Department of Statistics & Computer Science
Faculty of Science / University of Peradeniya



Prof. Pushpakanthie Wijekoon

B.Sc. (KLN), Ph.D. (Dortmund, Germany)

Emeritus Professor

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About Me

Currently a Senior Professor, Department of Statistics and Computer Science, University of Peradeniya. Graduated from University of Kelaniya, Sri Lanka obtaining a B.Sc. Special Degree in Mathematics in 1982, and appointed as a probationary Assistant Lecturer to the Dept. of Mathematics, University of Peradeniya in December, 1983. Proceeded to University of Dortmund, Germany for postgraduate studies and completed the Ph.D. in 1990 in Statistics. Promoted to the Grade of Senior Professor of Statistics from November, 2017.

Higher Education Qualifications

PhD

University of Dortmund
Germany
(1990)

BSc

University of Kelaniya - Sri Lanka
(1982)

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Awards, Scholarships, Memberships & Fellowships

- A life member of the Institute of Applied Statistics, Sri Lanka
- Member – International Statistical Institute (https://www.isi-web.org/)
- Member - The International Society for Business and Industrial Statistics (http://www.isbis-isi.org/)
- DAAD Scholarship for Postgraduate studies - 1987
- Life member - SLAAS

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Positions Held

- Head, Dept. Stat & Computer Science, Uni. of Peradeniya, Sri Lanka- (2000-2001, 2004-2007)
- Visiting Assistant Professor, Dept. of Mathematics & Statistics, Mississippi State University, USA- (January 1998 – June 1998)
- Adjunct Professor, Dept. Mathematics & Statistics, Memorial University, Canada- (Sep 2011 – Jan. 2012)
- Chairperson, Faculty Research committee, and a member of the Senate Research Committee,- (Feb 2015- January 2017)
- Chairperson, Board of Study in Statistics & Computer Science, Postgraduate Institute of Science, Sri Lanka- (May 2016 - May 2020)
- Member, Board of Management, Postgraduate Institute of Science, Sri Lanka- (May 2016 - to date)
- Chief Editor, International Research Congress 2015 - Postgraduate Institute of Science, Sri Lanka
- Chief Editor of the Sri Lankan Journal of Applied Statistics, Sri Lanka- (August 2012 – Dec. 2014)
- Co-chairperson of the International Sri Lankan Statistical Conference: Visions of Futuristic Statistical Methodologies- (held in December, 2004)
- Coordinator of the M.Sc. programme in Applied Statistics (Feb. 2002 - May 2008), and a visiting Lecturer of M.Sc. in Applied Statistics programme and several other M.Sc. programmes
- Secretary of the Board of Study in Statistics & Computer Science.(June, 1996 to 2002), and a Board member (June, 1996 to May 2008), Postgraduate Institute of Science, University of Peradeniya
- Member – Senate Admission Committee, and Faculty Admission Committee, University of Peradeniya- (Dec 2014- January 2017)
- Member of the Editorial Committee of Ceylon Journal of Physical Science- (2009 to 2012)
- Reviewer for the International Journals; Communications in Statistics- Theory and Methods (Taylor & Francis), Communications in Statistics- Simulation and Computation (Taylor & Francis), Statistical papers (Springer), Model Assisted Statistics and Applications (IOS Press, Netherlands), IEEE Signal Processing Letters (IEEE Signal Processing Society, USA), Journal of Statistical Planning and Inference (Elsevier), Journal of Applied Probability and Statistics (ISOSS Publications), Colombian Journal of Statistics (Revista Colombiana de Estadística)
- Reviewer for the Journal of the National Science Foundation, Sri Lankan Journal of Applied Statistics, Ceylon Journal of Science, IPurse, Rescon-PGIS and many other local journals and conferences
- Senior Treasurer – Computer Society, University of Peradeniya- (1993-1996, 2002)
- Senior Treasurer – Statistical Circle, University of Peradeniya- (2012-2014)
- ...

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My Teachings

- ST203: Theory of Statistics
- ST306: Data analysis & Preparation of Reports
- ST325: Seminar
- ST401: Actuarial Statistics
- ST405: Multivariate methods II
- ST407: Linear Models
- ST426: Research Project

Research Interests (Research Fields/ Projects)

Mixed estimation, Ridge and Liu type estimation, Stein-Rule estimation and Preliminary test estimation in the Linear Regression Model

Misspecified Linear Models

Binomial and Poisson Mixture models

Improved methods in Estimation in the Exponential Family of Distributions

Applications using Time Series Analysis, Copula methods, Multivariate methods, Circular Statistics and Spatial Statistics

Ongoing Research and Projects

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Multivariate Rectangular Confidence Regions

Research Collaboration with Prof. Thomas Mathew, University of Maryland Baltimore County, USA A multivariate reference region (MRR) is more desirable than separate univariate reference intervals since the latter disregard the cross-correlations among variables. The MRRs are usually constructed as ellipsoidal regions by assuming multivariate normality. The drawback of this method is that using ellipsoidal regions, component-wise extreme values cannot be detected. The purpose of this research is to construct rectangular MRRs under multivariate normality with exact coverage probability of 95%, or more generally 100(1-?)% to detect component-wise outliers.

Compound Poisson model for over-dispersed count data

Ph.D. Research: Mr. Ramajeyam Tharshan The Poisson model is a standard tool to model the count responses that take non-negative integer values, if the empirical and theoretical properties satisfy the related underline assumptions. The main assumption of this model is mean-to-variance ratio equals to one, which is however violated in many practical applications, and the variance of the observed data exceeds the theoretical variance. This phenomenon is explained as over-dispersion or variation inflation. To overcome this issue, the compound Poisson or Poisson mixture models are well-known flexible modeling method. In this research, a compound Poisson regression model is developed for Over-dispersed count data with linear dependent covariates. Then, the performance of the model will be compared using Mean Square Error Matrix (MSEM) criterion and the Scalar Mean Square Error (SMSE) criterion.

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Key Publications

Communication in Statistics-Theory and Methods - (2016)

Generalized Preliminary Test Stochastic Restricted Estimator in the Linear Regression Model

Statistical Papers - (2006)

Improvement of the Liu estimator in Linear Regression model

Conferences

Keynote Speaker: The 6th African International Conference on Statistics, Organized by Arsi University, Ethiopia in collaboration with University of Maryland, Baltimore County, USA

HELD AT : Arsi University, Ethiopia - (May 27-30, 2019)
TOPIC : *Advanced Statistical Methods for Solving Challenging Problems in Africa*

My Publications

Please goto the website.

https://sci.pdn.ac.lk/scs/staff/Pushpakanthie-Wijekoon

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