

Savita Pareek

Postdoctoral Associate

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EDUCATION	<p>Ph.D., Statistics, Indian Institute of Technology Bombay, India 2018 - 2023 <i>Dissertation</i>: On Some Problems in Mixed-effect Models, CPI: 9.0/10 <i>Advisor</i>: Prof. Siuli Mukhopadhyay</p> <p>M.Sc., Mathematical Sciences - Statistics 2014 - 2016 Banasthali University, India, Percentage Marks: 86.72/100</p> <p>B.Sc., Mathematics, Physics, and Computer Science 2011 - 2014 Banasthali University, India, Percentage Marks: 84.06/100</p>
PROFESSIONAL EXPERIENCE	<p>Postdoctoral Associate, Massachusetts Institute of Technology, USA Jan 2026 – Present MIT Sloan School of Management and Schwarzman College of Computing (SERC) <i>Mentors</i>: Prof. Rahul Mazumder, Prof. Suzanne Flynn</p> <ul style="list-style-type: none">• Developing Interpretable ML methods for linguistic data processing to diagnose Alzheimer’s.• Cohort leader for the Social and Ethical Responsibilities of Computing (SERC) program. <p>Postdoctoral Research Fellow, Auburn University, USA Aug 2024 – Dec 2025 Department of Mathematics and Statistics; <i>Mentor</i>: Prof. Roberto Molinari</p> <ul style="list-style-type: none">• Developed differentially private equivalence tests for two-sample means and proportions.• Established simulation-calibrated validity under privacy constraints and implemented them in the <code>cTOST</code> R package.• Multiple-Principal Investigator on an NIH R21 proposal leading grant development.• Proposed a Rashomon-based inference for mental health heterogeneity, including ADHD. <p>Research Officer & Manager, Reserve Bank of India (RBI), Mumbai Feb 2021 – Aug 2024 Department of Statistics and Information Management</p> <ul style="list-style-type: none">• Designed an International Financial Services Centres (IFSC) foreign exchange information-flow system, issuing an official circular standardizing FX transactions and positions.• Led compilation and validation of millions of monthly transaction-level records for India’s official Balance of Payments statistics. <p>Ph.D. Research Projects, Indian Institute of Technology Bombay, India Jan 2018 - Oct 2023</p> <ul style="list-style-type: none">• Mixed-effects models for crossover trials with missing and skewed responses, using Monte Carlo EM, applied to gene expression data from a 3×3 study.• Model-based clustering of gene expression time series, capturing temporal heterogeneity via mixed-effects models and Dirichlet process priors, applied to <i>Streptomyces coelicolor</i>.
TEACHING & MENTORSHIP	<p>Instructor Auburn University, USA</p> <ul style="list-style-type: none">• Fundamentals of Statistical Inference I (STAT 5510/6610, 11 students) Fall 2025 New graduate-level course; prepared original lectures, assignments, and assessments. Teaching evaluation (out of 6.0): mean 5.8, median 6.0.• Introduction to Data Science (STAT 4000, 46 students) Spring 2025 Second departmental offering; refined lectures, projects, and assessments. Teaching evaluation (out of 6.0): mean 3.2.• Probability & Statistics II (STAT 3610, 21 students) Fall 2024 Teaching evaluation (out of 6.0): median 4.0. <p>Teaching Assistant Indian Institute of Technology Bombay, India</p> <ul style="list-style-type: none">• Introduction to Probability (SI 427) Fall 2020 Led weekly tutorials; graded assignments and exams.• Regression Analysis (SI 422) Spring 2019, 2020 Conducted R programming labs; assisted student projects; graded exams. <p>Mentorship</p> <ul style="list-style-type: none">• Undergraduate student, Honors Contract project Spring 2025• Graduate student, Rashomon sets in multi-model inference 2024-2025

- Research intern, India's current account sustainability Spring 2021
- Summer interns, Power BI dashboard, and the services trade Summer 2022, 2023
- Tutored Science & Math to students from underserved communities 2018-19

