

# International Statistics Conference 2024

28 - 29 December, 2024

@ Cinnamon Lakeside Colombo, Sri Lanka



**Contributory Sessions**



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SESSION 16: STATISTICAL MODELLING, DATA MINING AND BIG DATA ANALYTICS



Session Number: 01

Session Title: Statistical Modeling

- Day: Day 1
- Time: 1.30 pm to 3.00 pm
- Venue: Goodies Meeting Room 2
- Session Chair: Prof. Sarath Banneheka



ID	Title	Presenter	ORAL/POSTER
25	Enhancing Predictive Performance of the Logistic Two-Parameter Estimator under Multicollinearity	Thayaparan Kayathiri	ORAL
98	Modeling Migration Intentions of Sri Lankan Youth using Logistic Regression Analysis: Evidence from Colombo District Universities	Priyanwada H Palihawadana	ORAL
110	Optimizing Inkjet Printing Parameters for High-resolution Microfluidic Device Fabrication	Umesha T. Andrews	ORAL
123	Unveiling Elephant Mortality Patterns in Sri Lanka: Trends and Insights	Ravindu M. Herath	ORAL
126	Study on the Efficiency of Fourier Shape Descriptors in Capturing Morphological Changes in Crushed Gneiss Aggregates Induced by Ball Milling	Vigneswararajah Mithulavan	ORAL
136	Statistical Investigation of the Impact of Aggregate Shape, Size and Aggregate-to-cement Ratio on Porosity of Pervious Concrete	Dilaxsan Suventhiran	POSTER



Session Number: 02

Session Title: Biostatistics and Bioinformatics

- Day: Day 1
- Time: 3.30 pm to 5.00 pm
- Venue: Goodies Meeting Room 1
- Session Chair: Dr. Niroshan Withanage



ID	Title	Presenter	ORAL/POSTER
24	A Novel User-friendly Weighted Hybrid Method (WHM) for Multiple Hypothesis Testing in Large Scale Genomic Data	Susara Ouchithya	ORAL
57	MetaHD: An R Package for Meta-analyzing High-dimensional Data	Jayamini C Liyanage	ORAL
70	Statistical Analysis of Episiotomy Practice and Associated Factors in Sammanthurai Base Hospital	Anupama A.S.A Perera	ORAL
139	Integrating Machine Learning and Statistical Analysis for Enhanced Understanding of Wound Microbial Communities	Heshani K Peiris	ORAL
141	Statistical Analysis on Length of Stay for Pediatric Hospitalizations : A Case Study	W.M.Anjalee S. Weerakoon	ORAL
19	Multi factorial Survival Analysis on the Effect of Lymphovascular Invasion in Colorectal Cancer	M.C. Ruseik Rahumath	POSTER



Session Number: 03

Session Title: *Machine Learning and AI*

- Day: Day 1
- Time: 3.30 pm to 5.00 pm
- Venue: Goodies Meeting Room 2
- Session Chair: Prof. Vasana Chandrasekara



ID	Title	Presenter	ORAL/POSTER
63	A Machine Learning Algorithm to Enhance the Performance of Selected Technical Indicators: Evidence from Forex and Cryptocurrency Markets	Sumedha Sandeepanee	ORAL
65	Detection of Unusual Bike Trips in New York Bike-sharing System Using Extended Isolation Forest Algorithm	Omali Herath	ORAL
69	SerpentSleuth: A Deep Ensemble Learning Approach for Venomous and Non- venomous Snake Identification	Chamudi Abeysinghe	ORAL
72	Deep Learning-based Mobile Network Coverage Prediction	Dumindu R Ranasinghearachchi	ORAL
91	Advanced Real-time Sign Language Conversion to Text and Audio Using YOLOv8, Transfer Learning and Data Augmentation	Lihini S Kumari	ORAL
120	A Novel Bagging Ensemble of Oblique Trees for Data Classification	Buddhi Karunasena	POSTER





Session Number: 04

Session Title: Applications in Education

- Day: Day 1
- Time: 3.30 pm to 5.00 pm
- Venue: Dukes Court 2
- Session Chair: Dr. Hasanthi Pathberiya

