

# Paromita Dubey

## Curriculum Vitae

Department of Data Sciences and Operations  
USC Marshall School of Business  
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### Employment

- 2025–present **Kenneth King Stonier Assistant Professor in Business Administration**, *University of Southern California, Marshall School of Business*
- 2021–present **Assistant Professor of Data Sciences and Operations**, *Department of Data Sciences and Operations, University of Southern California, Marshall School of Business*
- 2020–2021 **Stein Fellow**, *Department of Statistics, Stanford University*
- 2019–2020 **Postdoctoral Scholar**, *Department of Statistics, University of California, Davis*  
Advisors: Prof. Hans-Georg Müller and Prof. Jane-Ling Wang

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### Education

- 2014–2019 **PhD in Statistics**, *Department of Statistics, University of California, Davis*  
Advisor: Prof. Hans-Georg Müller
- 2012–2014 **M.Stat**, *Indian Statistical Institute, Kolkata, India*
- 2009–2012 **B.Stat (Honours)**, *Indian Statistical Institute, Kolkata, India*

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### Awards and Honors

- 2025 **Awarded the Bronze Telly Award for Marshall Minds Ep. 5: “Distance Profiles: A Model-Free Approach to Complex Data Analysis.”**, <https://vimeo.com/1049483845>
- 2025 **Named the Kenneth King Stonier Assistant Professor in Business Administration.**
- 2024 **Dr. Douglas Basil Award for Junior Faculty.**
- 2023–2026 **National Science Foundation, Division of Mathematical Sciences, Award No. 2311034.**
- 2022–2023 **USC Zumberge Individual Research Award**
- 2021 **Invited as a Long Term Participant in the “Geometric Methods in Optimization and Sampling” program**, *Simons Institute for the Theory of Computing, University of California, Berkeley*

- 2020 **IMS New Researcher Travel Award**
- 2019 **Invited to present in the Discussion Paper meeting of the Research Section Committee, Royal Statistical Society, London**
- 2019 **Peter Hall Graduate Research Award**, for outstanding graduate research
- 2019 **SF Bay Area Chapter of ASA award for Joint Statistical Meetings 2019**, for “Modeling time varying random objects and dynamic networks”
- 2018 **Best Paper Award, Section on Nonparametric Statistics, Joint Statistical Meetings, 2018**, for “Fréchet Analysis of Variance for Random Objects”
- 2018 **Student Paper Award, International Indian Statistical Association Conference, 2018**, for “Fréchet Analysis of Variance for Random Objects”
- 2018 **UC Davis and Humanities Graduate Research Award**
- 2018 **UC Davis Graduate Studies Travel Award**
- 2015-2017 **Summer Statistics Research Fellowship Award, UC Davis**
- 2011 **Indian Academy of Sciences Summer Research Fellowship**
- 2009-2014 **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship**, Department of Science and Technology (DST), Government of India

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## Preprints and Publications

- 2025+ **LLmFPCA-detect: LLM-powered Multivariate Functional PCA for Anomaly Detection in Sparse Longitudinal Texts**,  
-with P. Dubey, A. Guha, Z. Zhou, Q. Wu and X. Huo, arxiv identifier: <https://arxiv.org/abs/2512.14604>, Submitted to ICLR 2026.
- 2025+ **High-Dimensional Sparse Clustering via Iterative Semidefinite Programming Relaxed K-Means**,  
-with J. Mun and Y. Fan, arxiv identifier: <https://arxiv.org/abs/2505.20478>, Submitted to AISTATS 2026.
- 2025+ **DFNN: A Deep Fréchet Neural Network Framework for Learning Metric-Space-Valued Responses**,  
-with K. Kim and Y. Chen, arxiv identifier: <https://arxiv.org/abs/2510.17072>, Submitted to the Journal of Machine Learning Research.
- 2025+ **DiPMInd: Distance Profile based Mutual Independence testing for random objects.**,  
-with Y. Chen, arxiv identifier: <https://arxiv.org/abs/2412.06766>, Reject and Resubmit in The Annals of Statistics.

