9174, ALICAT mass flow controller, arduino and mobile camera for controlling and data acquisition of experiment.

- **Design and manufacturing of setup for visualization of wave motion phenomena** Two bodies which are in-phase, out-of-phase or in resonance can be demonstrated using the setup.

Skills

- **Designing Software** : Solidworks, CATIA
- **Programming Languages** : Python, MATLAB
- **Soft Skills** : Team Management, Resource & Inventory Management
- **Tools** : matplotlib for plotting, scikit-learn for ML, numpy and pandas for data processing, Tkinter for GUI development, cantera for gas properties calculations
- **Experimental Skills** : Particle Image Velocimetry (PIV), Stereo-PIV, Shadowgraphy, Handling High Speed cameras and Lasers