JOURNAL PUBLICATIONS	<p>Pareek, S. and Ghosh, S. (2026). <i>Semiparametric Dynamic Copula Models for Portfolio Optimization</i>. Journal of Data Science, Minor revision. [copula]</p> <p>Pareek, S., Insolia, L., Molinari, R., and Guerrier, S. (2026). <i>Equivalence Testing Under Privacy Constraints</i>. Under review (Statistics in Medicine)</p> <p>Pareek, S., Das, K., and Mukhopadhyay, S. (2025). <i>Likelihood-based inference for skewed responses in a crossover trial setup</i>. Communications in Statistics - Simulation and Computation. [cssc]</p> <p>Eady, S., Ulloa, I. N., Pareek, S., and Zabala, M. (2025). <i>The Effects of Psychosocial Stress on Surface Electromyography Signals of the Lower Leg During Isometric Contractions</i>. Submitted</p> <p>Pareek, S., Das, K., and Mukhopadhyay, S. (2023). <i>Likelihood-based missing data analysis in crossover trials</i>. Brazilian Journal of Probability and Statistics. [bjps]</p> <p>Pareek, S., Khetan, M., Mukhopadhyay, S., and Das, K. (2021). <i>Clustering gene expression time series data embedded in a non-parametric setup</i>. JSR (Special Issue). [jsr]</p>
POLICY & BOOK CHAPTERS	<p>Misra, A., Pareek, S., and Saggar, S. (2024). <i>Capturing e-commerce transactions from the travel group of BPM6: An Indian experience</i>. In External statistics in a fragmented and uncertain world (Vol. 62). [BIS]</p> <p>Biswas, D., Pareek, S., and Saggar, S. (2022). <i>Freight costs of India's trade</i>. RBI Bulletin. [RBI]</p>
GRANTS & FUNDING	<p>NIH R21 Proposal, MPI: Pareek, S., and Molinari, R.; Co-PI: Deshpande, G. <i>Personalizing Mental Disorder Diagnosis with Rashomon Inference</i>. Submitted, Oct 2025.</p>
SELECTED WORK IN PROGRESS	<p>Pareek, S., Voirol, L., and Molinari, R. <i>Towards Scalable Gaussian Process Regression with a Moment based Estimation Procedure</i>.</p> <p>Loureiro-Ferreira, T., Voirol, L., Pareek, S., Montillet, J.-P., and Guerrier, S. <i>Hypothesis Testing for Tectonic Velocities from Spatially Correlated GNSS Time Series</i>.</p>
HONORS & AWARDS	<p>Research Awards</p> <ul style="list-style-type: none"> • Early Career Scholarship, Symposium on Data Science and Statistics (SDSS) 2025 • National Science Foundation (NSF) Travel Award, IISA Conference 2024 • Young Scientist Award, Society of Statistics and Computer Applications (SSCA), India 2024 • CWS Prof. Suddhendu Biswas Student Travel Award 2023 • International Indian Statistical Association (IISA) Student Travel Award 2022 • Gold Medal for Best Student in Science, Banasthali University, India 2016 <p>Professional Activity Awards</p> <ul style="list-style-type: none"> • Certificate of Excellence, RBI Induction Program, India 2023 • Institute Organizational Special Mention, for IITB Hostel General Secretary leadership 2021 • Institute Sports Color, IIT Bombay, for excellence in competitive sports 2021 • Best Office Bearer, IITB Hostel 11, for exemplary service to the hostel community 2020 <p>Competitive Exams</p> <ul style="list-style-type: none"> • 3rd in RBI Officer Exam (Statistics): among 200k 2020 • 6th in GATE (Mathematics): among 6k 2017 • 24th in CSIR-NET (Mathematical Sciences): among 40k 2017
PRESENTATIONS	<p>Invited Talks</p> <ul style="list-style-type: none"> • CFE-CMStatistics Conference, London (virtual) Dec 2025 • Seminar Speaker, Clemson University (virtual) Sep 2025 • IISA International Conference on Statistics, Kochi, India Dec 2024 • External Statistics Conference, Banco de España, Madrid Feb 2024 • SSCA International Conference on Statistics, Banasthali, India Feb 2024 • Reserve Bank Staff College, Chennai, India (virtual) Oct 2023

Contributed Talks/Posters

- 10th Workshop on Biostatistics & Bioinformatics, Atlanta (poster) May 2025
- Symposium on Data Science & Statistics (SDSS), Salt Lake City May 2025
- ISPS International Conference on Statistics, Allahabad, India Feb 2024
- European Meeting of Statisticians (EMS), Poland (poster) Jul 2023
- ENAR Spring Meeting, Nashville, Tennessee Mar 2023
- IISA International Conference on Statistics, Bangalore, India Dec 2022

PROFESSIONAL ACTIVITIES

Journal Peer Review

- Journal of Statistical Theory and Practice
- Journal of Investigative Medicine

Service

- Session Chair: Topics in High-Dimensional and Network Data, IISA Conference 2024
- Contributed to ‘State of the Economy’ articles, RBI Monthly Bulletin 2022–2023
- Committee Member, Placement Cell, IIT Bombay 2021
- Executive Member, Post Graduate Academic Council, IIT Bombay 2020
- Volunteer for IWM and IISA conference, IIT Bombay 2019
- General Secretary, Hostel 11, IIT Bombay 2019
- Led yoga and wellness workshops, inspiring over 2k to live healthier 2020 - present

Membership

- American Statistical Association (ASA)
- Caucus for Women in Statistics & Data Science (CWS)
- International Indian Statistical Association (IISA)
- Society of Statistics, Computer & Applications (SSCA)

Training & Development

- Statistical Learning with Python, Stanford Online, edX 2025
- Preparing Future Faculty, Auburn University 2025
- Course (Re)Design, Auburn University 2024, 2025
- Compilation of National Accounts, 1-week, NSSTA, Noida, India 2022
- JAIIB Certification, Indian Institute of Banking & Finance 2022
- Remittance Statistics, 2-day, IMF’s Statistics Department (virtual) 2022
- Trade in Services Statistics, 6-week, UNSD, WTO, and UNCTAD (virtual) 2021
- BOP & IIP Statistics, 3-month, IMF Institute (virtual) 2021
- Power BI Data Analytics, 2-day, RBSC, Chennai, India 2021
- Yoga & Wellness Certifications (500-hr YTT; 1000-hr SKY Coach) 2021–2025
- Mathematics for Data Science, 2-week, IISC Bangalore, India 2019

COMPUTER SKILLS

- Extensive programming experience with R
- Programming experience with Python, Mathematica, and C++,

REFERENCES

Prof. Roberto Molinari

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Prof. Sujit Ghosh

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