



MOUTUSHI CHATTERJEE

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Current Position:

Assistant Professor, Statistical Quality Control & Operations Research Unit, Indian Statistical Institute, Bangalore.

Previous Employments:

- Assistant Professor, Department of Statistics, Lady Brabourne College, Kolkata (affiliated to University of Calcutta) for 8 years and 6 months.
- Manager (Scale II) at Union Bank of India, Overseas Branch, Kolkata for 2 years.

Academic Qualification:

Name of Examination	University/ Institution	Year of Passing
Ph. D.	Indian Statistical Institute	2017
M.Tech [Quality, Reliability and Operations Research]	Indian Statistical Institute	2009
M.Sc. [Statistics]	University of Kalyani, West Bengal, India	2007
B.Sc. [Statistics (Hons.)]	University of Calcutta, India	2005

Academic Work Experience:

- More than eight years of full-time teaching experience in Statistics.
- Acted as the Head examiner of Operations Research 'R software' at B. Sc. (Statistics Hons.) Calcutta University.
- Acted as the Head examiner of Operations Research at B. Sc. (Statistics General) Calcutta University.
- Acted as content writer in E-Pathshala, a joint initiative by Ministry of Human Resource Development, Government of India and National Council of Educational Research and Training.

Courses Taught:

1. Descriptive Statistics/ Exploratory Data Analysis
2. Multivariate Statistical Analysis
3. Statistical Inference
4. Statistical Quality Control
5. Operations research
6. Vital Statistics and Demography
7. Introduction to data analysis using R and MINITAB

Consultancy Projects:

1. Preparation of merit lists for admission to engineering and pharmaceutical colleges. ACPC, **Government of Gujarat**, 2013 – 2014. (Worked as team member under Principal investigator Prof. Ashis Kumar Chakraborty, SQC & OR Unit, Indian Statistical Institute, Kolkata).
2. Preparation of merit lists for admission to engineering and pharmaceutical colleges. **Government of Maharashtra**, 2014. (Worked as team member under Principal investigator Prof. Ashis Kumar Chakraborty, SQC & OR Unit, Indian Statistical Institute, Kolkata).

Research Interests:

- i) Statistical quality control,
- ii) Supplier selection problems,
- iii) Operations Research,
- iv) Multivariate statistical analysis.

Publications:

▪ **Book**

Chakraborty, A. K., Chatterjee, M. *Handbook of multivariate process capability indices*, Chapman and Hall / CRC Press (Taylor & Francis Group), 2021. ISBN: 9780429298349. DOI: <https://doi.org/10.1201/9780429298349>

▪ **In Edited Book:**

1. Chakraborty, A. K., Chatterjee, M. **Univariate and Multivariate Process Capability Analysis for Different Types of Specification Limits**. Quality and Reliability Management and Its Applications, Edited by Hoang Pham. Springer London, pp. 47 – 81, 2016. DOI <https://doi.org/10.1007/978-1-4471-6778-5>. (2016)

2. Chakraborty, A. K., Gijo, E. V., Das, A., Chatterjee, M. **Hardware and Software Reliability, Verification and Testing**. Accepted for publication in the 2nd edition of the Springer handbook of Engineering Statistics, edited by Prof. Hoang Pham. In Press.

Publications in International Peer-reviewed Journals:

- i) Chatterjee, M. Multivariate Supplier Selection for Asymmetric Specification Region Using Price and Quality. **Annals of Operations Research**, 2022. DOI: <https://doi.org/10.1007/s10479-022-04678-4>. (Impact Factor: 4.820)
- ii) Chatterjee, M. *Two Phase Multivariate Supplier Selection for Symmetric Specification Region and Correlated Quality Characteristics*. **Quality and Reliability Engineering International**, Vol. 38, Issue 7, pp. 3291 – 3303, 2022. (Impact Factor: 3.007)
- iii) Chakraborty, A. K., Chatterjee, M. **Distributional and Inferential Properties of Some New Multivariate Process Capability Indices for Symmetric Specification Region**. *Quality and reliability engineering international*, Wiley, Vol. 37, pp. 1099 - 1115, 2021. (Impact Factor: 3.007)
- iv) Chatterjee, M. *Impact of Multivariate Normality Assumption on Multivariate Process Capability Indices*, **Communications in statistics – Case studies and data analysis**, Taylor and Francis, Vol.5, pp. 314 - 345, 2019. (Cite Score 0.6)
- v) Chatterjee, M. *Exact expression for the expectation of estimated C_{pk} based on control chart information and the corresponding process capability control charts*, **Journal of statistical computation and simulation**, Taylor and Francis, Vol. 87, pp. 1025 – 1047, 2017. (Impact Factor: 1.225)
- vi) Chatterjee, M., Chakraborty, A. K. *Unification of some multivariate process capability indices for asymmetric specification region*, **Statistica Neerlandica**, Wiley, Vol. 71, pp. 286- 306, 2017. (Impact Factor: 1.239)
- vii) Chatterjee, M., Chakraborty, A. K. *A simple algorithm for calculating values for folded normal distribution*, **Journal of statistical computation and simulation**, Taylor and Francis, Vol. 86, pp.293 – 305, 2016. (Impact Factor: 1.225)
- viii) Chatterjee, M., Chakraborty, A. K. *Some Process Capability Indices for Unilateral Specification Limits - Their Properties and the Process Capability Control Charts*, **Communications in Statistics-Theory and Methods**, Taylor and Francis, Vol. 45, pp. 7130 – 7160, 2016. (Impact Factor: 0.863)
- ix) Chatterjee, M., Chakraborty, A. K. *Distributions and process capability control charts for C_{pu} and C_{pl} using subgroup information*, **Communications in Statistics-Theory and Methods**, Taylor and Francis, Vol. 44, pp. 4333 – 4353, 2015. (Impact Factor: 0.863)
- x) Chatterjee, M., Chakraborty, A. K. *A superstructure of process capability indices for circular specification region*, **Communications in Statistics-Theory and Methods**, Taylor and Francis, Vol. 44, pp. 1158 – 1181, 2015. (Impact Factor: 0.893)
- xi) Chatterjee, M., Chakraborty, A. K. *Exact Relationship of $C^{*}pk$ with Proportion of Nonconformance and Some Other Properties of $C^{*}p(u, v)$* , **Quality and Reliability Engineering International**, Wiley, Vol. 30, pp. 1023 – 1034, 2014. (Impact Factor: 3.007)

- xii) Chakraborty, A. K., Chatterjee, M. *On multivariate folded normal distribution*, **Sankhya (Series - B)**, Springer, Vol. 75, pp. 1 – 15, 2013. (h-index 6)
- xiii) Chatterjee, M., Chakraborty, A. K. *Univariate process capability indices for unilateral specification region – A review and some modifications*. **International journal of reliability, quality and safety engineering**, World Scientific publishers, Vol. 19, pp. 1250001 - 1250020, 2012. (h-index 27)
- xiv) Chatterjee, M., Majumdar, S. K. *Relevance vector machine based defect modelling and optimisation – an application*, **International journal of operational research**, Inderscience publishers, Vol. 12, pp. 56 – 78, 2011. (h-index 24)

Peer Reviewed Conference Proceedings

1. **Superstructure of multivariate process capability indices for asymmetric tolerance** with Ashis Kumar Chakraborty, International Congress on Productivity, Quality, Reliability, Optimization and Modeling, I. S.I. Delhi, Vol. 1, pp. 635 – 647, 2011.
2. **Some properties of $C_G(u, v)$** with Ashis Kumar Chakraborty, International Conference on Quality & Reliability Engineering, I. S. I. Bangalore, pp. 203 – 212, 2013.
3. **Distribution and process capability control chart of C_{pm}^U** with Ashis Kumar Chakraborty, International Conference on Quality, Reliability and Operations Research, I. S. I., Mumbai, pp. 1 – 8, 2013.

