Rishikesh Yadav, PhD

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Research Interests

Extreme Value Theory, Spatiotemporal Modeling, Bayesian Inference, Machine Learning

Work Experience

- **Postdoctoral fellow (Aug. 15, 2023 – present)** at HEC Montréal and McGill university with Prof Aurélie Labbe (Department of Decision Sciences, HEC Montréal) Prof. Alexandra M. Schmidt (Department of Epidemiology, Biostatistics and Occupational Health, McGill University) and Prof. Pratheepa Jeganathan (Department of Mathematics and Statistics, McMaster University)
  Current project: Spatiotemporal modeling of bicycle volume data

- **Postdoctoral fellow (Aug. 15, 2022 – Aug. 14, 2023)** at HEC Montréal with Prof. Léo Belzile (Department of Decision Sciences)

- **Associate Biostatistician at Novartis Healthcare Pvt. Ltd. (Jun. 2016 - Jul. 2017)** in Hyderabad, India.

Education

- **PhD in Statistics (Aug. 2017 – Apr. 2022)**
  King Abdullah University of Science and Technolog, Thuwal, Saudi Arabia.
  Thesis title: Bayesian Modeling of Sub-Asymptotic Spatial Extremes.
  Supervisor: Professor Raphaël Huser.

- **Master (M.Sc.) in Mathematical Statistics (Aug. 2014 – Jun. 2016)**
  Indian Institute of Technology Kanpur (IITK), Kanpur, Uttar Pradesh, India.

- **Bachelor (B.Sc.) in Mathematics and Statistics (Jul. 2011 – Jun. 2014)**
  University of Allahabad (AU), Allahabad, Uttar Pradesh, India.

Papers

1. [1] Hazra, A.*, Nag, P.*, **Yadav, R.***, Sun, Y (2024). Exploring the efficacy of statistical and deep learning methods for large spatial datasets: A Case Study. *Journal of Agricultural and biological Statistics, 10.1007/s13253-024-00602-4.* Link

2. **Yadav, R.**, Huser, R., Opitz, T., Lombardo, L. (2023). Joint modeling of landslide counts and sizes using marked log-Gaussian point processes. *Journal of the Royal Statistical Society Series C: Applied Statistics,* 10.1093/jrsssc/qlad077. Link

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[1]* denote the joint first author of the paper

3. [2] Cisneros, D.⋆, Gong., Y.⋆, **Yadav, R.**⋆, Hazra, A., Huser, R. (2023). A combined statistical and machine learning approach for spatial prediction of extreme wildfire frequencies and sizes. *Extremes*, volume 26, 301–330. Link

4. **Yadav, R.**, Huser, R., Opitz, T. (2022). A flexible Bayesian hierarchical modeling framework for spatially dependent peaks-over-threshold data. *Spatial Statistics*, 100672. Link

5. **Yadav, R.**, Huser, R., Opitz, T. (2021). Spatial hierarchical modeling of threshold exceedances using rate mixtures. *Environmetrics* **32**(3), e2662. Link

6. Belzile, L., Hazra, A., **Yadav, R.** (2024). An utopic adventure in the modeling of conditional univariate and multivariate extremes. arXiv preprint

7. **Yadav, R.**, Huser, R., Lombardo, L. (2024). Statistics of extremes for natural hazards: landslides and earthquakes. A book chapter: *Soon to be submitted*

8. Belzile, L., **Yadav, R.**, Beck, N. (2024). Modeling of sparse conditional spatial extremes processes subject to left-censoring. *Soon to be submitted*

9. **Yadav, R.**, Schmidt, S., Labbe, A., Jeganathan, P. (2024+). Spatio-temporal modeling of bicycle volume data. In preparation

10. **Yadav, R.**, Huser, R., Opitz, T., Lombardo, L., Hakan, Belzile, L., T. (2024+); Joint modeling of Wenchuan landslide counts and sizes using multivariate SPDE. In preparation

Relevant PhD Coursework	Statistics of Extremes (STAT 380), Spatial Statistics (STAT 370), Bayesian Statistics (STAT 240), Computational Statistics (STAT 340), Contemporary Topics in Computational Science (AMCS 394E), Machine Learning (CS 229), Special Topics in Statistics (STAT 390), Functional Data Analysis (STAT 360), Advanced Statistical Inference (STAT 320), Linear models (STAT 230)

Coursera courses

1. Neural Networks and Deep Learning. Certificate Link

2. Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization. Certificate Link

3. Python for Data Science, AI & Development. Certificate Link

4. Crash Course on Python. Certificate Link

Achievements and Awards

1. Our team **won two out of four** competitions and in rest two we were at the second position in the 2023 KAUST Competition on Spatial Statistics for Large Datasets

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[2]⋆ denote the joint first author of the paper

2. Our team secured the **third place** in the Data Challenge organized as part of the EVA 2021 Conference (Jun. 28 – Jul. 2, 2021). Link

3. Secured **All India Rank (AIR) - 40** in IIT JAM - 2014 (Joint Admission Test for M.Sc.) in Mathematical Statistics.

4. Received **Gold medal award** for the best academic performance in bachelor degree at the University of Allahabad.

Conferences

1. 2023 Joint Statistical Meeting (JSM 2023), Aug. 5 – Aug. 10, 2023, Toronto, Canada. *Contributed talk*

2. 2023 Extreme Value Analysis Conference, Jun. 26 – Jun. 30, 2023, Milan, Italy. *Topic contributed talk*

3. 2022 IISA Conference, Dec. 26 – Dec. 30, 2022, Banglore, India. *Poster presentation*

4. 2022 Joint Statistical Meeting (JSM 2022), Aug. 6 – Aug. 11, 2022, Washington, D.C., United States. *Topic contributed talk*

5. 2021 Extreme Value Analysis Conference 2021, Jun. 28 – Jul. 2, Virtual. *Contributed talk*

6. 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2020), Dec. 19 – Dec. 21, 2020. *Invited talk, virtual presentation*

7. 2020 Joint Statistical Meeting (JSM 2020), Aug. 1 – Aug. 6, 2020. *Contributed talk, virtual presentation*

8. 2019 Extreme Value Analysis Conference, Jul. 1 – Jul. 5, 2019, Zagreb, Croatia. *Contributed talk*

9. 2019 Joint Statistical Meeting (JSM 2019), Jul. 27 – Aug. 1, 2019, Denver, Colorado, United States. *Contributed talk*

10. 2018 and 2019 Statistics and Data Science Workshop, KAUST, Saudi Arabia. *poster presentation*

Workshops Visits

1. Yearly Workshop for CRG Project: "Sparse extreme value models", Blatten, Switzerland, May. 30 - Jun. 2, 2022.

2. Yearly Workshop for CRG Project: "Statistical Estimation and Detection of Extreme Hot Spots, with Environmental and Ecological Applications" KAUST, Thuwal, Saudi Arabia, Feb. 4 – Feb. 6, 2019.

3. Masterclass in Bayesian Statistics at CIRM (Marseille, France), Oct. 22 – Oct. 26, 2018.

4. Visited Thomas Opitz twice at INRAE, France, for collaborative research purposes, for two weeks in March 2018 and another two weeks in September 2018.

Teaching Experience	• Teaching assistant for the course *Linear Models (STAT 230)*, Fall 2018 semester.
	• Teaching assistant for the course *Probability and Statistics (STAT 220)*, Fall 2020 semester.
Technical Expertise	R, Python, C, SAS, LaTeX, Microsoft Office.
Personal information	**Citizenship**: Indian; **Languages:** Hindi (Native) & English (Advanced)