

Aakash

FARE Fellow, Indian Institute of Technology Kanpur

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EDUCATION

- 🎓 **Ph.D. in Computer Science & Engineering** Aug 2019 - Jan 2025
Indian Institute of Technology Kanpur
Thesis: Scalable Goal Assignment for Multi-Robot Systems
Advisor: Prof. Indranil Saha
- 🎓 **M.Tech. in Computer Science & Engineering** Aug 2017 - Jun 2019
Indian Institute of Technology Patna
Score: 9.40 / 10 ([Institute Silver Medal](#))
- 🎓 **B.E. in Computer Science & Engineering** Aug 2007 - Jun 2011
University Institute of Technology, Burdwan
Score: 87.10 / 100

WORK EXPERIENCE

- 🏛️ **Indian Institute of Technology Kanpur**
FARE Fellow Nov 2024 - till date
- Teaching Assistant for the following courses: Aug 2019 - Apr 2024
- CS253: Software Development and Operations
(with Prof. Indranil Saha in Spring 2022, 2023, and 2024)
 - CS659: Autonomous Cyber-Physical Systems
(with Prof. Indranil Saha in Spring 2021)
 - CS637: Embedded and Cyber-Physical Systems
(with Prof. Indranil Saha in Fall 2020, 2021, 2022, and 2023)
 - ESC101: Introduction to Computing
(with Prof. Piyush Rai in Fall 2019)
- 🏛️ **Indian Institute of Technology Patna**
Teaching Assistant for the following courses: Aug 2018 - Apr 2019
- CS112: Programming and Data Structures Lab
(with Prof. Arijit Mondal in Spring 2019)
 - CS382: OOP and Data Structures
(with Prof. Mayank Agarwal in Fall 2018)
- 💼 **Tata Consultancy Services** Mar 2012 - Jul 2017
Last Designation: IT Analyst
Domain: Insurance
Technologies: AS/400 (RPGLE, CLLE, DB2)

RESEARCH AREA

Multi-Robot Task and Path Planning, Cyber-Physical Systems

PUBLICATIONS

Journal

1. Aakash and Indranil Saha, "A Scalable Multi-Robot Goal Assignment Algorithm for Minimizing Mission Time followed by Total Movement Cost", *Artificial Intelligence (AIJ)*, 347, 104388, 2025.
2. Aakash and Indranil Saha, "A Conflict-Aware Optimal Goal Assignment Algorithm for Multi-Robot Systems", Submitted to *The Journal of Artificial Intelligence Research (JAIR)*.

Conference

1. Aakash and Indranil Saha, "It Costs to Get Costs! A Heuristic-Based Scalable Goal Assignment Algorithm for Multi-Robot Systems", *The 32nd International Conference on Automated Planning and Scheduling (ICAPS)*, pages 2-10, 2022, Singapore.
2. Aakash and Indranil Saha, "Optimal Makespan in a Minute Timespan! A Scalable Multi-Robot Goal Assignment Algorithm for Minimizing Mission Time", *The 38th Annual AAAI Conference on Artificial Intelligence (AAAI)*, pages 10280-10287, 2024, Vancouver, Canada.
3. Aakash and Indranil Saha, "A Lifelong Goal Assignment Algorithm for Multi-Robot Systems", (In Preparation).
4. Aakash and Indranil Saha, "A Scalable Algorithm for One-to-Many Robot-Goal Assignment with Minimum Total Movement Cost", (In Preparation).

THESES

Ph.D. Thesis: Scalable Goal Assignment for Multi-Robot Systems

Advisor: Prof. Indranil Saha, IIT Kanpur

- Developed a scalable multi-robot goal assignment algorithm that optimizes the total movement cost for all robots.
- Proposed a scalable goal assignment algorithm that optimizes mission time for multi-robot systems.
- Solved a multi-objective goal assignment problem where we treat optimizing mission time as the primary objective and optimizing total cost as the secondary objective.
- Introduced a conflict-aware approach to solve the optimal collision-free goal assignment problem.

M.Tech. Thesis: Deep Learning-Based Identification of Breast Cancer

Advisor: Prof. Arijit Mondal, IIT Patna

- Fine-tuned standard benchmark convolutional neural networks to classify mammograms of patients as cancerous or non-cancerous.
- Developed techniques to prune the benchmark convolutional neural networks.

PROJECTS

Development Projects at Tata Consultancy Services:

Client: Leading Insurance Provider in Asia

- **Hong Kong Individual Life System (ILS) Migration:** Led software development efforts for the migration of business processes from the ILS application to the RLS (Regional Life System) application.
- **Automation of Premium Discontinuance Processes:** Designed and implemented an automated solution to handle all processes related to premium discontinuation, including policy expiration and fund switch, which were previously managed manually by the support and maintenance team.
- **End-to-End Software Development & Testing:** Actively contributed to Development, Unit Testing (UT), System Integration Testing (SIT), User Acceptance Testing (UAT), and Implementation Verification Testing (IVT).

TECHNICAL SKILLS

Python, Java, C++, C, MySQL, Oracle, AS/400 (RPGLE, CLLE, DB2), L^AT_EX

AWARDS AND RECOGNITIONS

Fellowship for Academic and Research Excellence (FARE) at IIT Kanpur (Nov 2024 - till date).

ICAPS 2022 Student Scholarship, with conference registration and publication fees waived.

Institute Silver Medal for highest CPI among graduating M.Tech. students of the CSE department at IIT Patna in 2019.

Highest appraisal band for three consecutive years at Tata Consultancy Services, culminating in an **early promotion** to IT Analyst.

On the Spot Award twice for outstanding contributions at Tata Consultancy Services.

PROFESSIONAL SERVICES

Reviewer for *IEEE Transactions on Automation Science and Engineering (T-ASE)*.

Hiring Committee Member for Junior Research Fellow at TIFR Mumbai (Oct 2024 - Nov 2024).

AAAI Student Member (Dec 2023 - Dec 2024).

REFERENCES

Available upon request.