ID	Title	Presenter	ORAL/POSTER
45	Investigating Factors Associated with Level II Undergraduates' Grade Point Average In The Faculty of Science, University of Ruhuna, Sri Lanka	Thejani c Perera	ORAL
46	Assessing the Impact of Library Website Quality on User Satisfaction: A Structural Equation Modeling Approach at the University of Ruhuna	Shalidi N Britto	ORAL
84	An Investigation on Unemployment Duration of Science Graduates of Faculty of Science, University of Ruhuna	Ruchira Kulasekara	ORAL
119	Checking for Collaboration in Online Multiple-choice Testing	Gamage H Perera	ORAL
129	Digital Literacy and Academic Success: A Case Study of Undergraduates in the Faculty of Business at the University of Moratuwa, Sri Lanka	Karan Subramaniyam	ORAL



Session Number: 05

Session Title: Biostatistics and Bioinformatics,  
Sample Surveys

- Day: Day 1
- Time: 5.00 pm to 6.15 pm
- Venue: Goodies Meeting Room 1
- Session Chair: Prof. Roshini Sooriyarachchi

ID	Title	Presenter	ORAL/POSTER
26	Improved Generalized Exponential Estimators in Simple Rrandom Sampling without Replacement using Some Transformations	Poonam Singh	ORAL
36	Predicting the Professional Quality of Life among Tertiary Healthcare Nurses in Major Teaching Hospitals of Colombo, Sri Lanka: A Cross-Sectional Study	Senuri Perera	ORAL
94	Statistical Analyses of Linear Regression and Contingency Tables for Differentially-private Matrix Masking Data	Linh H Nghiem	ORAL
101	A Simulation Study to Examine the Performance of a Joint Piecewise Hazard Model and a Normal Model for Ttwo Responses Survival and Transformation of Count	F Sarah Jisam	ORAL
113	Deciphering the Influence of Metals on Zebrafish Behavior through GAMM and WCCNA Network	Dinithi M Hewawasam	ORAL



Session Number: 06

Session Title: Applications in Agriculture,  
Manufacturing

- Day: Day 1
- Time: 5.00 pm to 6.00 pm
- Venue: Goodies Meeting Room 2
- Session Chair: Dr. Neluka Devpura



ID	Title	Presenter	ORAL/POSTER
56	A Case Study on Daily Production Efficiency Prediction in Apparel Manufacturing: Integrating Learning Curve Theory with Multifactorial Optimization Strategies	Ayomi M.A Madurangi	ORAL
79	A Decision Support System for Sustainability Planning of an Agri-food Supply Chain	Mónica Cardoso	ORAL
90	Comprehensive Analysis of Age and Gender-specific Mortality Rates in Sri Lanka	Nipuni Yasara	ORAL
111	Reliability Analysis of the Akash Distribution: A Case Study with Progressively First-failure Censoring	Danush Wijekularathna	ORAL



Session Number: 07

Session Title: Statistical Modeling

- Day: Day 2
- Time: 9.40 am to 10.40 am
- Venue: Goodies Meeting Room 2
- Session Chair: Dr. Chathuri Jayasinghe



ID	Title	Presenter	ORAL/POSTER
51	Joint Modeling of Survival and Count: A Review	Jayani Hapugoda	ORAL
67	Modeling the Time to Receive First Antenatal Care (ANC) Visit Among Bangladeshi Women: An Application of Accelerated Failure Time (AFT) Models	Sumaiya Tasnim	ORAL
88	Investigating the Impact of Censoring Proportion and Hazard Patterns on the Performance of Traditional Survival Analysis Approaches	Nipuni W Opatha	ORAL
124	Development of Telematics Risk Scores in Accordance with Regulatory Compliance	Hashan Peiris	ORAL
127	Non-parametric Evaluation of Assessment Formats and Their Impact on Academic Achievement: A Study on University Students Sample	K.T.M.A.N. N Kapuliyadda	POSTER





Session Number: 08

Session Title: Financial and Marketing Data Analytics,  
Econometric Modeling

- Day: Day 2
- Time: 11.00 am to 1.00 pm
- Venue: Goodies Meeting Room 2
- Session Chair: Prof. Chandima Tilakaratne

ID	Title	Presenter	ORAL/POSTER
53	Yield Curve Modeling: Applicability of the Traditional Factor Models for Sri Lanka Government Bonds	Sanjeewa Nandika Dayarathne	ORAL
61	Forecasting Sri Lankan Gold Prices through Macroeconomic Variables	Sanuji G Devasurendra	ORAL
103	An Application of Autoregressive Distributed Lag (ARDL) Model Approach to Forecast the Index of Industrial Production of Sri Lanka	Thilina R Withanage	ORAL
114	Investigating the Economic Convergence in Terms of Economic Policies: Evidence from East and South Asia	Gammana Arachchige Tharushi Kaveesha	ORAL
115	Forecasting Global Crude Oil Prices using Multivariate Time Series and Machine Learning Techniques	Madushi P Wijesekera	ORAL



