

# Anand DEO

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## WORK EXPERIENCE

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**Assistant Professor (With Tenure):** Indian Institute of Management Bangalore,  
APRIL 2026-PRESENT

**Assistant Professor:** Indian Institute of Management Bangalore,  
(IIMB Young Faculty Research Chair),  
FEB 2023-APRIL 2026

**Visiting Faculty:** Indian School of Business, SEP 2023- PRESENT,  
Penn. State University, MAY 2024

**Postdoctoral Researcher:** Singapore University of Technology and Design,  
OCT 2021 - JAN 2023

## EDUCATION

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2015 - 2021 M.Sc + PhD - AREA OF RESEARCH: QUANTITATIVE RISK MANAGEMENT  
THESIS TITLE: "An Asymptotic Study of Risk in Financial Systems: Algorithms and Analysis"  
**Tata Institute of Fundamental Research, Mumbai,**  
Advisor: Dr. Sandeep JUNEJA  
Thesis Committee: Dr. Paul GLASSERMAN, Dr. Jayakrishnan NAIR.

2011- 2015 Bachelor of Engineering in ELECTRONICS,  
**Mumbai University**

## AWARDS

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- **I-SIM Best Publication Award, 2024** for the paper "Achieving Efficiency in Black-box Simulation of Distribution Tails".
- **Third Prize at INFORMS JFIG, 2021** for the paper "Achieving Efficiency in Black-box Simulation of Distribution Tails".
- **Best Paper Award at the CRISIL Doctoral Symposium, 2017** for the paper "Credit Risk: Simple Closed Form Approximate Maximum Likelihood Estimator".
- **Excellence in Teaching Award, 2023** for the course "Applied Probability and Statistical Models" taught at IIM-Bangalore

## JOURNAL PUBLICATIONS/PREPRINTS

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1. Decision Scaled Approach to Scenario Approximation (with Jaeseok Choi, Constantino M. Lagoa, Anirudh Subramanyam): [Preprint - under review at Math. Programming](#)
2. On Design of Representative Distributionally Robust Formulations for Evaluation of Tail Risk Measures [Preprint: under review at Extremes](#)
3. The Scaling Behaviors in Achieving High Reliability via Chance-Constrained Optimization (with Karthyek Murthy): [Preprint: to be submitted to Management Science](#)
4. Achieving Efficiency in Black-box Simulation of Distribution Tails with Self-structuring Importance Samplers (with Karthyek Murthy) - [Operations Research, 2025](#)

5. Reduced Sample Complexity in Scenario-Based Control System Design via Constraint Scaling (with Jaeseok Choi, Constantino M. Lagoa, Anirudh Subramanyam): [IEEE Control Systems Letters, 2024](#), [American Control Conference 2025](#)
6. Credit Risk: Simple Closed Form Approximate Maximum Likelihood Estimator - Anand Deo and Sandeep Juneja. [Operations Research, 2021](#)
7. City-Scale Agent-Based Simulators for the Study of Non-Pharmaceutical Interventions in the Context of the COVID-19 Epidemic (with TIFR and IISc Covid Simulation Teams) - [Journal of the Indian Institute of Science, 2020](#)

## PUBLICATIONS AT CONFERENCES WITH PROCEEDINGS

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1. A large deviations perspective to stress testing, Winter Simulation Conference, 2026 (accepted)
2. Sampling distribution tails using Generative Models (full version available upon request); with Mantu Gupta, Winter Simulation Conference, 2026 (accepted)
3. Importance Sampling for Optimisation with Rare Events: A Tutorial (Invited Tutorial, with Karthyek Murthy) [Winter Simulation Conference, 2024](#)
4. Overcoming the Sample Complexity Barrier in Risk Analytics with De-biased Learning (with Karthyek Murthy and Arjun Ramachandra) [Analytics for X, 2022](#)
5. Combining Retrospective Approximation with Importance Sampling for Optimising Conditional Value at Risk (Invited Paper, with Karthyek Murthy and Tirtho Sarker<sup>\*1</sup>) [Winter Simulation Conference, 2022](#)
6. Optimizing tail risks using an importance sampling based extrapolation for heavy-tailed objectives (with Karthyek Murthy, Singapore University of Technology and Design) - [Control and Decesion Conference, 2020](#).
7. Efficient Black Box Importance Sampling for VaR and CVaR estimation (with Karthyek Murthy, Singapore University of Technology and Design) - [Winter Simulation Conference 2021](#)
8. Limiting distributional fixed points in systemic risk graph models (Invited Paper, with Sandeep Juneja) [Winter Simulation Conference, 2019](#).

## WORKING PAPERS

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1. Learning Stress Laws Conditioned on Rare Joint Losses (with Mantu Gupta<sup>\*</sup>) - draft available upon request
2. Asymptotic Analysis of Distributionally Robust Optimization (with Harshit Joshi)
3. Black Box Importance Sampling for Chance Constrained Optimisation problems (with Anirudh Subramanyam, Sai Rakshith<sup>\*</sup>, Shanyin Tong and Karthyek Murthy): draft in preparation
4. An Extreme Value Theory based Distributionally Robust Scheme for Portfolio Optimization with Tail Risks (with Samarth Pardhi <sup>\*</sup>)
5. Estimation of tail probabilities for spatial extremes (with Soudeep Deb, Madhab Barman and Lizan Periera)

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<sup>1\*</sup> indicates student mentee

## TEACHING

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### MBA Level Courses:

- (i) Advanced Probability and Statistical Models September 2023  
**Overall Feedback: 4.5/5 (IIM-B Excellence in Teaching)**
- (ii) Decision Sciences (I) June 2024, 2025  
**Overall Feedback: 4.25/5**
- (iii) Quantitative Risk Management January 2026, July 2026  
**Overall Feedback: 4.42/5**

### Executive Education:

- (i) Advanced Statistical Analysis (at Indian School of Business) January, 2025, 2026  
**Overall Feedback: 6.3/7**
- (ii) Sampling and Estimation (at IIM-B) May, 2025

### Ph.D. Level Courses:

- (i) Probability Theory June 2023 - Present.  
**Overall Feedback: 4.4/5**
- (ii) Probability (at Indian School of Business) August 2023-Present.  
**Overall Feedback: 6.3/7**
- (iii) Linear Algebra (at Indian School of Business) August 2025  
**Overall Feedback: 7/7**

### Invited Short Courses:

- (i) Quantitative Risk Management - ACM India Winter School 2025 (at IIIT-Hyderabad)  
**Note:** This was an official pre-summit event of the [AI Impact Summit 2026](#).

## CONSULTING PROJECTS

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- (i) Clearing Corporation of India Limited SEP 2025-MAY 2026  
(A Review of Risk Management Policies)

## SELECTED PRESENTATIONS

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### 1) Departmental Seminars/Symposia

- CRISIL Doctoral Symposium, 2017
- Indian Institute of Technology, Mumbai, 2021
- Singapore University of Technology and Design, 2019
- STCS Symposium, Tata Institute of Fundamental Research, 2020, 2021
- Indian Institute of Management, Bangalore 2022, 2023
- Indian School of Business, 2023
- Tata Institute of Fundamental Research, 2024
- Penn. State University, 2024
- Indian Institute of Management, Ahmedabad, 2025

### 2) At specialised workshops

- Workshop on Applied Probability, March 31- April 2, 2017, TIFR Mumbai (Joint Talk with Sandeep Juneja)
- Lectures on Probability and Stochastic Processes XII Indian Statistical Institute, Kolkata December 15 - 19, 2017, Workshop on Learning Theory, TIFR, Mumbai, January 2 -6, 2019. (Poster presentation).
- Advances in Applied Probability, Bangalore 2019 (Poster)
- RE-SIM, 2021 (Poster)
- Lectures on Probability and Stochastic Processes, 2023

### 3) Selected talks at conferences without proceedings

- INFORMS Annual Meeting, 2018, 2020, 2021, 2024 (Invited Speaker)
- INFORMS APS, 2019, 2023 (Invited Speaker)
- MCM 2019 (Invited Speaker)
- ICC-Opt, 2022
- POMS-HK, 2023, 2024, 2025 (Invited Speaker)
- SIAM Conference on Optimisation, 2023 (Invited Speaker)
- EMI/PMC 2024 (Invited Speaker)
- INFORMS International Conference 2025 (Invited Speaker)
- NUS Quantitative Finance Conference, 2026

### 4) Talks to Industry

- American Express, Bangalore, 2023

## STUDENT MENTORING

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- Doctoral students/Postdocs whom I am currently mentoring/advising
  1. **Mantu Gupta** (IIM-B); SEP 2023- PRESENT  
**Projects:** Efficient Estimation of CVaR Sensitivities using Importance Sampling, Generative models for extreme events
  2. **Spandan Roy** SEP 2025- PRESENT  
**Projects:** Data-driven distributionally robust estimation of risk measures, Efficient batching strategies for rider allocation for online quick commerce
  3. **Ayushi Singh** SEP 2025- PRESENT  
**Project:** Importance sampling for minimisation of non-linear tail risk measures.
  4. **Lizan Periera** (IIM-B) JUN 2024- PRESENT
  5. **Madhab Barman** (Postdoc, IIM-B); JUNE 2025- PRESENT  
**Project:** Data driven estimation of rare event probabilities for spatial extremes with applications to rainfall data.
- Doctoral students whose thesis committee I am a part of
  - (i) **Kapil Gupta** (IIMB)
  - (ii) **Kunal Rai** (IIMB)
- Undergraduate/ Masters students/interns whom I am/have worked with
  - (i) **Tirtho Sarker** (Intern at SUTD)

(ii) **Sai Rakshith** (Master's Project Student)

**Projects:** Importance Sampling for Chance Constrained Optimization, Estimation of spatial extremes

(iii) **Samarth Pardhi** (Intern at IIM-B)

**Project:** Extreme Value Theory Based Distributionally Robust Optimization for minimising tail risks

(iv) **Harshit Joshi** (Intern at IIM-B)

**Project:** Asymptotic Analysis of Distributionally Robust Problems

## ACADEMIC REFEREEING

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I have reviewed papers for the following journals and conferences: Operations Research, Management Science, Stochastic Systems, Quantitative Finance, Mathematical Finance, INFORMS Journal of Computing, ACM-TOMACS, Control Systems Letters, Journal of Optimization Theory and Applications, Winter Simulation Conference.

## SERVICE

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- Program Committee Member, Winter Simulation Conference 2025, 2026
- Session Organiser, INFORMS Annual Meeting, 2025
- Doctoral Program coordinator for the Decision Sciences Area, APR. 2024-PRESENT.
- Member, PGPPM course committee, SEP. 2023- PRESENT
- Organiser for area seminar at IIM-B, APR. 2023-APR. 2024
- Co-organizer for workshop on learning theory, held at the Tata Institute of Fundamental research, Mumbai, from January 2-6, 2019.

## COMPUTER SKILLS

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I have knowledge of and have used the following softwares in my various projects: C, C++, MATLAB, L<sup>A</sup>T<sub>E</sub>X, R, PYTHON.