

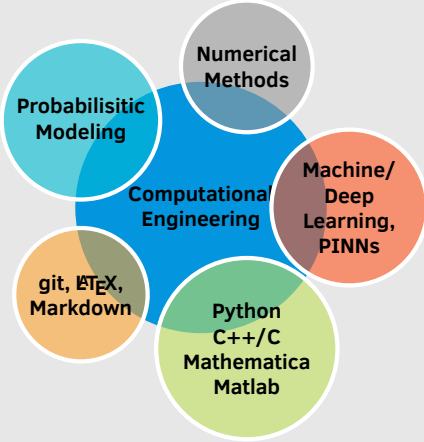
# Saurabh Deshpande

Computational Scientist

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## Overview



## Skills

**ML/DL:** TensorFlow, TensorFlow Probability, Keras, PyTorch, Scikit-learn

**Courses:** Oxford machine learning school, Data visualisation, Uncertainty quantification, Advanced discretisation methods, Operations research

## Extra Curricular

### Sports

- Hostel **squash & TT captain** at IIT
- Represented IIT in inter-college TT tournament 'Sportfest'
- Represented Latur district in Maharashtra **state level** TT tournaments
- **2 gold & 2 silver** medals in squash and **1 gold & 1 silver** medal in water polo in IIT inter hostel tournaments
- Member of ISRO table tennis (TT) and football team
- Represented the Uni. of Luxembourg in the PCU Chess cup, Antwerp

### Music

- Written/composed two songs, available on major streaming [platforms](#).

## My webpage



## Education

Uni. of Luxembourg	PhD in Scientific Machine Learning (MSCA fellow : <a href="#">ITN RAINBOW</a> )	- 2019 - Present
IIT Madras	B.Tect + M.Tech in Mechanical Engineering (Minor: Industrial Engineering)	<b>CGPA: 8.5/10.0</b> 2012-2017
Andhra Board	XII <sup>th</sup>	<b>96.70%</b>

## Research Visits

INRIA, Strasbourg	Deep learning for biomechanical simulations	March 22
TU Munich	Semester abroad, Mechanical Engineering	April-July 16

## Publications

Visit my [google scholar](#)

## Research Experience

### Scalable Deep learning (DL) techniques for scientific simulations

*PhD thesis at Uni. of Luxembourg*

Aug 19 - Present

- Developing DL techniques (**Bayesian, geometric, physics informed**) for real time simulations of non-linear phenomena in mechanics (Ex. soft body deformations).
- Also working on deep learning techniques for a computer vision application.
- Developed a **probabilistic deep learning framework** for predicting soft body deformations along with the associated uncertainties, refer [paper](#).
- Developed **two novel graph neural network layers**, refer MAGNET [paper](#).

### Parallel Processing Numerical Solver for Non-linear Partial Differential Equations

*M.Tech thesis at IIT Madras*

Aug 16- May 17

- Developed eXtended Finite Element (XFEM) domain decomposition framework to solve problems in non-linear elasticity in **<4% time** of the conventional method.

### Finite Element Tearing and Interconnection (FETI) algorithm

May 16- July 16

*Research Assistant at Technical University of Munich, Germany*

- Implemented massively **parallel, domain decomposition** algorithm FETI with the time stepping scheme to solve large scale structural dynamics problems.

## Professional Experience

### Scientist/Engineer 'SC' in Indian Space Research Organisation (ISRO)

*Member of Satellite Payload Mechanisms Team*

July 17- May 19

- Work involved from scratch product realization (mathematical modeling, mechanical design, assembly-integration) for the leading space missions of the country.
- Developed India's first indigenous high accuracy (1') telescope pointing mechanism. My concept was utilized in on-board satellite payload of [GSAT-29 satellite](#).

## Selected Awards

- **MSCA fellowship:** Prestigious Marie Skłodowska Curie Actions funded PhD
- **IIT JEE:** Top 0.5% to get into [IIT Madras](#), the best engineering institute in India
- **Best ML presentation:** Machine learning school, Uni. of Bern (price worth 400 CHF)
- **KVPY fellowship:** Top 0.5% in India to be awarded the prestigious fellowship
- **Regional Maths Olympiad:** State rank 6 in 2009 and state rank 26 in 2011
- **Astronomy Olympiad:** In the top 300 in the country

## Positions of Responsibility

### Student Representative Positions, Uni. of Luxembourg [Elect]

Aug 21 - Dec 22

- For the Doctoral School of Science and Engineering (DSSE) (~600 PhDs)
- For the Doctoral Program in Computational Sciences (~60 PhDs)
- For the Marie Curie ITN Rainbow network (~15 PhDs)