- 2025+ **Change Point Detection for Random Objects using Distance Profiles.**,  
-with M. Zheng, arxiv identifier: <https://arxiv.org/abs/2311.16025>, Under Major Revision in the Journal of the American Statistical Association.
- 2025 **Online Network Change Point Detection With Missing Values and Temporal Dependence**,  
-with H. Xu and Y. Yu, arxiv identifier: <https://arxiv.org/abs/2110.06450>, Journal of Time Series Analysis (2025).
- 2024 **Metric Statistics: Exploration and Inference for Random Objects With Distance Profiles.**,  
-with Y. Chen and H.G. Müller, arxiv identifier: <https://arxiv.org/abs/2202.06117>, Annals of Statistics 52.2 (2024): 757-792
- 2022 **Learning Delay Dynamics for Multivariate Stochastic Processes, With Application to the Prediction of the Growth Rate of COVID-19 Cases in the United States**,  
-with Y. Chen, Á. Gajardo, S. Bhattacharjee, C. Carroll, Y. Zhou, H. Chen and H.G. Müller., arxiv identifier: <https://arxiv.org/abs/2109.07059>, Journal of Mathematical Analysis and Applications 514.2 (2022): 125677
- 2021 **Modeling time varying random objects and dynamic networks**,  
-with H.G. Müller, arxiv identifier: <https://arxiv.org/abs/2104.04628>, Journal of the American Statistical Association (2021): 1-16
- 2021 **Modeling Sparse Longitudinal Data in Early Neurodevelopment**,  
-with Y. Chen, P. Dubey, H.G. Müller, J.L. Wang, M. Bruchhage, S. Deoni and RESONANCE Consortium., pubmed identifier: <https://pubmed.ncbi.nlm.nih.gov/33273598/>, NeuroImage 237 (2021): 118079
- 2020 **Time-Dynamics of COVID-19**,  
-with C. Carroll, S. Bhattacharjee, Y. Chen, P. Dubey, J. Fan, A. Gajardo, X. Zhou, H.G. Müller, J.L. Wang, pubmed identifier: <https://pubmed.ncbi.nlm.nih.gov/33273598/>, Scientific reports 10.1 (2020): 1-14
- 2020 **Fréchet change point detection**,  
- with H.G. Müller, Annals of Statistics, arxiv identifier: <https://arxiv.org/abs/1911.11864>  
The Annals of Statistics 48.6 (2020): 3312-3335
- 2020 **Functional models for time-varying random objects (Discussion Paper)**,  
- with H.G. Müller, arxiv identifier: <https://arxiv.org/abs/1907.10829>, Journal of the Royal Statistical Society: Series B (Statistical Methodology) 82.2 (2020): 275-327

- 2020 **Fréchet analysis of variance for random objects**,  
-with H.G. Müller, arxiv identifier: <https://arxiv.org/abs/1710.02761>, *Biometrika* 106.4 (2019): 803-821
- 2015 **Modeling bimodal discrete data using Conway-Maxwell-Poisson Mixture Models**,  
-with P. Sur, Galit Schmueli, Smarajit Bose and P. Dubey, arxiv identifier: <https://arxiv.org/abs/1309.0579>, *Journal of Business & Economic Statistics* 33.3 (2015): 352-365

## Presentations

### Invited Workshops/Programs

- 2023 **Harnessing the Power of Latent Structure Models and Modern Big Data learning**, *Institute for Advanced Study in Mathematics, Hangzhou, China.*
- 2023 **Workshop on Change Point Analysis**, *Department of Statistics, University of Warwick*
- 2022 **Structural Breaks and Shape Constraints**, *International Center for Mathematical Sciences, Edinburgh*
- 2021 **Geometric Methods in Optimization and Sampling (Long Term Participant)**, *Simons Institute for the Theory of Computing, University of California, Berkeley*

### Invited Talks

- 2026 **International Conference on Data Management, Analytics & Innovation (ICDMAI) 2026 (Distinguished Speaker)**, *Kolkata*
- 2025 **Joint Meetings of 2025 Taipei International Statistical Symposium and the 13th ICSA International Conference**, *Academia Sinica, Taipei, Taiwan*
- 2025 **EcoSta**, *Waseda University*
- 2025 **Joint Statistical Meetings (session on “Breakthroughs in Inferences for Diverse Complex Data”)**, *Nashville, Tennessee*
- 2025 **International Indian Statistical Association Conference**, *University of Nebraska, Lincoln*
- 2025 **Department of Statistics**, *Texas A&M University*
- 2024 **International Indian Statistical Association Conference**, *Cochin University of Science and Technology, Cochin*
- 2024 **2024 IMS International Conference on Statistics and Data Science (ICSDS)**, *Nice*
- 2024 **Statistical Learning and Data Science Conference**, *Newport Beach*
- 2024 **Department of Statistics**, *University of Illinois, Chicago*

