

## CURRICLUM VITAE

a) NAME:

A.K.Md. Ehsanes Saleh, Distinguished Research Professor Emeritus.  
Member of the Graduate Faculty: yes

b) DEGREES:

Ph.D. Mathematics, University of Western Ontario, London, Ontario, Canada, 1965.

M.A. Mathematics, University of Western Ontario, London, Ontario, Canada, 1962.

M.Sc Statistics, University of Dhaka, Bangladesh, 1953.

B.Sc Mathematics, University of Dhaka, Bangladesh, 1951.

c) EMPLOYMENT HISTORY:

1997- Distinguished Research Professor, School of Mathematics and Statistics,  
Carleton University, Ottawa, Canada

1978-1997 Professor of Mathematics and Statistics, Department of Mathematics and Statistics,  
Carleton University, Ottawa, Canada

1968-1978 Associate Professor, Department of Mathematics and Statistics,  
Carleton University, Ottawa, Canada

1967-1968 Associate Professor, Department of Mathematics, Simon Fraser University, Burnaby, British  
Columbia, Canada

1966-1967 Assistant Professor, Department of Mathematics and Statistics,  
Carleton University, Ottawa, Canada

1964-1966 Lecturer, Department of mathematics, University of Western Ontario, London, Ontario, Canada

**List of Contributions of A. K. Md. Ehsanes Saleh from 2005-2012:**2012

1. Saleh, A.K.Md. Ehsanes, Picek, J. and Kalian, J. R-estimation of the parameters of a multiple regression model with measurement errors. *Metrika* 75,311-328.
2. Kibria BMG and Saleh, A.K.Md. Ehsanes. Improving the estimators of the parameters of a probit regression model: A ridge regression approach, *Jour. Stat. Plan. Inf* (online march 2012) In press.

2011

3. Saleh, A. K. Md. Ehsanes and Kibria, B.M.G. On some ridge Regression Estimators: A Nonparametric approach. *Jour. nonparametric statistics*, pp1-33 On-Line 5th May
4. Saleh, A.K.Md.Ehsanes and Kibria, B.M.G. Estimation of Mean-Vector of a multivariate elliptically Contoured Distributions. *Calcutta statistical Association Bulletin*. Vol62, pp247-258
5. Farrell, P., Saleh, A.K.Md.Ehsanes and Zhengmin Z. Methods of Moments Estimation in Finite Mixtures. *Sankhya* To appear.
6. Saleh, A.K.Md.Ehsanes and Ghania, F.Amal. Effect Size Estimation with Vague Prior Information. *Int. Jour. of Statistical Sciences*, Vol11 in Honour of P.C.Mahalanobis, pp 91-109.

2010

7. Saleh, A.K.Md. Ehsanes, Picek, J. and Kalina, J. Nonparametric estimation of regression parameters in a measurement error models. *Metron* LXVII, 177-200.
8. Saleh, A.K.Md. Ehsanes, Picek, J. and Kalian, J. R-estimation of the parameters of a multiple regression model with measurement errors. *Metrika* (in press).
9. Jureckova, J., Picek, J. and Saleh, A.K.Md. Ehsanes. Rank tests and regression rank score tests in measurement error models. *Computational Statistics and Data Analysis*, 3108-3120.
10. Sen, P.K. and Saleh, A.K.Md. Ehsanes. The Theil-Sen estimator in a measurement error perspective. *IMS Collection: Nonparametrics and Robustness in Modern Statistical Inference and Time-Series Analysis: A Festschrift in honor of Professor Jana Jureckova*, 224-234.
11. Fraser, D.A.S., Saleh, A.K.Md. Ehsanes and Ji, K. Combining p-values: A definitive process. A special volume (44) of the *Journal of Statistical Research in Honour of Professor Bradley Efron*, 15-30.
12. Saleh, A.K.Md. Ehsanes. Quasi-Empirical Bayes Modelling of Measurement Error Models and R-estimation of the Regression Parameters. A special volume (44, no. 2) of the *Journal of Statistical Research in Honour of Professor Bradley Efron*.
13. **Arashi, M., Saleh, A.K.Md. Ehsanes and Tabatabaey, S.M.M.** Estimation of Parameters of Parallelism Problem with Elliptically Contoured Distributed Errors. *Metrika* 71, 79-100.

14. Jureckova, J., Kalina, J., Picek, J. and Saleh, A.K.Md. Ehsanes. Rank tests of linear hypothesis with measurement errors with both in regressors and responses. Submitted for publication.
15. Saleh, A.K.Md. Ehsanes and **Kibria, B.M. Golam**. On Some Ridge Regression Estimators for Estimating the Parameters of a Logistic Regression model. Submitted to JMVA.
16. **Kibria, B.M. Golam** and Saleh, A.K.Md. Ehsanes. Performance of some Improved Estimators for Estimating the Parameters of Probit Model: A Ridge Regression Approach. Submitted to JSPI.
17. Saleh, A.K.Md. Ehsanes and **Kibria, B.M. Golam**. Performance of some Ridge Regression Estimators: Nonparametric approach. Submitted to Journal of Nonparametric Statistics.

