

fuzzy specification limits. Computation of confidence intervals for PCIs for various  $C_{pk}$  is done through fuzzy approach. Numerical examples are given to illustrate the method.

Thus the thesis deals with deriving the lower confidence limits for process capability indices under one-way random effects model both in balanced and unbalanced environment and for autocorrelated data. It has many applications in industrial sector, business field, time series modelling and production scenario. The results of the study have been accepted by or communicated to leading International and National journals. The same have been presented both in many International and National Conferences.

## **Papers Accepted by/Communicated to Journals**

1. Jane A. Luke and K. K. Jose (2006). Exponentially Weighted Moving Average Control Chart and Autoregressive Processes, *STARS: International Journal*, **7(1)**, 23-37.
2. Jose, K. K. and Jane A. Luke (2010). Generalized Confidence Intervals for Variance Components in Two-Way Random Effect model with Balanced Data, *Proceedings of UGC and KSCSTE Sponsored Seminar on New Trends in Applied Statistical Methodology*, 59-72.
3. K. K. Jose and Jane A. Luke (2012). Confidence Intervals for Process Capability Indices for the Unbalanced One-Way Random Effect ANOVA Model, *Quality and Reliability Engineering International*, **28**, 371-375.
4. K. K. Jose and Jane A. Luke (2011). Comparing Two Process Capability Indices Under Balanced One-Way Random Effect Model, *Quality and Reliability Engineering International*, DOI: 10.1002/qre.1297, Wiley Online Library, John Wiley & Sons Ltd.
5. Jane A. Luke and K. K. Jose (2011). Confidence Intervals for Process Capability Index  $C_{pk}$ , *Proceedings of the UGC-Sponsored National Seminar on Discrete Mathematics & Computational Statistics*, 41-53.
6. K. K. Jose and Jane A. Luke (2012). On Confidence Intervals for Process Capability Indices in One-Way Random Model, *Communications in Statistics-Simulation and Computation*, **41(10)**, 1805-1815.
7. K. K. Jose and Jane A. Luke (2012). Comparison Between Two Process Capability Indices Using Generalized Confidence Intervals, *International Journal of Advanced Manufacturing Technology*, (communicated-under revision).
8. Jane A. Luke and K. K. Jose (2012). Confidence Intervals for Process Capability Indices When Data Exhibits Autocorrelation, *Journal of Applied Statistics*, (communicated-under revision).
9. Jane A. Luke and K. K. Jose (2012). Fuzzy Process Capability Indices, *Proceedings of National Seminar on Recent Trends in Fuzzy Mathematics and its Applications*, (in press).

## Papers Presented in International/National Conferences

1. "Process Capability Indices and Generalized Confidence Intervals in General Random or Mixed Effect Model with Balanced Data", *International Conference on Statistics and Information Analytics (ICSIA-2010)*, January 11-13, 2010, Loyola College, Chennai.
2. "Calculation of Generalized Confidence Intervals and Process Capability Indices for Variance Components in Two-Way Random Effect Model with Balanced Data", *Seminar on New Trends in Applied Statistical Methodology & Annual Conference of the Kerala Statistical Association*, February 25-27, 2010, Nirmala College, Muvattupuzha.
3. "Calibrated Generalized Confidence Intervals for Process Capability Indices in the One-Way Random Model", *International Conference on Mathematical Sciences in Honour of Professor A.M. Mathai*, January 3-5, 2011, St. Thomas College, Pala.
4. "Bootstrap Calibrated Generalized Confidence Intervals for Process Capability Index  $C_{pk}$  in the One-Way Random Model", *National Seminar on Discrete Mathematics and Computational Statistics*, June 23-24, 2011, Bishop Kurialacherry College for Women, Kottayam.
5. "On Confidence Intervals for Process Capability Indices with Respect to Unbalanced One-Way Random Effect Model", *International Conference on Statistics and Information Analytics (ICSIA-2011)*, August 25-27, 2011, Loyola College, Chennai.
6. "Fuzzy Process Capability Indices", *National Seminar on Recent Trends in Fuzzy Mathematics and its Applications*, September 22-23, 2011, Newman College, Thodupuzha.
7. "Confidence Intervals for Process Capability Index  $C_{pk}$  in the One-Way Random Model Using Satterthwaite's Method", *National Conference on Advances in Statistical Theory and Applications (ASTA-2011)*, November 16-18, 2011, Bangalore University, Bangalore.
8. "Process Capability Indices for Autocorrelated Data", *XXXI Annual Convention of Indian Society for Probability and Statistics (ISPS) and International Conference in Statistics, Probability and Related Areas*, December 19-22, 2011, Cochin University of Science and Technology, Cochin.
9. "Optimal Selection of Suppliers Using Confidence Intervals for Process Capability Indices", *UGC Sponsored National Seminar on Recent Advances in Computational Statistics-Theory and Methods*, February 17-18, 2012, Bharathidasan University, Tiruchirappalli.
10. "Confidence Intervals for Process Capability Indices Using Fuzzy Approach", *National Seminar on Recent Advances in Statistics and Related Areas & Annual Conference of Kerala Statistical Association*, March 15-17, 2012, University of Calicut, Calicut.

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