Miheer Dewaskar

Contact Information

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Research Positions

Postdoctoral Associate **June 2021– current**
Department of Statistical Science, Duke University, USA.
Advisor: David Dunson

Research Intern **May – July 2015**
Inria Rennes Bretagne-Atlantique research center, France.
Advisors: Blaise Genest and Nathalie Bertrand

Education

Ph.D. in Statistics and Operations Research **May 2021**
University of North Carolina (UNC) at Chapel Hill, USA.
Dissertation: High-dimensional problems in statistics and probability: correlation mining and distributed load balancing
Advisors: Shankar Bhamidi, Amarjit Budhiraja, and Andrew B. Nobel

M.Sc. in Computer Science **June 2016**
Chennai Mathematical Institute, India.
Thesis: Algorithms for infinite duration games
Advisor: B Srivathsan

B.Sc. Honours in Mathematics and Computer Science **June 2014**
Chennai Mathematical Institute, India.

Teaching Experience

Mathematics of Regression, Duke University, USA. **Aug 2023 – current**
Same responsibilities as below.

Introduction to Statistics, UNC at Chapel Hil, USA. **Aug – Dec 2019**
Primary instructor for 45 undergraduate students.
Created syllabus and course materials (homework, quizzes, exams), supervised teaching assistants, and employed *active learning* techniques.

Research Interests

- Robust algorithms for machine learning and statistical inference
- Bayesian non-parametric methods
- Stochastic processes and their applications

Software

Developed R/C++ package CBCE for finding bimodules in multi-view data.

Research Publications

Refereed Publications

Bhamidi S, Budhiraja A, and **Dewaskar M**. Near Equilibrium Fluctuations for Supermarket Models with Growing Choices. Annals of Applied Probability (2022) VOL. 32 (NO. 3), 2083-2138. DOI: 10.1214/21-AAP1729.

Goyal M, **Dewaskar M**, and Duggirala PS. NExG: Provable and Guided State Space Exploration of Neural Network Control Systems using Sensitivity Approximation. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (2022). DOI: 10.1109/TCAD.2022.3197524.

Bertrand N, **Dewaskar M**, Genest B, Gimbert H, and Godbole A. Controlling a Population. Logical Methods in Computer Science (2019), Vol. 15, Issue 3. DOI: 10.23638/LMCS-15(3:6)2019.

Bertrand N, **Dewaskar M**, Genest B, and Gimbert H. Controlling a Population. 28th International Conference on Concurrency Theory (CONCUR 2017). DOI: 10.4230/LIPIcs.CONCUR.2017.12.

Submitted Articles and Preprints

Dewaskar M, Palowitch J, He M, Love MI, and Nobel AB. Finding Groups of Cross-Correlated Features in Bi-view Data. Under revision: The Journal of Machine Learning Research. arXiv:2009.05079.

Dewaskar M*, Tosh C*, Knoblauch J, and Dunson DB. Robustifying Likelihoods by Optimistically Re-weighting Data. Under review: The Journal of American Statistical Association, Series B. arXiv:2303.10525.

Buch D*, **Dewaskar M***, and Dunson DB. Bayesian Level-set Clustering. In preparation.

* denotes joint first authors.

Honors and Awards

Cambanis-Hoeffding-Nicholson award, *UNC Chapel Hill.* **2017**
Department-wide award to the top two students in the first year.

Medal of Excellence, *Chennai Mathematical Institute.* **2016**
Awarded to the top ranking student in the program.

Charpak Scholarship, *Embassy of France in India.* **2015**
Awarded to pursue research in a French laboratory.

INSPIRE Scholarship, *Department of Science and Technology, India.* **2011**
Awarded to top 1%-tile high school students across the country.

Referee Work

Journal: Mathematics of Operations Research (2023).

Talks

1 "Robustifying Likelihoods by Optimistically Re-weighting Data". International Indian Statistical Association Conference, Colorado School of Mines, USA, June 2023 (invited conference talk).

2 "Robustifying Likelihoods by Optimistically Re-weighting Data". LIFEPLAN meeting, University of Helsinki, Finland, March 2023 (online).

3 "Independence, L_p spaces, and Expectation Inequalities". Guest Lecture in Probability and Measure Theory, Duke University, USA, September 2022.

4 "Groupwise Cross-Correlation Mining in Bi-view Data". Indian Institute of Science Education and Research (IISER) Pune Seminar, India, August 2022.

5 "Guided State-Space Exploration in Closed Loop Control Systems Using Sensitivity Approximation". Systems and Control Engineering Seminar, Indian Institute of Techology (IIT) Bombay, India, July 2022.

6 "Finding Significant Communities in Cross-Correlation Networks derived from Multi-view Data". Statistical and Applied Mathematical Sciences Institute (SAMSI) Seminar, USA, January 2021.

7 "Near Equilibrium fluctuations for Supermarket models with growing choices". Bernoulli-IMS One World Symposium 2020, August 2020 (contributed online conference talk).

8 "Asymptotic analysis of the Power of Choice phenomenon for Queuing Models". UNC–Duke Probability Seminar, USA, January 2020.

9 "Detecting Bimodules in eQTL data: finding mutually correlated sets across two data types". UNC Computational Medicine meeting, USA, April 2019.

10 "Controlling a population of Markov Decision Processes". IRISA Lab and Inria Rennes Bretagne-Atlantique research center team SUMO Retreat, France, June 2015.

Poster Presentation

1 "Robustifying Likelihoods by Optimistically Re-weighting Data". Joint Statistical Meeting (JSM) at Toronto, Canada, August 2023.

2 "Robustifying Likelihoods by Optimistically Re-weighting Data". Discussion meeting on Data Science: Probabilistic and Optimization methods (DSPOM2023), International Center for Theoretical Science (ICTS), India, July 2023.

3 "Robustifying Likelihoods by Optimistically Re-weighting Data". Office of Naval Research's (ONR) Mathematical Data Science program review meeting, Stanford University, USA, April 2023.

4 "Finding stable groups of Cross-Correlated features in Bi-view Data". Speed presentation and poster at Joint Statistical Meeting (JSM) at Washington DC, USA, August 2022.

Professional Activities

- **Memberships**: International Society for Bayesian Analysis

- **Outreach**: Mentor (2022) and Judge (2023) at Duke Data Fest. UNC Science Expo (2019).
- **Session chair:** International Indian Statistical Association Conference (2023), Colorado School of Mines, USA.

Workshop participation

Preparing to Teach, University of Toronto Scarborough — **Aug 2023**
Day-long workshop to train new instructors to teach statistics at the undergraduate level.

Undergraduate STEM Mentoring, Duke University — **Sep – Nov 2022**
Weekly meetings to learn about evidence-based tools for effective mentoring led by Dr. Joan Durso.

Teaching Assistant Training, UNC Chapel Hill — **Aug 2017 – May 2018**
Two semester course on evidence-based methods for pedagogy, taught by Dr. Brian Rybarczyk.

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