

# Manali Dutta

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## Personal Statement

My research focuses on stochastic control and reinforcement learning, particularly in networked control systems, remote estimation, and learning under communication constraints.

## Education

Aug, 2021 – Current

- **Indian Institute of Science, Bangalore**  
**Ph.D., Dept. of Computer Science and Automation**, CGPA: 8.3/10

2019 – 2021

- **Indian Institute of Technology Kharagpur**  
**M.Tech., Industrial Systems Engineering**, CGPA: 9.76/10  
Thesis title: *Predictive maintenance and optimal policy selection of industrial assets: A Hidden Markov Model based approach*

2010 – 2014

- **Kalinga Institute of Industrial Technology, Bhubaneswar**  
**B.Tech. Electronics and Instrumentation Engineering**, CGPA: 9.38/10  
Thesis title: *Implementation of cascade control for a level process*

## Awards and Achievements

- 2024 ■ **Best Presentation Award**, Cluster: Networking and IoT, EECS Research Symposium, IISc
- 2021 ■ **Institute Silver Medal**, awarded for ranking first (order of merit) among M.Tech. graduating students, ISE Division, IIT Kharagpur
- **Roshan L Tayalia IIIE Award**, awarded for ranking first (order of merit) among all outgoing graduating students of ISE division, IIT Kharagpur
- 2014 ■ **Vice-Chancellor's Silver Medal**, awarded for securing highest CGPA in B.Tech in Electronics and Instrumentation Engineering, KIIT University, Bhubaneswar

## Research Publications

### Journal Articles

- 1 ■ **Manali Dutta** and Rahul Singh, “Optimal risk-sensitive scheduling policies for remote estimation of autoregressive markov processes,” *IEEE Control Systems Letters*, 2024. ↗ URL: <https://ieeexplore.ieee.org/document/10812990>.

### Conference Proceedings

- 1 ■ **Manali Dutta** and Rahul Singh, “Optimal scheduling policies for remote estimation of autoregressive markov processes over time-correlated fading channel,” in *2023 62nd IEEE Conference on Decision and Control (CDC)*, IEEE, 2023, pp. 6455–6462. ↗ URL: <https://ieeexplore.ieee.org/document/10384144>.

### Manuscripts under review

- 1 ■ **Manali Dutta**, Gourav Saha, Rahul Singh, and Ness B Shroff, “Delay-optimal transmission scheduling policies for time-correlated fading channels,” *Submitted to IEEE/ACM Transactions on Networking*, under review (2025). ↗ URL: <https://arxiv.org/abs/2511.18048>.

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- Manali Dutta**, Rahul Singh, and Shalabh Bhatnagar, "Jointly optimal policies for remote estimation of autoregressive markov processes over time-correlated fading channel," *Submitted to IEEE Transactions on Automatic Control*, under review (2026).  URL: <https://arxiv.org/abs/2512.21630>.

## Talks

2024

- **EECS Research Symposium, IISc** – *Low Complexity Optimal Policies for Networked Control Systems*
- **Centre for Networked Intelligence Seminar Series, IISc** – *Low Complexity Optimal Policies for Networked Control Systems.* 

## Teaching Experience

Fall 2024

- Teaching Assistant for E2 202: **Random Process**

## Coursework

- |               |   |
|---------------|---|
| Postgraduate  | ■ Random Processes, Real Analysis, Measure Theory, Topics in Artificial Intelligence, Reinforcement Learning, Stochastic Control, Matrix Theory, Production Planning and Inventory Control, Logistics and Supply Chain Management, Decision Modelling |
| Undergraduate | ■ Engineering Mathematics, Signals and Systems, Control Systems, Digital Signal Processing, Analog Communication, Digital Communication   |

## Employment History

July, 2014 – Dec, 2017

- **General Manager**, Trident Group India, Budhni, Madhya Pradesh
  - **Supervised** preventive and predictive maintenance activities for reducing breakdown / down time, and enhancing operational effectiveness of Dyeing machines
  - **Performed troubleshooting** of instruments and identified suitable counter-measures
  - **Supervised** a team of 17 members ensuring safe and effective operation
  - **Rewarded** by CEO for being the best new performer in 2017

## Skills

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|-----------|---|
| Languages | ■ Strong reading, writing and speaking competencies for English, Hindi, Bengali, Assamese                         |
| Coding    | ■ Python, R, MATLAB   |
| Misc.     | ■ Academic research, teaching, training, consultation, L <sup>A</sup> T <sub>E</sub> X typesetting and publishing |