# DR. NORHAIZA AHMAD

Department of Mathematical Sciences
Faculty of Science,
Universiti Teknologi Malaysia,
81300 Skudai
Tel: +607-5534321/34274
Fax: +607-5566162
**email:** norhaiza@utm.my . **website:** http://people.utm.my/norhaiza/

## EDUCATION

| | |
|---|---|
| 2008 | *Ph.D.in Statistics:* <br> **University of Kent, United Kingdom.** <br> **Specialization:** *Bioinformatics* <br> **Theses:** *Statistical Profiling of Proteomics Data* <br> **Theses Advisers: Professor Jian Zhang/Professor P.J.Brown** |
| 2003 | *M.Sc. in Statistics,* <br> **University of Sheffield, United Kingdom.** <br> **Dissertation:** *Customer Profiling for the Employment Service* <br> **Dissertation Adviser: Dr. Eleanor Stillman** |
| 1993-1996 | *B.Sc. (HONS) in Mathematics, Statistics & Operational Research,* <br> **University of Manchester, Institute of Science & Technology (UMIST),UK** |
| 1992 | *A-Levels in Economics, Mathematics and Statistics,* <br> **Centre of Preparatory Studies, Institute Technology Mara, Malaysia (ITM).** |

## PERSONAL

- **D.O.B:** 27 July 1973**; Nationality:** Malaysian; **Language:** Bahasa Malaysia, English.

## ACADEMIC APPOINTMENTS

**Senior Lecturer,** Universiti Teknologi Malaysia (March 2010-Present)
**Lecturer,** Universiti Teknologi Malaysia (2004-March 2010)
**Tutor,** Universiti Teknologi Malaysia (2000-2003)

## OTHER EMPLOYMENTS

April 2003 **Statistical Analyst,** University of Kent, UK.
- Commissioned by University of Kent's Hospitality to analyze students satisfaction survey.

2003-2006 **Tutor,** Institute of Mathematics, Statistics & Actuarial Science,University of Kent, UK.
- Marked tutorial sheets for various students' assignments
- Assisted lecturers at tutorial and computer classes in Statistics for 1st year students.

2000-2003 **Tutor,** Department of Mathematics, Faculty of Science, University Teknologi Malaysia.
- Responsible for handling tutorial classes in Statistics and Mathematics (foundation course and 1st year students).
- Involved in preparing tutorial materials when they are not available.

1996 - July 2000 **Production Planner/Controller: Automotive Plant,** Toyota & Koyo Seiko Autoparts, Sdn Bhd, Shah Alam, Malaysia.
- Responsible for the production planning of the plant's annual, monthly and daily production.
- Inventory control and monitoring stocks availability everytime.

Summer 1995 **Lecturer's assistant** at the Department of Mathematics, Universiti Teknologi Malaysia, under the supervision of Dr. Zuhaimy Ismail.

## RESEARCH GRANTS (PRINCIPAL INVESTIGATOR)

| 1 | 1 Nov19-31 Oct 21 | UTMER | 2019/01402 | *Prediction Of Discharge After Period Of River Disruptions Using Robust Least Squares Support Vector Regression* | RM30,000 |
|---|---|---|---|---|---|
| 2 | 1 Oct 2016-31 Dec 2017 | GUP | 2016/07502 | *Time-Based Clustering on Homogeneous Riverflow Process.* | RM20,000 |
| 3 | 1 Jul 2014-30 June 2015 (ext. Sept 15) | GUP | 2014/01923 | *Time-Dependent Interval Data In The Classification Of Rainfall Patterns* | RM20,000 |
| 4 | 1 Apr 2011-31 Mac 2012 (ext. 30 Sept 12) | GUP | 2011/00830 | Clustering Based Classification on Daily Rainfall Pattern. | RM40,000 |
| 5 | 15 Nov 2009-14 Nov 2011 (ext. May2012) | FRGS | 2009/00305 | Visualizing proximity data using pseudo-distance in Multidimensional scaling technique. | RM33,000 |


