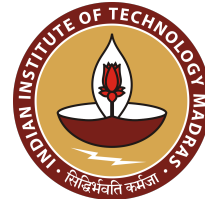


Deepanshu



Ph.D. | Indian Institute of Technology Madras

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🌐 [LinkedIn](#) | 📄 [Google Scholar](#) | 🐙 [GitHub](#) | 🌐 [Webpage](#)

Professional Summary

- Demonstrated research skills through 10+ publications in domain of data-driven modeling and optimization
- Demonstrated leadership skills, teamwork, and innovative mindset through 2+ years of industrial experience

Education

Indian Institute of Technology Madras, Chennai, Tamil Nadu, India

M.S. + Ph.D. in Engineering Design | **CGPA: 9.01/10**

Jul 2019–Dec 2024

Thesis Supervisors: [Prof. Palaniappan Ramu](#), IIT Madras, India, &

[Prof. Kalyanmoy Deb](#), Michigan State University, USA

Michigan State University, East Lansing, MI, USA

Exchange Visitor | [International Immersion Experience Program](#)

Sep 2024–Nov 2024

National Institute of Technology Kurukshetra, Haryana, India

B.Tech. in Mechanical Engineering | **CGPA: 9.55/10**

Jul 2012–Jun 2016

Work Experience

Vedanta Aluminium Limited, Jharsuguda, India | [Full-time Job](#)

Graduate Engineer Trainee, Assistant Manager (O&M, Aluminium Smelter)

Jun 2016–Aug 2018

Mercedes Benz R&D, Bengaluru, India | [Internship](#)

Student Intern, Product Design and Development Department, Suspension Team

Jun 2015–Aug 2015

Bharat Pumps & Compressors Limited, Allahabad, India | [Industrial Training](#)

Student Trainee, Industrial visit and inspection of Manufacturing Unit

May 2014–Jun 2014

Teaching Experience

- [Teaching Assistant](#) at Department of Engineering Design, IIT Madras
Optimization in Engineering Design (ED6002): HW and Quiz preparation, Tutorials, Evaluations
Jul–Nov 2021
- [Teaching Assistant](#) at Department of Engineering Design, IIT Madras
Computational methods in Design (ED5015): HW and Quiz preparation, Tutorials, Evaluations
Jan–May 2022
- [Teaching Assistant](#) at Department of Engineering Design, IIT Madras
Computational methods in Design (ED5015): HW and Quiz preparation, Tutorials, Evaluations
Jan–May 2023

Journal Publications

1. Yadav, D., Ramu, P., & Deb, K. (2025). [Handling Objective Preferences and Variable Uncertainty in Evolutionary Multi-objective Optimization](#). *Swarm and Evolutionary Computation*. 94, 101860
2. Yadav, D., Sekar, K., & Ramu, P. (2024). [Adaptive sampling based estimation of small probability of failure using interpretable Self-Organising Map](#). *Structural Safety*, 102470.
3. Yadav, D., Ramu, P., & Deb, K. (2023). [Visualization-aided Multi-criteria Decision-making Using Interpretable Self-organizing Maps \(iSOM\) Following Pareto Race](#). *Applied Soft Computing*. 149, 111032.
4. Yadav, D., Nagar, D., Ramu, P., & Deb, K. (2023). [Visualization-aided Multi-criteria Decision-making Using Interpretable Self-organizing Maps](#). *European Journal of Operational Research*, 309(3), 1183-1200.

5. Pannerselvam, K., Yadav, D., & Ramu, P. (2022). **Scarce Sample-Based Reliability Estimation and Optimization Using Importance Sampling**. *Mathematical and Computational Applications*, 27(6), 99.
6. Lee, I., Lee, U., Ramu, P., Yadav, D., Bayrak, G., & Acar, E. (2022). **Small Failure Probability: Principles, Progress and Perspectives**. *Structural and Multidisciplinary Optimization*, 65(11), 326.

Conference Proceedings

1. Yadav, D., Ramu, P., & Deb, K. (2024, July). **An Updated Performance Metric for Preference-Based Evolutionary Multi-Objective Optimization Algorithms**. In *The Genetic and Evolutionary Computation Conference (GECCO 2024)*. Association for Computing Machinery (ACM).
2. Yadav, D., Ramu, P., & Deb, K. (2023, July). **Multi-objective Robust Optimization and Decision-Making Using Evolutionary Algorithms**. In *The Genetic and Evolutionary Computation Conference (GECCO 2023)*. Association for Computing Machinery (ACM).
3. Yadav, D., Ramu, P., & Deb, K. (2023, July). **Finding Robust Solutions for Many-Objective Optimization Using NSGA-III**. In *Congress on Evolutionary Computation (CEC 2023)*. IEEE.
4. Yadav, D., Ramu, P., & Deb, K. (2022, December). **Visualization-aided Multi-criterion Decision-making Using Reference Direction Based Pareto Race**. In *2022 IEEE Symposium Series on Computational Intelligence (SSCI)* (pp. 125-132). IEEE.
5. Yadav, D., Ramu, P., & Deb, K. (March 2025). **Reliability-based MCDM Using Objective Preferences Under Variable Uncertainty**. In *Evolutionary Multi-criteria Optimization (EMO)*, Australia. **Accepted**
6. Yadav, D., Ramu, P., & Deb, K. (2025). **Machine Learning-Assisted Constraint Handling Under Variable Uncertainty for Preference-Based Multi-Objective Optimization**. **Under Review**

Patents

1. Ramu, P. & Yadav, D.(2025). **Interpretable self organizing map (iSOM) as visual analytics tool**. *Application No.-202541006906* **Patent Filed**