#### 2009

18. Saleh, A.K.Md. Ehsanes and Adatia, A. Optimum Regression Quantiles for the Inference of the Parameters of Simple Regression Model with Exponential Errors. Journal of Statistical Research, 43 no. 2, 67-73.
19. Saleh, A.K.Md. Ehsanes and **Kibria, B.M. Golam**. Preliminary Test Estimators of the Parameters of Exponential and Pareto Distributions in Censored Samples. Statistical Papers.

#### 2008

20. Saleh, A.K.Md. Ehsanes. Statistical theory for the parameters of Student's t-Distributions. Special volume of Journal of Statistical Research in Honour of Professor Mir Maswood Ali, 42, 47-68.
21. **Kim, H.M.** and Saleh, A.K.Md. Ehsanes. Prediction of Finite Population Totals in Measurement Error Models. In Recent Advances in Linear Models and Related Areas. Eds. Shalabh and Christian Heumann, Springer, 79-93.
22. **Khan Shahjahan** and Saleh, A.K.Md. Ehsanes. Prediction of Slope for Linear Model with Uncertain Prior Information and Student's t-errors. Commun in Statistics – Theory and Methods, 37, 2564-2581.

#### 2007

23. Oulde Haye, M. and Saleh, A.K.Md. Ehsanes. Quasi-empirical Bayes Methods of Estimation in ARMA(p,q) Models with Vague Prior Information on MA(q). Calcutta Statistical Association Bulletin, 58, 53-75.

#### 2006

24. Book: Theory of Preliminary Test and Stein-type Estimation with Applications. Wiley & Sons.
25. **Kibria, B.M. Golam** and Saleh, A.K.Md. Ehsanes. Optimum Critical Values for the Preliminary Test Estimators. Commun. In Statistics – Simulation and Computations, 35, 303-319.
26. Chan Guijing and Saleh, A.K.Md. Ehsanes. Moment and Rank Estimation in Structural Errors-in-variable Models. Journal of Chinese Statistical Association, 43, 105-126.

#### 2005

27. Srivastava, M.S. and Saleh, A.K.Md. Ehsanes. Estimation of the mean-vector of a multivariate normal distribution: Sub-Space hypothesis. JMVA 96, 55-72.
28. **Kim, H.M.** and Saleh, A.K.Md. Ehsanes. Improved Estimation of Regression Parameters in Measurement Error Models. JMVA 95 No. 2, 273-300.

29. Saleh, A.K.Md. Ehsanes, Hassanein, K.M., Hassanein, Ruth and Kim, H.M. (2005). Quasi-empirical Bayes Methodology for Improving Meta-Analysis. *Jour. of Biopharmaceutical Statistics*, 23, 23-48.
30. Kibria, B.M.G. and Saleh, A.K.Md. Ehsanes. Pooling multivariate data under W, LR and LM tests. *Statistical Papers* 47, 49-68.
31. Kibria, B.M.G. and A.K.Md.E. Saleh (2005). Comparison between Han-Bancroft and Brook methods to determine optimal significance level for pre-test estimator. *Jour. Probability and Statistical Sciences* 3, 293-303.
32. Khan, Shahjahan, Z. Hoque, Z. and Saleh, A.K.Md.Ehsanes. Estimation of the intercept parameter for linear regression model with uncertain non-sample prior information. *Statistical Papers*, 46(3), 379-395.

### Most significant contributions of A.K.Md.Ehsanes Saleh

During the tenure of my Discovery Grants, I have introduced the concept of "Quasi-empirical Bayes method of estimation (QEBE)" is the most significant contribution in statistical literature with its root in Stein and empirical Bayes estimation. It is a very powerful and promising concept which will impact on modern research of this century in many directions of statistical problems. To begin with I (with P. K. Sen) expanded the nonparametric theory of estimation to the "Theory of Preliminary Test and Stein-type Estimation" based on this concept, amounting to 15 fundamental and pioneering articles, 10 Ph. D dissertations (most successful is Dr. Ejaz Ahmed in Canada) and several Post-Doctorals (most successful are Drs T. Kubokawa, Christine Robert and T. Shiraishi). The impact of QEBE methodology then entered into "Time-series" area with my article "On shrinkage estimation of parameters of an autoregressive Gaussian process" (Theory of prob. Appl 1992). The impact of this article among others resulted in my ground breaking contribution "Autoregression Quantiles and related rank score processes (AS, 1995) (with H. Koul) and expanded its application in regression model with long-memory errors by Taniguchi (2008). The QEBE methodology influenced the development of "Ridge regression estimation" by my article "Performance of some new preliminary test ridge regression estimators and their properties" (Comm Stat, 1993, with G. Kibria). The concept led us to 15 foundational articles in this area. This has encouraged us to add an article on Liu- estimator (an alternative to Ridge estimator, 1993) of regression parameter with nonparametric approach. Another example of high impact of my concept of QEBE methodology is my article "Quasi-empirical Bayes methodology for improving meta-analysis" (J. Biopharm Stat), which has led to an award winning Ph. D thesis, "Statistical Methodology for Ordinal Data in Meta-analysis" (2011) by Belal Hossain of the University of South Queensland, Australia. Before this, the idea expanded the development of estimation theory of regression parameters with measurement errors in a Ph.D thesis by H. M. Kim (2003). Finally, the impact of QEBME is visible in the Ph. D theses of S.M.M Tabatabeay (1995), Javed Chowdhury (1997) and Md. Arashi (2008) under my supervision for models with Spherically symmetric errors and errors with Elliptically Contoured Distribution respectively.