ID	Title	Presenter	ORAL/POSTER
132	Portfolio Formation Framework for Cryptocurrency Investment	Mallawa Arachchige Nipuni Maleesha	ORAL
137	Modeling Inflation, Exchange Rate and Interest Rate of Sri Lanka: Time Series Approach with Political, Natural and Health Crises	Wanniarachchige E Iroshani	ORAL
118	Time Series Modeling and Forecasting Daily Gold Prices During Sri Lanka's Economic Crisis Period	Gayana Sanjeewa Bandara	POSTER
131	Impact Characterization of Promotional Leverage in Forex Trading using Ornstein - Uhlenbeck (OU) Process and Monte-carlo Simulation	Thilini Kaushalya	POSTER



Session Number: 09

Session Title: Sports Analytics

- Day: Day 2
- Time: 2.00 pm to 3.00 pm
- Venue: Goodies Meeting Room 1
- Session Chair: Dr. Rajitha Silva



ID	Title	Presenter	ORAL/POSTER
107	Applying a Markov Chain Model for Ranking and Analyzing Performance of Cricket Teams in T20 International Matches	Chandramohan Thuvaragan	ORAL
121	An Introduction to Pickleball and Some Analytics	Mahen S Muthukumarana	ORAL
128	Analyzing the Impact of Game-time Weather on One-day International (ODI) Cricket: Repository of Cricket and Weather Data for Economic Evaluations and Research	Dammika Walpitage	ORAL
130	A Statistical Perspective on Record-breaking Batting Performances in ODI Cricket	Yasindra R Kumarage	ORAL



Session Number: 10

Session Title: *Machine Learning and AI*

- *Day: Day 2*
- *Time: 2.00 pm to 3.00 pm*
- *Venue: Goodies Meeting Room 2*
- *Session Chair: Dr. Isuru Hewapathirana*



ID	Title	Presenter	ORAL/POSTER
31	<i>Advancements in Cross-modality Imaging: A Survey of CNN and GAN Applications in Medical Imaging</i>	Khadeeja Thahir	ORAL
37	<i>LSTM Based Unidirectional Sinhala Sign Language Translator for Enhanced Healthcare Accessibility of Deaf and Hard-of-hearing</i>	Pramudi Rajamanthri	ORAL
38	<i>Attention Mechanism Based Deep Learning Approaches in Forecasting the Colombo Consumer Price Index (CCPI): A Comparative Study</i>	Chalani Erandi Wijamunige	ORAL



Session Number: 11

Session Title: Data Mining and Big Data Analytics

- Day: Day 2
- Time: 2.30 pm to 3.00 pm
- Venue: Dukes Court 1
- Session Chair: Dr. Chitraka Wickramarachchi





ID	Title	Presenter	ORAL/POSTER
16	<i>A Versatile Framework for Pruning False Alarms in Anomaly Detection Systems with an Emphasis on Interpretability</i>	Dinusha Dissanayake	ORAL
143	<i>A Novel Hybrid Algorithm for Binary Classification Tasks: Addressing the Class Imbalance Problem in 2D and 3D Feature Spaces</i>	Uduwage S.P. Madhuwanthi	ORAL



Session Number: 12

Session Title: *Machine Learning and AI*

- Day: Day 2
- Time: 2.00 pm to 3.00 pm
- Venue: Dukes Court 2
- Session Chair: Dr. Thiyanga Talagala



ID	Title	Presenter	ORAL/POSTER
93	Feature Selection-based Rainfall Classification: A Machine Learning Approach to Forecast Rainfall Occurrences at Ratnapura	K Shanthi Saubhagya	ORAL
104	Computational Finance Applications of Combined Estimating Functions	Avanthi S Moragamma Gedara	ORAL
116	Application of Transformer Models for Predicting Exchange Rates Related to Sri Lanka	Pavithra M Basnayake	ORAL
144	Application of Adaptive Catmull-Rom Spline Activation Function in Feedforward Neural Networks for Forecasting Noisy Time Series Data	Saroja Lakshmi	ORAL



Session Number: 13

Session Title: Sports Analytics, Time Series Analysis and  
Forecasting

- Day: Day 2
- Time: 4.00 pm to 5.15 pm
- Venue: Goodies Meeting Room 1
- Session Chair: Dr. Bashitha Kavinga

