Raghuwansh Raj

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• [LinkedIn](#)   • [Github](#)   • [Coding](#)   • [Homepage](#)

EDUCATION

University of Luxembourg, Belval, Luxembourg — Sep 2025 | **Present**
PhD in Geometrical and Topological Deep Learning
• Geometrical Aspect of Deep Learning, Group theory, Equivariance and Invariance, Manifolds and Graphs.

CentraleSupélec, Paris, France — Sep 2021 | Mar 2023
Msc in Machine learning — CGPA: 15.35/20.00
• Foundational aspect of Machine learning and Deep Learning, interdisciplinary corporate projects.

Indian Institute of Technology (IIT) BHU, Varanasi, India — Jul 2016 | Jun 2020
Bachelor of Engineering: Mathematics — CGPA: 8.60/10
• Courses and lab works from Mechanical and Electrical Engineering, Fluid Mechanics, Rock Mechanics, Mathematics, Computer programming, Machine Learning , Classical and Quantum Physics.

ACADEMIC EXPERIENCE

ESSEC Business Schhol — Paris, France
Statistics Teaching Assistant (TA) — Jan 2022 | Apr 2022

- Teaching Business Statistics to a class strength of 50 Pre Master Students.
- Topics covered during session were Linear Regression, Logistic Regression, K-means, PCA, LDA, Singular value Decompositions, Moments, Expectations and Central Limit Theorem.

Transvalor & CentraleSupélec — Sophia Antipolis, France
corporate research (CRP) in masters — Jan 2022 | Jun 2022

- Worked with Professor Francesca Bugioti and a mentor from Transvalor(Jose Alves), along with 5 talented team members during the Master's program.
- Implemented Graph Neural Network (GNN) based surrogate model to model FEA. The model bold optimize the faster parameter search space exploration, particularly pressure and temperature, reducing the time from 155 min to less than 1 sec.

PUBLICATIONS

Preprint on arXiv
Graph Neural Network based surrogate model for Finite Element Analysis   [paper](#)

- Developed Graph Neural Network based prediction model to act as a surrogate model for parameters search space exploration.
- Acknowledged for contributions to a paper submitted to the arXiv scientific repository under the mathematics category, assisted with data preparation, editing, and modeling experiment.

PROFESSIONAL EXPERIENCE

STELLANTIS   Paris, France
Machine Learning Engineeer (Full Time)   Jun 2023 | **<u>Present</u>**

- Created end-to-end MLOps pipelines, software development practices for version control(git), class abstraction, optimised code using PySpark, and parallel computing and mlflow in Databricks.

- Implemented a exploitable knowledge graph using pyspark and neo4J. The graph partitions the drivers into data-derived persona group. The Stellantis team is able to exploit the delivered code to build, deploy and exploit a large graph model

AMAZON   Paris France
Business Intelligence and Data Engineering (Internship)   Jul 2022 | jan 2023

- Reduced the process time of forecast state for stakeholders by 50% by optimising code modules and deployed on the AWS cloud using EC2 and streamlit. Experience with AWS tools like Sagemaker, Quicksight, Redshift , Datanet etc.

ZESTMONEY   Bangalore, India
Data Sceintist (Full time)   Jul 2020 | Aug 2021

- Worked within Credit and Risk Team in the domain of Buy Now Pay Later(BNPL). Implemented various financial models for assessing Lender risk, customer life time value, default score. Developed feature library in C++ for faster feature computation, and scoring at production level.

PROJECTS

- **Link Prediction in Citation Network**   GitHub

(graph neural network, network science, graph theory, python). Predicted missing edges between citation network graph by extracting graphical, textual, and other semantic information. **Kaggle rank: 2.**
- **Covariance Matrix Adaptation (CMA) - ES Algorithm**   github

A numerical optimization technique that is independent of derivative calculation, reviewed, forked and contributed to open source during class group project of advance optimization course.
- **2D Flappy Bird game using RL**   github

*D*esigning a simple version fo 2D Flappy bird game form Scracth using reinforcement learning.

SELECTED COURSES

Master's Courses

- \# Foundations of Deep Learning
- \# Advance Machine Learning
- \# Advanced Optimization
- \# Graphical Models
- \# Machine Learning in Network Science
- \# Reinforcement Learning

Bachelor's Courses

- \# Engineering Mathematics
- \# Operation Research
- \# Numerical Solution to PDEs
- \# Finite Element Analysis
- \# Mathematical Modeling and Simulation
- \# Engineering Physics

CERTIFICATIONS

- **Quantum Mechanics**   IIT Kanpur

Cleared the exam for basics of Quantum Mechanics taught by HC Verma - certificate

- **Theory of relativity**   IIT Kanpur

cleared the exam for basics of special theory of Relativity taught by HC Verma - certificate

- **Deep Learning nanodegree**   Udacity

Cleared the udacity training for deep learning 4 month certification program - certificate

- **Computer Vision**   Coursera

Finished the basics of computer vision from bufallo university - certificate

SKILLS

- **Programming:** Python(Intermediate),Pyspark, C, C++(Intermediate),MATLAB, R, SQL.
- **Software:** Data Structures, Algorithms, Amazon Web Services(AWS), Putty, Docker, Git, Flask, Tensorflow, PyTorch, Tableau, EC2, S3, MS Office, Object Oriented Programming (OOP), Databricks.
- **Soft Skills:** Team Work, Communication, Time Management, problem Solving.

ACHEIVEMENTS

- **IIT JEE Examintaion**   Patna, India

Cleared the most sought engineering exam in India (0.7 % in 1.5M candidates)   May 2016

- **Music School - Prayag Raj Samhiti**   Varanasi, India

Acheived Diploma in TABLA(Classical based Percussion instrument in Indian Culture)   Mar 2014

ExtraCurriculars

- Percussion Instrument TABLA
- Mountain Trekking - Himalayas(ABC base camp, EBC soon :))
- GYM, Running, Chess, Social deduction board games.

REFERENCES

- **Prof. Jean Marc Schlenker**

Professor of mathematics at University of Luxembourg

Scholar profiles: Google Scholar | Homepage

- **Prof. Fragkiskos D. Malliaros**

professor of Data Science at CentraleSupelec, France

Scholar Profiles: Google Scholar | Homepage

- **Prof. Jun Pang**

Professor of Computer Science at University of Luxembourg

Scholar Profiles: Google Scholar | HomePage

- **Matteo Sammarco, PhD**

Team Head Machine learning at Stellantis, Paris, France

Profile: LinkedIn

contact available on request.