

# RANJAN SARKAR

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PhD Research Scholar  
Department of Artificial Intelligence  
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## About

I am a 1st year PhD scholar at the Department of Artificial Intelligence (AI), IIT Kharagpur. I am working in the **PSALM (Predictive Stochastic Adaptive Learning Machine)** Lab under the supervision of **Dr. Prabhat Kumar Mishra**. My research focuses on developing new robust RL algorithms with applications in LLM, Robotics, etc.

## Research Interest

Reinforcement Learning • RLHF • Machine Learning • Optimization • Agentic AI

## Work Experience

2023 – 2024: Senior Business Analyst • **EXL Service**  
Gurgaon, India

## Education

2025 – Present: Indian Institute of Technology Kharagpur  
**PhD, Artificial Intelligence**

2021 – 2023: Indian Institute of Technology Kharagpur  
**Master of Science (MSc), Mathematics**  
CGPA: 8.76/10

2018 – 2021: Ramakrishna Mission Vidyamandira (University of Calcutta)  
**Bachelor of Science (BSc), Mathematics**  
CGPA: 9.15/10

2018: Raiganj Coronation High School (HS)  
12<sup>th</sup> Standard, Science Stream  
Percentage: 88.6%

2016: Raiganj Coronation High School (HS)  
10<sup>th</sup> Standard  
Percentage: 94.57%

## Teaching Assistant

### AI61006 • AI for Cyber Physical Systems

Spring 2026 | Course Instructor - Dr. Prabhat Kumar Mishra

### AI60211 • Algorithmic and Mathematical Foundations for AI

Autumn 2025 | Course Instructor - Prof. Adway Mitra

## Projects

### Master's Thesis: Image Compression (2022-2023)

Supervisor: Prof. Swanand Khare, Department of Mathematics, IIT Kharagpur

- **Tensor CP decomposition** is implemented in a Python notebook.
- The **Alternative Least Square (ALS)** Optimization Method has been applied to get the low-rank approximation of the RGB image tensor.

## Courses & Skills

- Linear Algebra
- Probability & Statistics
- Real Analysis
- Machine Learning
- Deep Learning
- Artificial Intelligence
- Advanced Numerical Techniques
- Convex Optimization
- Non-Linear Programming
- AI for Cyber Physical Systems
- AI for Robot Autonomy

C, Python, LaTeX, Numpy, Pandas, Sympy, CasADi, PyTorch, TensorFlow, Scikit-Learn, Jupyter etc.

## Awards & Achievements

1. Cleared the Joint CSIR-UGC NET (June 2024) with Lectureship.
2. **INSPIRE Scholarship Holder** (2018-2023) by DST (Department of Science and Technology), Govt. of India.

## Contact

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