Dr. Khaldoon Mohammad Alhyasat

Assistant Professor of Statistics

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Professional Summary

Assistant Professor of Statistics at Jadara University with a PhD from Universiti Kebangsaan Malaysia (QS Rank 126). Extensive expertise in distribution theory, goodness-of-fit testing, and reliability analysis. Published author in Scopus and Web of Science indexed journals with groundbreaking contributions to the Extended Rama and Extended Shanker distributions. Developer of the KhaldoonPeriodicity R package for infrastructure monitoring. Proficient in R programming, Monte Carlo simulations, and advanced statistical modeling with applications in reliability engineering, survival analysis, and quality control. Experienced educator, online instructor, and peer reviewer for international journals.

Education

- **Doctor of Philosophy (Statistics)**
  Universiti Kebangsaan Malaysia (UKM) • QS Ranking: 126
  Thesis: "Some Goodness of Fit Tests and Acceptance Sampling Plans Based on the New Extended Rama and Shanker Distributions"
  Supervisor: Prof. Dr. Kamarulzaman Ibrahim

- **Master of Science (Statistics)**
  Universiti Kebangsaan Malaysia (UKM) • 2020
  Thesis: "On Some Weighted Two-Parameter Akash and Suja Distributions"
  Supervisor: Prof. Dr. Kamarulzaman Ibrahim

- **Master of Human Resources Management**
  Al-Balqa' Applied University, Jordan • 2016 • Distinction

- **Bachelor of Mathematics**
  Philadelphia University, Jordan • 2007 • Very Good

Research Interests

- Distribution Theory
- Goodness-of-Fit Tests
- Acceptance Sampling Plans
- Reliability Analysis
- Survival Analysis
- Monte Carlo Simulations
- Statistical Inference
- Applied Statistics
- Quality Control
- Periodicity Detection
- Spectral Analysis
- Infrastructure Monitoring

Software & Open Source Contributions

KhaldoonPeriodicity R Package

Open Source

Advanced periodicity detection framework for sustainable infrastructure management using spectral analysis and permutation-based inference methods.

Key Features:

- Composite test statistic ($R \cdot \log(1+S) \cdot C$)
- Permutation-based hypothesis testing
- Distribution-free inference
- Multifrequency detection capability

Applications:

- Bridge structural health monitoring
- Wind turbine performance analysis
- Water distribution systems
- Environmental time series

GitHub: `https://github.com/khaldoonalhyasat-svg/KhaldoonPeriodicity`

Installation: `devtools::install_github("khaldoonalhyasat-svg/KhaldoonPeriodicity")`

Published Book Chapter:

Chapter : "Advanced Periodicity Detection for Sustainable Infrastructure Management"

Comprehensive methodology including spectral analysis framework, permutation test theory, composite indicator architecture, and empirical validation across bridge monitoring, wind turbines, and water systems.

Featured Publications

- **Comprehensive Goodness-of-Fit Tests for the Extended Rama Distribution: Monte Carlo Evaluation, Power Analysis, and Real Data Applications**
  Authors: Alhyasat, K.M., Al-Omari, A.I., Ibrahim, K., Abu Bakar, M.A.
  Status: Submitted to Journal of Statistical Theory and Practice
  First comprehensive GOF testing framework for ERD with 10,000 Monte Carlo simulations, critical values, and power analysis

- **Empirical Distribution Function Goodness-of-Fit Tests for the Extended Shanker Distribution**
  Authors: Alhyasat, K.M., Al-Omari, A.I.
  Status: Under Review
  Complete framework for EDF-based ESD goodness-of-fit testing with critical value tables and power investigation

- **Acceptance sampling plans for extended Rama distribution based on truncated lifetime tests**
  Authors: Alhyasat, K.M., et al.
  Journal: Life Cycle Reliability and Safety Engineering (2025)
  DOI: 10.1007/s41872-025-00343-4

- **Extended Shanker Distribution with Acceptance Sampling Plans Based on Truncated Life Tests**
  Journal: Advances and Applications in Statistics, 78, 141-164 (2022)
  DOI: 10.17654/0972361722055

- **Extended Rama Distribution: Properties and Applications**
  Journal: Computer Systems Science and Engineering, 39(1), 55-67 (2021)
  DOI: 10.32604/csse.2021.014909

Technical Skills

Statistical Software

- R Programming (Advanced) - Package Development
- LaTeX for Scientific Writing
- Mathematica
- SPSS

Data Analysis

- Time Series Analysis
- Survival & Reliability Analysis
- Distribution Theory
- Multivariate Analysis
- Experimental Design
- Infrastructure Health Monitoring

Statistical Methods

- Monte Carlo Simulations (10,000+ replications)
- Spectral Analysis & FFT
- Permutation-Based Inference
- Maximum Likelihood Estimation
- Goodness-of-Fit Testing
- Power Analysis

Development & Collaboration

- GitHub - Open Source Projects
- R Package Development
- Reproducible Research
- Blackboard Ultra / Zoom / MS Teams

Professional Experience

Assistant Professor of Statistics

Department of Mathematics, Faculty of Science and Information Technology
Jadara University, Irbid, Jordan **Current Position**

Key Responsibilities:

- Teaching undergraduate and graduate courses in Statistics, Probability, and Data Analysis
- Supervising graduate students in statistical research projects
- Conducting research in distribution theory, goodness-of-fit testing, and reliability analysis
- Developing statistical methodologies and R packages for practical applications
- Publishing research in high-impact international journals (Scopus & Web of Science indexed)
- Collaborating with international researchers on statistical innovations

Online Statistics Instructor

Various Educational Platforms • Ongoing

Courses Taught:

- Foundations of Probability
- Introduction to Statistics and Probability
- Data Analysis in R
- Experimental Design with R
- Medical Statistics
- Biostatistics
- Multivariate Analysis in R
- Statistical Computing

Peer Reviewer

International Peer-Reviewed Journals

- Journal of Intelligent & Fuzzy Systems
- Advances and Applications in Statistics
- Quality & Quantity

Academic Contributions

- **18th Postgraduate Colloquium**
  Universiti Kebangsaan Malaysia • April 4-6, 2018
- **Postgraduate Colloquium (Virtual)**
  Universiti Kebangsaan Malaysia • January 7, 2021
- **Abu-Ghazaleh International Diploma in IT Skills**
  Prince Hashim IT Skills Center, Amman

Languages

Arabic	**English**	**Malay**
Native	Advanced	Beginner

References

Prof. Dr. Kamarulzaman Ibrahim
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Prof. Dr. Amer Ibrahim Al-Omari
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Dr. Abdullah Alsoboh
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Last Updated: October 2025 • Available for Research Collaboration & Consulting

Google Scholar • ResearchGate • Scopus • Web of Science