## RESEARCH GRANTS- SELECTED (MEMBER INVESTIGATOR)

| | 1 Nov19-31 Oct 21 | UTMER | 2019/02196 | Survival Piecewise Baseline Hazard Function Incorporated With Cure Fraction And Frailty | Noraslinda |
|---|---|---|---|---|---|
| | 1 Nov19-31 Oct 21 | UTMER | 2019/01278 | Forecasting Johor Bahru Rainfall Using Autoregressive Integrated Moving Average (Arima) And Artificial Neural Network (Ann) | Norazlina |
| | 1 Aug19-31 Jul 21 | GUP T2 | 2019/00625 | Medicine Usage Modelling Using Modified INGARCH-GLM Framework | Siti Mariam |
| 1 | Oct 2016 Sept 2017 | GUP.T2 | | Trend analysis of streamflow, rainfall and temperature in Johor | RM20,000 |
| 2 | May 2016-April 2017 | PPRN | | Quality Control for Bull Semen | RM30,000 |
| 3 | Apr 2013-March 2015 | FRGS | | Spatio-Temporal Modeling of Rainfall Using Generalized Additive Model | RM61,000 |
| 4 | Apr 2013-March 2014 | FRGS | | Bayesian Survival Mixture Models In The Existence of Covariates Using Frailty Models | RM28,000 |


## ACADEMIC PUBLICATIONS

1. Assessing Dynamic-Time-Warping Dissimilarity Measures in Regionalization of River Discharges. Nur Syazwin Mansor, **Norhaiza Ahmad**\*, Arien Heryansyah. **(2019).** Malaysian Journal of Science. Special Issue 2: 14-22 DOI: https://doi.org/10.22452/mjs.sp2019no2.2 (SCOPUS)

2. An Efficient Method To Improve The Clustering Performance Using Hybrid Robust Principal Component Analysis-Spectral Biclustering In Rainfall Patterns Identification. Shazlyn Milleana Shaharudin, Shuhaida Ismail, Siti Mariana Che Mat Nor, **Norhaiza Ahmad. (2019).** AES International Journal of Artificial Intelligence (IJ-AI). Vol. 8, No. 3, September 2019, pp. 237~243. ISSN: 2252-8938, DOI: 10.11591/ijai.v8.i3.pp237-243. (SCOPUS)

3. Modified singular spectrum analysis in identifying rainfall trend over peninsular Malaysia. S.M. Shaharudin, **N. Ahmad**, N.H. Zainuddin **(2019)** Indonesian Journal of Electrical Engineering and Computer Science. Vol 15; pp283-293. DOI: 10.11591/IJEECS.V15.I1.PP283-293 (SCOPUS)

4. Performance of Time-based and Non-time-based Clustering in the Identification of River Discharge Patterns, Nur Syazwin Mansor, **Norhaiza Ahmad**, Arien Heryansyah , **(2018),** in (ed.) Improving Flood Management, Prediction and Monitoring (Community, Environment and Disaster Risk Management, Volume 20) Emerald Publishing Limited, pp.133 – 140 **(SCOPUS)**

5. Identification of Rainfall Patterns on Hydrological Simulation Using Robust Principal Component Analysis. S.M. Shaharudin, **N. Ahmad**, N.H. Zainuddin, N.S. Mohamed **(2018).** Indonesian Journal of Electrical and Computer Science. Vol. 11. No.3. http://www.iaescore.com/journals/index.php/IJEECS/issue/view/464 (SCOPUS)

6. Comparative Performance Of Support Vector Regressions For Accurate Streamflow Predictions. Noraini Ibrahim, **Norhaiza Ahmad** . Malaysian Journal of Fundamental and Applied Sciences. Special Issue on Some Advances in Industrial and Applied Mathematics (2017) 325-330. issn:2289-5981(WOS)

7. Spatial grouping of homogeneous river flow process in Johor. Nur Syazwin Mansor, **Norhaiza Ahmad** (2017). Malaysian Journal of Fundamental and Applied Sciences. Special Issue on Some Advances in Industrial and Applied Mathematics (2017) 405-407. issn:2289-5981(WOS)

8. Choice of Cumulative Percentage in Principal Component Analysis for Regionalization of Peninsular Malaysia Based on the Rainfall Amount. Shaharudin S.M., **Ahmad N**. (2017) Modeling, Design and Simulation of Systems.

