

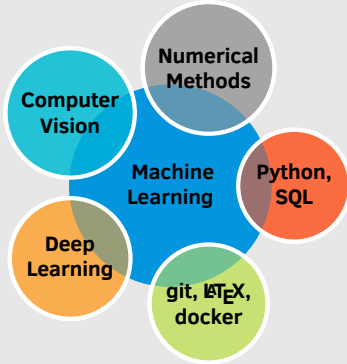
# Saurabh Deshpande

in [Linkedin](#) : ML PhD

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## Overview



## Skills

**ML Frameworks:** TensorFlow, Tensor-Flow Probability, Keras, PyTorch, Scikit-learn

**Programming:** Python (NumPy, Pandas, Scipy, FastAPI), SQL

**Business:** Product development, Presentation, Analytical thinking, Problem Solving Skills

**Courses:** Oxford machine learning school, Data visualisation, Uncertainty quantification, 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](#).
- Performed as a harmonium player in a concert in Karlsruhe, attended by an audience of 70 paid guests.

## Education

Uni. of Luxembourg

PhD in Machine Learning  
(Marie Curie fellow)

**Excellent Thesis Award**  
2019 - 2023

IIT Madras

B.Tect + M.Tech  
(Mechanical + applied mathematics)

**8.5/10.0**  
2012 - 2017

## Publications

10+ publications in the top tier journal and conferences (refer [google scholar](#))

## Professional Experience

### Computer Vision Engineer

Circu Li-ion GmbH, Karlsruhe, Germany

Sep 24 - Dec 19

- Developed specialized **Python packages** and API endpoints, to automate robotic disassembly processes for electric vehicle batteries, **saving 10x process time**.
- Developed and **deployed** novel method integrating 2D image registration with 3D point cloud registration to compute battery displacement relative to reference positions in **production environments**, achieving **1mm accuracy**.
- Evaluated object detection frameworks (MMDetection, Detectron2, YOLO) on proprietary datasets, driving critical business decisions.

### Postdoctoral Researcher

University of Luxembourg, Luxembourg

Aug 23 - July 24

- Developed fast and accurate probabilistic ML model achieving a **100x speedup** for simulating non-linear finite element problems.
- Generated high-quality datasets using numerical techniques (finite element method) to train **autoencoder**-based neural networks integrated with **Gaussian Processes**.
- Developed a DL-based nucleus detection system for microscopic images of human tissues, achieving 95% mean Average Precision (mAP) across diverse samples.

### Scientist/Engineer 'SC'

Indian Space Research Organisation (ISRO), India

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](#).

## PhD Research

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

PhD thesis with Prof. Bordas (highly cited researcher)

Aug 19 - Aug 23

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

## Selected Awards

- Excellent Doctoral Thesis:** In 10% out of 200 PhD graduates in 2023.
- 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.

## 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 Marie Curie ITN Rainbow network (~15 PhDs)