ID	Title	Presenter	ORAL/POSTER
28	Assessing the Risk of Giving Advance Payments in the Tea Brokerage Industry: A Case Study	Sajini D Rajapaksha	ORAL
29	Evaluation of Selected Spatiotemporal Missing Value Imputation Techniques: An Application to Estimate Sequential Missing Values of Rainfall Data at Ratnapura Area	Nayana C Heendeniya	ORAL
34	Periodic Time Series Models for Multi-station Temperature Analysis in Nuwara Eliya District	Yasantha Lakmal Jayathilake	ORAL
41	LSTM-based Predictive Modeling for Weekly Tea Auction Prices in Sri Lanka with Economic Sentiment Analysis	Dehara Perera	ORAL
117	Investigating Basketball Players' Rebounding Ability using GLMM and BGLMM	Oshini V Kulasekara	ORAL



Session Number: 14

Session Title: *Machine Learning and AI*

- *Day: Day 2*
- *Time: 4.00 pm to 5.30 pm*
- *Venue: Goodies Meeting Room 2*
- *Session Chair: Dr. G. P. Lakraj*



ID	Title	Presenter	ORAL/POSTER
40	Development of Sinhala Speech Emotion Recognition Models using Cross-Lingual and Multi-Lingual Approaches	Yasas K Jayaweera	ORAL
44	Leveraging Generative Adversarial Networks to Improve LSTM and GRU Models Performances for Stock Price Prediction	Lasitha Maduranga	ORAL
48	A Clustering-based Machine Learning Approach to Forecast Cryptocurrency Prices	Sachini N Kalutharage	ORAL
49	Deep Q -learning Based Adaptive Traffic Light Control System Using Google Traffic Data for Urban Traffic Optimization in Sri Lanka	Urmila Wickramasinghe	ORAL
106	An Approach for Predictive Modeling of Stock Price Movements Using Machine Learning Algorithms: A Comparative Study of Selected Equities in the Colombo Stock Exchange	Upeksha K Herath	ORAL
52	A Novel Approach to Classify Projects Applying Value Chain Interventions: A Study using Agriculture-related Development Project Reports	Kaveesha K. A, Prabhath	POSTER



Session Number: 15

Session Title: Bayesian Statistics and Applications,  
Statistical Modeling

- Day: Day 2
- Time: 4.00 pm to 5.15 pm
- Venue: Duke Court 1
- Session Chair: Dr. Ravindra Lokupitiya



ID	Title	Presenter	ORAL/POSTER
73	Utilizing Bayesian Regression Analysis and Optimization Approaches to Identify Main Drivers in Inventory Management	Himaya Kuruppu Arachchi	ORAL
95	Test for Normality Based on an Edgeworth Expansion	Hashan Peiris	ORAL
109	Mixture Modeling to Explore the Relationship between Chemicals in Drinking Water and Zebrafish Behavioral Responses	Kanchana RK Dilrukshi	ORAL
122	Application of Bayesian Conditional Autoregressive Modelling to Investigate Area-level Behavioral Risk Factors of Hypertension Prevalence	Sahan H Koralegedara	ORAL
145	A Case Study on the Impacts of Climate Variables on Road Accidental Casualties	Saneli N Weerasekara	ORAL



Session Number: 16

Session Title: *Statistical Modeling, Data Mining and  
Big Data Analytics*

- Day: Day 2
- Time: 4.00 pm to 5.00 pm
- Venue: Duke Court 2
- Session Chair: Dr. Deshani Kariyawasam

ID	Title	Presenter	ORAL/POSTER
87	Comparative Analysis of Predictive Models and Factors Associated with Sleep Quality among Undergraduates of the University of Sri Jayewardenepura	Thimali CMT Fernando	ORAL
105	Unlocking the Colombo Stock Exchange: Leveraging Sentiment Analysis, Technical Indicators and Behavioral Economics in Computerized Trading	Buddhima S Senarathna	ORAL
142	Consumer Profiling Based on Preferences and Concerns Towards Fresh-cut Vegetables: A Cross-sectional Exploratory Study of Sri Lankan Urban Community	Subodha Dharmapriya	ORAL
133	Comparative Analysis of Oblique Decision Trees and Variants of Linear Discriminant Function: A Study Based on Accuracy and Weighted F-Score	Hansani Nawagamuwa	POSTER