AsiaSim 2017. Communications in Computer and Information Science, vol 752. pp216-224 (2017), Springer, Singapore; ☐ doi: https://doi.org/ 10.1007/978-981-10-6502-6_19; isbn: 978-981-10-6501-9. (SCOPUS)

9. Short-term variability of Johor River discharge based on wavelet analysis. **N. Ahmad**, S. A. Kamaruddin, and A. Heryansyah. AIP Conference Proceedings 1643, 278 (2015); doi: 10.1063/1.4907456 (SCOPUS)
10. Effect of window length with singular spectrum analysis in extracting the trend signal on rainfall data. Shazlyn Milleana Shaharudin, **Norhaiza Ahmad** and Fadhilah Yusof. AIP Conference Proceedings 1643, 321 (2015); doi: 10.1063/1.4907462 (SCOPUS)
11. Improved Cluster Partition of Rainfall Patterns in PCA Guided Clustering, S M Shaharudin, **N Ahmad,** 3rd Comprehensive Syposium Proceeding, Risk based Asian Oriented, Integrated Water Management (2014).
12. Improved Cluster Partition in Principal Component Analysis Guided Clustering. S M Shaharudin, **N Ahmad** and F Yusof. *International Journal of Computer Applications* 75(11): 22-25, (August 2013). Published by Foundation of Computer Science, New York, USA.
13. 3-Point Pseudo-Scale Distance Measure for Measuring Indirect Proximity. Norliza Adnan, **Norhaiza Ahmad** and Maizah Hura Ahmad. Applied Mathematical Sciences, Vol. 7, (2013), no. 25, 1239 – 1247.
14. The Comparison of T-Mode and Pearson Correlation Matrices in Classfication of Daily Rainfall Patterns in Peninsular Malaysia. Shazlyn Milleana Shaharudin, **Norhaiza Ahmad**, FadhilahYusof and XenQuan Yap. MATEMATIKA. Volume 29, Number 1c (June 2013) - Special Issue.
15. 3-Point pseudo-scale distance mesure for measuring indirect indirect proximity. Adnan N., **Ahmad N**., Ahmad M.H (2013). Applied Mathematical Sciences 7(25-28),pp1239-1247. (SCOPUS)
16. Classification of Daily Rainfall Patterns in Peninsular Malaysia during Southwest Monsoon. Shazlyn Milleana Shaharudin, **Norhaiza Ahmad**, Fadhilah Yusof. Conference Proceeding.' The 1st ISM International Statistical Conference. (2012).
17. Measuring one-to-many relationships using Pseudo-Distance in Multidimensional Scaling Techniques. Norliza Adnan, **Norhaiza Ahmad**, Maizah Hura Ahmad. Conference Proceeding.' The 1st ISM International Statistical Conference (2012).
18. Indirect Proximity Measures Using Pseudo-Distance in Multidimensional Scaling Techniques. Norliza Adnan, **Norhaiza Ahmad**, Maizah Hura Ahmad. Conference Proceeding ."Simposium Kebangsaan Sains dan Matematik ke 19 (SKSM19) (2011).
19. On the statistical analysis of the GS-NS0 cell proteome:Imputation, clustering and variability testing, **N Ahmad**, J Zhang, P J. Brown, D C. James, J R. Birch, A J. Racher, C. M Smales, Biochim Biophys Acta. (2006 Jul) ;1764 (7):1179-87 16807148 2
20. Proteomic Profiling of Statistically Significant Changes in Protein Expression in Murine Myeloma NSO Cells with Differing Antibody Productivities, **Norhaiza Ahmad**, Jian Zhang, Philip J. Brown, Elizabeth A. Sage, Daniel E. Alete, Diane M. Dinnis, Scott H. Stansfield, David C. James, John R. Birch, Andrew J. Racher and C. Mark Smales, Report UKC/IMS/04/16, IMS, University of Kent, UK., (2004). 3
21. Yusof, et al. (2009). Basic Statistics for Science & Education. Malaysia. Pearson (ISBN: 978-967-349-033-2). (contributed author: chapter: Analysis of variance).
22. Ph.D theses: *Statistical Profiling of Proteomics Data (2008)*
23. M.Sc theses:*Customer profiling for the Employment Service* (2002): a short-scale research for the Department of Works and Pensions, Sheffield, UK.

