

RANJAN SARKAR

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PhD Research Scholar
Department of Artificial Intelligence
Indian Institute of Technology Kharagpur

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About

I am a PhD scholar at Department of Artificial Intelligence (AI) in IIT Kharagpur, working in [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) • WBCHSE
12th Standard, Science Stream
Percentage: 88.6%

2016: Raiganj Coronation High School (HS) • WBBSE
10th 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. Qualified Joint CSIR-UGC NET (June 2024) with All India Rank (AIR) 83.
2. INSPIRE Scholarship Holder (2018-2023) by DST (Department of Science and Technology), Govt. of India.

Contact

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