Conference/Symposium Presentations

1. Yadav, D.*, Ramu P. & Deb K. (2023): **Incorporating qualitative preferences in evolutionary multi-criteria decision-making**. In: *The 6th National Conference on Multidisciplinary Design, Analysis and Optimization (NCMDAO 2023) December 6-8, 2023, IIT Guwahati*. **Conference**
2. Yadav, D.*, Raj M. & Ramu P., (2023): **Visualization-aided design space exploration of MDO problems**. In: *The 6th National Conference on Multidisciplinary Design, Analysis and Optimization (NCMDAO 2023) December 6-8, 2023, IIT Guwahati*. **Conference**
3. Rishwanth M., Kishore V.V., Srinivasan, A.N., Mani V., Yadav, D. & Ramu P. (2023): **iSOM-derived explainable outcomes for engineering applications**. In: *The 6th National Conference on Multidisciplinary Design, Analysis and Optimization (NCMDAO 2023) December 6-8, 2023, IIT Guwahati*. **Conference**
4. Yadav D. & Ramu P. (2023): **Multi-Criteria Decision-making (MCDM) using interpretable Self-organizing Maps (iSOM)**. In: *International System Realization Partnership (ISRP) 2023 Symposium, Design Engineering in the Age of Industry 5.0, Cranfield University*. **Symposium**
5. Yadav, D. & Ramu P. (2023): **A novel sensitivity analysis method using Self Organizing Maps (SOM)**. In: *The 15th World Conference of Structural and Multi-disciplinary Optimization (WCSMO-15)*. **Conference**
6. Yadav, D. & Ramu P. (2021): **iSOM enabled targeted sampling for tail modeling**. In: *The 4th National Conference on Multidisciplinary Design, Analysis, and Optimization, IIT Madras*. **Conference**
7. Yadav D. & Ramu P. (2024): **Handling Objective Preferences and Variable Uncertainty for Evolutionary Multi-objective Optimization**. In: *The 1st International Conference on Multi-disciplinary Design, Analysis, and Optimization, December 14-16, 2024, IISc Bangalore*. **Conference**

8. Kishore V. V., **Yadav D.** & Ramu P. (2024): **Feature Selection and Feature Interaction Using Interpretable Self-Organizing Map**. In: *The 1st International Conference on Multi-disciplinary Design, Analysis, and Optimization, December 14-16, 2024, IISc Bangalore.* **Conference**
9. Khalid A., **Yadav D.** & Ramu P. (2024): **Robust Design Optimization Using Interpretable Self-Organizing Maps**. In: *The 1st International Conference on Multi-disciplinary Design, Analysis, and Optimization, December 14-16, 2024, IISc Bangalore.* **Conference**

Course Projects

- **Bayesian Online Change-point Detection** (Course Project, 2021)
- **Application of Markov Chain Monte Carlo Method** (Course Project, 2019)
- **Text Document Classification Using Self-Organizing-Maps** (Research Project 2021)
- **Likelihood Ratios for Out-of-Distribution (OOD) Detection** (Course Project, 2020)

Academic Collaborations

- **COINLab: Computational Optimization and Innovation Laboratory** 2021-current
Headed by: Prof. Kalyanmoy Deb, Koenig Endowed Chair Professor, Electrical and Computer Engineering, Michigan State University, USA (3 Journal publications, 5 Conference proceedings)
- **IDO: Innovative Design Optimization Laboratory** 2021-2022
Headed by: Prof. Ikjin Lee, Department of Mechanical Engineering, Korea Advanced Institute of Science & Technology (KAIST), Daejeon, South Korea (1 Journal publication)
- **TOBB University of Economics and Technology** 2021-2022
Headed by: Prof. Erdem Acar, Department of Mechanical Engineering, TOBB University of Economics and Technology, Ankara, Turkey (1 Journal publication)

Academic and Professional Achievements

- Awarded with **Student Travel Grant** by Association of Computing Machinery (ACM) to attend GECCO, 2024 2024
- **Institute Research (IR) Award**, a biannual award by IIT Madras for Excellence in Research 2024
- Awarded with **Student Travel Grant** by Association of Computing Machinery (ACM) to attend GECCO, 2023 2023
- Awarded with **International Immersion Experience (IIE) Travel Grant** by IIT Madras 2023
- Awarded with **Student Travel Grant** by IEEE Computational Intelligence Society (CIS) to attend SSCI IEEE, 2022 2022
- Awarded for securing the overall **highest GPA (10/10)** in a semester (8th), NIT Kurukshetra 2012-2016

Competitions

- **Shell.ai Hackathon for Sustainable and Affordable Energy: EV Charging Network Challenge** 2022
- **Goal:** To Optimally locate the EV charging stations based on charging supply information and forecast the demand for the year 2023
- Formulated a Mixed Integer Non-linear Programming (MINLP) problem and solved it using MINLP solver
- **Bright Optimizer: International Student Competition in Structural Optimization (ISCSO)** 2021
- **Goal:** To optimize the design of a truss structure by minimizing the weight under stress and deflection constraints
- Given **Space Truss Structure was optimized** (~ 85% of the winner's weight) using mixed integer GA

Professional Membership

- Member Association for Computing Machinery (ACM) 2024-current
- Reviewer of Journal- Data Science for Transportation, Springer 2024-current
- IEEE Student Member, Computational Intelligence Society (CIS) 2022-2024
- Student Volunteer at SSCI IEEE 2022, GECCO-2023, & GECCO-2024 conferences 2022-2024