With this back drop, my focus is primarily, onto the development of robust statistical methodology for (i) measurement error models, (ii) meta-analysis (literature is void of R-, M-, and L-theory in this area), (iii) time-series models and develop theories for models with (iv) ECD errors. Accordingly, I have listed a new paper on nonparametric methods of ridge regression estimation (RRE), which appeared as a lead paper, in JNS which improves the traditional rank estimators as a significant contribution. Side by side, RRE using M-method of Huber (1981) is being developed.

I have introduced the nonparametric method in meta-analysis.

The second most significant contribution is the estimation of mean-vector in elliptically contoured distribution which broadens the scope of QEBE methodology developed under multivariate normal theory (with M. Srivastava). This idea will also impact the subject of meta-analysis.

The third most significant contribution is the test of hypothesis in a measurement error models based rank and regression quantile theory. This paper will lead to developments in R- and M-estimation theory for measurement error during the tenure of my grant. My papers on "R-estimation" are the beginning of new developments of the estimation theory for ME models. Consequently, regression quantile theory is visible for the future.

The 4<sup>th</sup> significant contribution is the "combination of p-values" which newly developed mathematical paper with practical importance in meta-analysis as B. Efron pointed out to me recently.

### Evidence of Impact and Contributions

1. North-South University in Bangladesh honoured me as the 'best statistician of Bangladesh' with a plaque in recognition of my outstanding contribution to Global Evolution of statistical sciences in an International conference on Statistical Sciences in 2006.
2. Journal of Statistical Science (IJSS, Vol. 19, 2008), Rajshahi University, Bangladesh brought out a special volume in honour of life-time achievements in statistical research.
3. Awarded Gold Medal by the Institute of Statistical Research & Training (ISRT), University of Dhaka, Bangladesh in recognition of life-time achievements and contribution in Statistical Sciences; for development of the Journal of Statistical Research and leadership for than a decade as Editor-In-Chief; and for services to statistical community world-wide through symposia and edited volumes.
4. Awarded the rank of *Honorary Member of SCC (2005)* "for landmark contributions to the development of nonparametric methods for preliminary test and Stein-type estimators; autoregression quantiles and order statistics; for the foundation of graduate program in Statistics at Carleton; training of Ph.D. students and post doctorals; for services to profession, especially in creative organization of symposium with edited volumes."
5. NSERC recognition with a certificate of 25 years of excellence (2004) "for important research achievements that have contributed to the sum total of human knowledge and advancement of the economic and social well-being of Canadians over 25 years of NSERC's existence."
6. Ph.D Thesis Examinar during (2005-2011). Eight. {[2 of U of Toronto], [2 of USQ, Australia], [4 of U of Aligarh and U of Acharya Nagarjuna, India]}.

### **Contribution to Training of Highly Qualified Personnel (HQP)**

During 2005-2011, I have acted as the principle co-supervisor of eight graduate students in Ph.D. and Master's programs. In addition I am co-supervising one student from Charles University, Prague.

Ph.D. Degree

1. **Amal Fouad Ghania** (2009-2011, degree granted). Thesis: Statistical Theory of Meta-Analysis :Quasi-empirical Bayes Method of Estimation
2. **Zhang Zhengmin** (2004-2008, degree granted). Thesis: Statistical Inference for Mixture Models.
3. **Mohammed Arashi** (2006-2008, degree granted). Thesis: Improved Estimators in Multiple Regression Models with Elliptically Contoured Distributed Errors.
4. **Radim Navratil\*** (PhD. Student from Charles University, Prague, Cz). I am co-supervising this student with J. Jureckova to develop his thesis using nonparametric methods for Measurement Error Models.

Master's Degree

5. **Noor-E-Shams Rahman** (2008-2010, degree granted). Guided degree specific courses.
6. **Kaiser Tasneem** (2005-2007, degree granted). Supervised the Project as directed studies and guided the degree specific courses. Project: Improved estimation of the Parameters of a Simple Multivariate Linear Model with Measurement Errors.
7. **Pin Yuan** (2004-2005, degree granted). Guided to degree specific courses
8. **Abul Basher Rahman** (2003-2005, degree granted). Supervised the degree specific course work.
9. **Almajren Abdullah** (2003-2005, Biostatistics, degree granted). Supervised the project as directed studies and guided the Degree specific course work. Project: On Some Improved Meta Analysis.

Honours Project

10. **Fares Said** (Fall 2010). Supervised the Honors Project: On Some Problems of Measurement Error Models.

Post Doctoral Supervision

11. **Amal Fouad Ghania** (2011- ). Extension of Research on the application of Quasi-empirical Bayes estimators from various models.