## OTHER ACADEMIC PUBLICATIONS
1. Longitudinal Tracking Of Studentsã¢Â€Â™Academic Progress Using Model Based Clustering (2019) 3rd International Conference On Educational Studies. (PROCEEDINGS)
2. Robust Clustering on Spatial Torrential Rainfall Patterns. Proceedings of the Third International Conference on Computing, Mathematics and Statistics (iCMS2017) (PROCEEDINGS)
3. Johor River Discharge Forecasting During Linggiu Reservoir Construction Period. (2018) Final Year Project Symposium 2018 (PROCEEDINGS)

## BOOK CHAPTERS/ BOOK PUBLICATIONS
1. 2019 Statistics For Engineer (UTM PRESS)
2. 2014 Statistical Modeling In Industrial And Applied Mathematics. (Chapter: Measuring Indirect Proximity Using Pseudo-Distance In Multidimensional Scaling Techniques/UTM PRESS)
3. 2014 Statistical Modelling In Industrial And Applied Mathematics (Chapter: Proportional Hazards Model Using Frequentist And Bayesian Approaches/ UTM PRESS)

## GRADUATE STUDENTS, PhD.

1. Noraslinda M. Ismail, Jan 2011-2019. (second adviser. co-adviser: Dr.Zarina M Khalid FS, UTM)
**(Successfully passed viva Dec 2018/ Convocation 2019)**
2. Shazlyn Milleana Shaharudin, Jan 2011-2016. (main adviser. co-adviser: Dr.Fadhilah Yusof FS, UTM)
**(Successfully passed viva 24 Nov 2016/ Convocation April 2017)**
*Spatial and Temporal Guided Clustering Based on Dimension Reduction*
3. Zuraini Ali Shah, June 2010-Jan 2012 (second adviser. co-adviser with PM Dr.Puteh Saad FSKSM, UTM)
**(Successfully passed viva April 2012/ Convocation Oct 2012)**
*Combination of dimenstion reduction with modified robust estimation for gene-based cancer classification.*
4. Norbaiti Tukiman **(Part-Time)**, Jan 2012-Present . (main adviser)
*Supervised and Unsupervised Statistical Data Mining For Insurance Fraud Detection*
5. Chibuike Nnamani, May 2015-Present. *Robust Plaid Model (main adviser)*
6. Noraini Ibrahim, Aug 2015-Present. *Statistical Variability Analysis of River Discharge (main adviser)*
7. Syazwani Mansor, Aug 2015-Present. *Statistical Variability Analysis of River Discharge (main adviser)*
8. Norliza Adnan, Sept 2016-Present. *Model-Based Clustering in Educational Data Mining (main adviser)*