- 2024 **Joint Statistical Meetings** (session on “New Developments in Non-Euclidean Statistics”), *Portland, Oregon*
- 2024 **Theory and Foundations of Statistics in the Era of Big Data**, *Florida State University*
- 2023 **2023 IMS International Conference on Statistics and Data Science (ICSDS)**, *Lisbon*
- 2023 **Stat Math Unit, Indian Statistical Institute, Kolkata**
- 2023 **IMS Young Mathematical Scientists Forum — Statistics and Data Science**, *National University of Singapore*
- 2023 **Department of Statistics**, *University of California, Riverside*
- 2023 **Neyman Seminar, Department of Statistics**, *University of California, Berkeley*
- 2023 **12th ICSA International Conference**, *Chinese University of Hong Kong*
- 2023 **Joint Statistical Meetings** (session on “Current Advances in Complex Data Analysis”), *Toronto*
- 2023 **2023 WNAR/IMS annual meeting**, *Anchorage*
- 2023 **Statistics and Stochastics Seminar**, *Massachusetts Institute of Technology*
- 2023 **Probability and Statistics Seminar**, *University of Southern California*
- 2023 **Geometric Methods in Optimization and Sampling Reunion Workshop**, *Simons Institute for the Theory of Computing*
- 2022 **International Indian Statistical Association Conference**, *Indian Institute of Science, Bengaluru*
- 2022 **Department of Biostatistics**, *University of California, Los Angeles*
- 2022 **Stat Math Unit, Indian Statistical Institute, Kolkata**
- 2022 **Joint Statistical Meetings** (session on “Analysis of Random Objects”), *Washington, DC*
- 2022 **IMS Annual Meeting 2022** (session on “Statistical inference for continuous-time stochastic processes”), *London*
- 2022 **International Symposium on Nonparametric Statistics** (postponed because of COVID 19), *Paphos*
- 2022 **1st CSDA & EcoSta Workshop on Statistical Data Science** (postponed because of COVID 19), *Bologna*
- 2022 **International Conference on Econometrics and Statistics (EcoSta 2022)**, *Ryukoku University, Kyoto*
- 2022 **Department of Statistical Science**, *Duke University*
- 2022 **Department of Statistics**, *Brigham Young University*

- 2021 **Department of Mathematics and Statistics**, *Auburn University*
- 2021 **CMStatistics 2021**, *14<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics*, King's College London
- 2021 **EcoSta 2021**, *4<sup>th</sup> International Conference on Econometrics and Statistics (virtual)*
- 2021 **Statistics Seminar**, *University of Cambridge*
- 2021 **Department of Math, Stat & Comp Sci**, *University of Illinois Chicago*
- 2021 **Department of Statistics**, *University of Pittsburgh*
- 2020 **CMStatistics 2020**, *13<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics (virtual)*
- 2020 **Department of Statistics**, *University of Virginia*
- 2020 **Department of Statistics**, *Pennsylvania State University*
- 2020 **Department of Statistical Sciences**, *University of Toronto*
- 2020 **Department of Mathematics**, *University of California, San Diego*
- 2020 **Department of Statistics**, *Stanford University*
- 2020 **Department of Statistics**, *University of California, Los Angeles*
- 2020 **Statistics Department**, *Wharton, University of Pennsylvania*
- 2020 **Department of Statistics and Data Science**, *Cornell University*
- 2020 **Courant Institute of Mathematical Sciences and Center for Data Science**, *New York University*
- 2020 **Department of Statistics**, *University of Minnesota*
- 2020 **Department of Statistics and Operations Research**, *University of North Carolina, Chapel Hill*
- 2020 **Department of Statistics**, *University of British Columbia*
- 2020 **Department of Statistics**, *University of Washington*
- 2019 **Department of Data Sciences and Operations**, *USC Marshall School of Business*
- 2019 **Department of Statistics**, *Iowa State University*
- 2019 **Discussion Paper meeting of the Research Section Committee, (October 2019)**, *Royal Statistical Society, London*
- Contributed Talks**
- 2019 **Joint Statistical Meetings**, *Denver, Colorado*
- 2018 **Joint Statistical Meetings**, *Vancouver, BC*
- 2018 **New Researcher's Conference**, *Vancouver, BC*
- 2018 **International Indian Statistical Association Conference**, *Gainsville, Florida*

## Posters

- 2023 **Joint Statistical Meetings Opening Mixer (invited)**, *Toronto*
- 2023 **Statistical Foundations of Data Science and their Applications (invited)**, *Princeton University*
- 2019 **Fourth Workshop on Higher-Order Asymptotics and Post-Selection Inference**, *Washington University in St. Louis*
- 2019 **UC Davis Peter Hall Conference: Statistics and Machine Learning**, *Davis, California*

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## Funding

- 2023-2026 **Division of Mathematical Sciences Award #2311034, National Science Foundation.**, *Project Title: "Geometry Aware Exploratory Data Analysis and Inference Methods for Complex Data" (Solo PI)*, (\$275,000).
- 2022-2023 **Zumberge Individual Research Award**, (\$23,520).