Paper Presentations in International Conferences

1. **Superstructure of multivariate process capability indices for asymmetric tolerances**, International Congress on Productivity, Quality, Reliability, Optimization and Modeling, , New Delhi, 2011.
2. **A Review on univariate process capability indices for unilateral specification**, Contemporary Issues and Applications of Statistics, Kolkata, 2012.
3. **Some properties of $C_G(u, v)$** , International Conference on Quality & Reliability Engineering, Bangalore, 2012.
4. **Distribution and process capability control chart of C_{pm}^U** , International Conference on Quality, Reliability and Operations Research, 2013.
5. **Estimation of the Plug-in Estimator of Cpk, A Popular Process Capability Index, Based on Control Chart Information and the Corresponding Process Capability Control Charts**. 9th Triennial symposium Calcutta Symposium on Probability and Statistics, 2015.
6. **Impact of Multivariate Normality Assumption On Multivariate Process Capability Analysis: Revisiting Sultan's (1986) Data**. Platinum Jubilee International Conference on "Applications of Statistics", 2016.

7. *Application of process capability analysis in supplier selection problems.* 10th Triennial symposium Calcutta Symposium on Probability and Statistics, 2018.
8. *Importance of threshold value in process capability analysis based supplier selection problems.* International seminar on sustainable development and inclusive growth: methods to methodology. Kolkata, 2020.

Workshops Attended:

1. Workshop on reliability theory and survival analysis. Indian statistical Institute, November, 2017.
2. Workshop on emerging areas in applied statistics, Indian statistical Institute, March, 2013.
3. Workshop on Data mining and its industrial Applications. Indian statistical Institute, January, 2013.

Invited Talks:

- i) 'Purpose of R Programming in Management Studies'. Indian Institute of Social Welfare & Business Management (IISWBM), August, 2018.
- ii) 'Statistics using R'. Pingla Thana Mahavidyalaya, 2nd and 3rd August, 2019.
- iii) 'Statistics for All'. PhD course work at Department of Chemical Technology, University of Calcutta, January, 2020.
- iv) 'Introduction to Statistics'. PhD course work at Department of Chemical Technology, University of Calcutta, 2022.
- v) 'Use of R software in Nursing studies', PhD course work for nurses at R. G. Kar Hospital, 2022

Editorial Activities:

Have acted as reviewer for the following international journals:

- i) Technometrics
- ii) Quality and reliability engineering international,
- iii) International journal of production research,
- iv) International journal of management science and engineering management,
- v) Computers and industrial engineering
- vi) Journal of statistical computation and simulation

Software known:

- a) R
- b) MINITAB
- c) SPSS

Awards and Recognitions:

- a) Stood 8th in State level scholarship examination for 4th standard students in 1994
- b) Received National Scholarship for performance on Secondary Examination in 2000.
- c) Stood first class 2nd in M. SC in 2007
- d) Was placed in 1st division with distinction in M. Tech (QROR) in 2009
- e) Qualified National Eligibility Test (NET) in Mathematical Science in 2009
- f) Received Ph. D. fellowship from Indian Statistical Institute in 2009 (started availing the fellowship from August, 2011)
- g) Received Best paper award in International Conference on Quality, Reliability and Operations research (ISI, Mumbai) in 2013.
- h) Received Best Researcher Award, International Scientist Awards on Engineering, Science and Medicine, 2021.

Professional Training and Certification:

1. Received professional training in Foreign exchange banking from Foreign Exchange Dealers' Association of India (FEDAI) in 2009.
2. Successfully completed UGC- sponsored orientation programme for newly appointed faculty members in colleges conducted by University of Calcutta in 2018 and obtained Grade A.
3. Successfully completed UGC sponsored refresher course on 'The U. N. and the global perspectives of human rights' and obtained Grade A in 2018.
4. Successfully completed UGC sponsored refresher course on 'Research Methodology and Data Analysis' and obtained Grade A+ in 2022.