## GRADUATE STUDENTS, MSc. (DISSERTATION)

1. *Izyan Diyanah Hashim, (Sept 2015-2017) . Variability of River Discharge and Runoff Volumes in Johor*
2. *Siti Aisya Kamaruddin, (Mac 2013- Dec2013). Temporal Flow Variability in Johor River Based on Wavelet Analysis.*
3. *Ho Sui Juih, (Mac 2012- Dec 2012). Comparison of Decision Tree Evaluation Methods in Assessing Students Performance.*
4. Nurul Shuhada Faridam, (Dec 2009-Dec 2011) . *Classification of Daily Rainfall Patterns in Peninsular Malaysia based on Rice Cultivation*
5. Nurul Akmal Md Nasir, (Jan 2011-Dec 2011) . *Statistical profiling of schools in Malaysia based on PMR result performances*

## UNDERGRADUATE STUDENTS, B.Sc. PROJECTS (SELECTED)

1. Huda Wardiah Mohd Effandie (Sep 2019-2020). Measuring Change Detection in Medical Images
2. Farah Syahirah Mior Othman (Sept 2017-2018): Forecasting River Discharge Data using Support Vector Regression
3. NurAinaa Syaza Rushdan (Sept 2017-2018): Forecasting Rainfall Data using Support Vector Regression
4. Amirah Farzanah Sulaiman (Sept 2016-2017): Testing for Non-Linear Time Series Data
5. Armaeni Agus (Sept 2015-2016): Clustering in financial time series data. *(Special Program UTM-KENT)*
6. Nor Hidayah Hasan (2014-2015): Statistical Characteristics of River Discharge Runoff in Johor.
7. Norlyana Farahana Noor Azmi (2014-2015): Statistical Characteristics of Rivers in Johor.
8. Husna Nuraiin Hamidi, (2013-2014): Robust Linear Regression: a simulation study
9. Norlyana Farahana Noor Azmi (2014-2015): Statistical Characteristics of Rivers in Johor.
10. Nurul Izzaty Mohd Yunus, UTM (2011-2012): *Analysis of Sungai Galing Water Quality Data Through PCA.*
11. Noraini Ibrahim, UTM, (2010-2011): *Reduction Dimension in rainfall data via PCA*
12. Nurul Amira Zainal, UTM, (2009-2010): *Plaid model on Malaysian food composition.*
13. Tan Chee Yian, UTM, (2008-2009): *Application of logistic regression in anesthesia.*
14. Tan Fong Lin, UTM, (2008-2009): *Analyzing expressed proteins from GS-NSO Murine Myeloma cells.*
15. Noor Adila Aluwi Shakir, UTM, (2007-2008): *Effectiveness of pre-treatment drugs in reducing pain on injection via correspondence analysis.*
16. Chai Kuok Chiew, UTM, (2007-2008): *Investigating the effectiveness of pre-treatment drug Fentanyl on the injection of anesthetic drug, Propofol Lipuro using correspondence analysis.*

## EXAMINERS (Postgraduate Research)

**External:**
(1) MSc (University Utara Malaysia): Long Mei Mei (Feb 2016)
(2) PhD (Universiti Utara Malaysia): Hashibah Hamid (June 2013)
**Internal:**
(1) PhD (Universiti Teknologi Malaysia): Mohd Zulariffin Md Maarof (Aug 2018).
(2) MSc (Universiti Teknologi Malaysia): Nor Hidayah Ismail (Jul 2014)
(3) PhD (Universiti Teknologi Malaysia): Aishah Mohd Noor (Nov 2013).

## INVITED ACADEMICS

- **Discussant.** 62nd ISI World Statistics Congress (WSC) ISI2019 Kuala Lumpur, Malaysia. 18-23 Aug 2019.
- **Invited Speaker.** International Seminar on Mathematics in Industry 2017. Johor Bahru 1-2 Aug 2017.
- **Invited Speaker.** 61st ISI World Statistics Congress (WSC) ISI2017 Marrakech, Morocco. 16-21July 2017.
- **Invited Speaker.** 10th Malaysian Institute of Statistics National Seminar (SKismX), Universiti Putra Malaysia.18Feb16.
- **Visiting Scientist.** Japan Society for the Promotion of Science (JSPS) Asian Core Program. Kyoto University. 18-22 November 2015.
- I**nvited Speaker.** Seminar Kebangsaan Institute Statistik Malaysia ke-IX (ISM-IX, Universiti Kebangsaan Malaysia. 31 Mac 2015.