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## Undergraduate, PhD and Postdoc Mentoring

- 2024- **Ao Sun (postdoc co-advised with Prof. Yingying Fan)**, *DSO Department, USC Marshall Business School*
- 2024- **Jongmin Mun (PhD student co-advised with Prof. Yingying Fan)**, *DSO Department, USC Marshall Business School*
- 2023- **Jim Jin (Undergraduate student)**, *DSO Department, USC Marshall Business School*
- 2022-2024 **Minxing Zheng (admitted as a PhD Student, graduated with MS in Business Research.)**, *DSO Department, USC Marshall Business School*
- 2017-2019 **NSF Research Training Group**, *Department of Statistics, UC Davis*, undergraduate project advising
- *Functional data analysis of US baby name densities* with Zhihao Li
  - *Estimating taxi demand in New York* with Wangqian Ju
  - *Classification of brain connectivity maps of schizophrenic and normal subjects* with Jialu Ran

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## Courses Taught

- Spring 2024-2026 **DSO 530 (Applied Modern Statistical Learning Methods)**, *USC Marshall Business School*
- Spring 2022, 2023 **BUAD 310 (Applied Business Statistics)**, *USC Marshall Business School*
- Winter 2021 **STATS/BIO 141-Biostatistics**, *Stanford University*

Fall 2020 **STATS 116- Theory of Probability**, *Stanford University*  
 Spring 2019 **STAT 131A-Introduction to Probability Theory**, *University of California, Davis*  
 Summer 2018 **STAT 13- Elementary Statistics**, *University of California, Davis*

## Service

### Editorial

2025-present **Associate Editor of Sankhya B: The Indian Journal of Statistics**

### Referee Service

AoS; AoAS; Stat; JRSS-B; JASA (Theory and Methods); Biometrika; JMLR; Journal of Econometrics; EJS; PLOS ONE; CSDA; Statistics and Computing; CJS; Bernoulli; JCGS; Statistica Sinica; Statistical Science; JMA; Biometrics; The American Statistician; JSPI.

### Service (Other)

## Internal

2025 **Co-Director of the DSO Summer Scholars Program 2025**  
 2025 **Served as a Faculty Host in the USC Jumpstart Program 2025**  
 2025 **USC Marshall School of Business Dean's Review Committee**  
 2025 **Co-chair of the Statistics Faculty Hiring Committee**  
 2025 **Co-chair of the USC Statistics Empowering Data Science (SEEDS) Conference 2025 Organizing Committee**  
 2023-present **Creator and Maintainer of the website of the Statistics Group (<https://usc-dso-stat-group.github.io/>) in the DSO Department at USC Marshall**  
 2022-present **Organizer of the Statistics Seminar series, DSO Department, USC Marshall Business School**

## External

2027+ **Co-organizer of the workshop "Non-Euclidean Object Data Analysis" sponsored by NUS IMS.**  
 2026 **Co-organizer of the workshop "Random Objects and Metric Statistics for Connectomics", part of the long program "Connectomics: Non-Euclidean Data Analysis for Brain Structure and Function, Institute for Mathematical and Statistical Innovation (IMSI), Fall 2026".**  
 2025 **Served in the Program committee of the International Indian Statistical Association (IISA) Conference**



- 2024-2025 Served as a mentor in the National Institute of Statistical Sciences (NISS) writing workshop, mentoring early-career faculty and graduate students in academic writing and publication development.
- 2024 Served in the Program committee of the Statistical Learning and Data Science (SLDS) Conference
- 2023 Served as a panelist for the National Science Foundation's Division of FY24 Mathematical Sciences Postdoctoral Research Fellowship competition.
- 2021-present Served in the Student Paper Award committee for the ASA's Section on Nonparametrics, Statistical Learning and Data Science (SLDS) section and the Indian International Statistical Association (IISA) 2024 Student Paper Competition
- 2020-2021 Organizer of the Statistics Seminar series, Department of Statistics, Stanford University