## TEACHING COURSES

| UTM Full Time Courses | Level | UTMSPACE Part Time Courses | Level |
|---|---|---|---|
| 1.Multivariate Statistical Analysis SSCM3123 | BSc. | 1. Engineering Statistics SSE2193 | BSc. |
| 2.Computer Literacy SSCM1303 | BSc. | 2.Statistics I  SSE1113 | BSc. |
| 3.Engineering Statistics SSCE2193 | BSc. | 3. Kebarangkalian & Statistik DSM2703 | BSc. |
| 4.Statistics I  SSE1113 | BSc. | 4.Multivariate Statistical Analysis SSCM3123 | BSc. |
| 5.Financial Mathematics SSH3863 | BSc. | | |
| 6.Calculus I SSE1792 | BSc. | | |
| 7.Generalized Linear Model MSM1453 | MSc | | |
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## ADMINISTRATIVE APPOINTMENTS (SELECTED)

- **Director, Career Carnival at the Faculty of Science (Oct 2019)**
- **Double degree UTM-Kent Coordinator: (2019-present)**
- **Department Coordinator: Mathematics Computer Labs (2014-present)**
- To manage mathematics lab, its facilities and lab officers and technicians
- To plan and manage the procurement of lab equipments for mathematics computer labs.
- **WebMaster -** Department of Mathematical Sciences, Faculty of Science, UTM **(2011-present)**
- **WebMaster**  - Faculty of Science, UTM **(Nov 2013-2016)**

**Transformation**: Applied three strategies to restructure and increase webometric points for Faculty of Science website: (1) changed web platform from Joomla to Wordpress so that faculty's website can be co-managed by the university's corporate division.(2) introduced a repository of thesis for online storage for thesis documents and increase the number of rich texts on the website (3) to ensure that all academic staff has individual websites so that each staff at the faculty has the opportunity to gain bonus points in their yearly assessment and to increase the number of pages on the website.

- **Chief Editor: Forum Matematik (2012- 2014)**
 - Department of Mathematical Sciences, Faculty of Science, UTM
 - To publish a fortnightly newsletter on news, developments, publications related to the department.
   **Transformation**: Revamped the newsletter old layout to an updated layout. To initiate the department's whatsapp group so that information can be easily transmitted to Forum Matematik.
- **Faculty Coordinator: Young Excellent Scientists for Faculty of Science (2013)**
- To manage programs for excellent undergraduate students leading to academic research.

## AWARDS AND ACHIEVEMENTS

- Anugerah Cemerlang (Pembangunan Pelajar) Di Jabatan Sains Matematik UTM  2018 (Received 2019)
- Anugerah Khas Dekan  2017 (Received 2018)- check
- *Award of Excellent, Active Blended Learning Course Semester 1 2018/2019*
- *Award of Excellent, Active Blended Learning Course Semester 2 2017/2018*
- Award of Excellent, Active Blended Learning Course Semester 2 2015/2016
- Anugerah Sumbangan Cemerlang Di Jabatan Sains Matematik UTM  2013 (Received 2014)
- Sijil Penghargaan Salah Seorang Pensyarah Paling Aktif Dalam Penggunaan e-Pembelajaran di
  UTM Semester 1 2013/2014
- Anugerah Citra Karisma  UTM 2012
- Pencapaian cemerlang dalam perkhidmatan cuti belajar, Fakulti Sains UTM  2006 (Received 2008)
- Third year Mathematics, Statistics & Operational Research Course, Prize of the Institute for the session, UMIST 1995/1996.