ICAC 2024

The 6ᵗʰ International Conference on Advancements in Computing 2024

Waters Edge, Battaramulla, Sri Lanka - 12ᵗʰ & 13ᵗʰ December 2024

Detailed Program Overview

Conference Day 1 - 12ᵗʰ December	
8.15 am to 8.50 am	Registration
9.00 am to 9.10 am	Opening Remarks
9.10 am to 9.15 am	Welcome Address by Dr. Kalpani Manathunga, General Chair of ICAC 2024
9.15 am to 9.20 am	Speech by Prof. Nuwan Kodagoda, Pro Vice Chancellor, Faculty of Computing
9.20 am to 9.25 am	Speech by Prof. Lakshman Ratnayake, Chancellor | Chairman
9.25 am to 9.35 am	Speech by Prof. Lalith Gamage, Vice Chancellor | MD | CEO
9.35 am to 9.40 am	Speech by Prof. Nimal Rajapakse, Senior Deputy Vice - Chancellor & Provost
9.40 am to 10.15 am	Keynote Speech 1 - *Visibility and the Cognitive Engineering of User Interfaces* By Prof. William Wong, Faculty of Design and Creative Technology, Auckland University of Technology, New Zealand.
10.15 am to 10.45 am	**Tea Break**
10.45 am to 11.10 am	Keynote Speech 2 – *Why Privacy engineering matters!* Helping to design privacy-preserving software apps By Assoc. Prof. Nalin Arachchilage, RMIT University, Australia
11.10 am to 11.15 am	Tokens of appreciation
11.15 am to 11.40 am	Keynote Speech 3 - *The Convergence of AI, Innovation, and Human Potential* By Dr. Nickson M. Karie, Curtin University, Australia.
11.40 am to 12.10 pm	Invited presentation - *Enterprise Level Fraud and Risk Management in Financial Institutions* By Subash Chandra Bowse, Country Director (Sri Lanka and The Maldives) of BPC
12.10 pm to 12.15 pm	Tokens of appreciation
12.15 pm to 12. 20 pm	Vote of Thanks
12.20 pm to 12.45 pm	**Conference Photo**
12.45 pm to 1.45 pm	**Lunch Break**

Technical Sessions			
2.00 pm to 3.30 pm	Session: *S1 – Advances in GenAI, LLMs and Explainable AI* Venue: *Nelum*	104	Estimating Story Points in Scrum: Balancing Accuracy and Interpretability with Explainable AI
		224	CARA: A Hybrid Framework Integrating Swarm AI Agents and Knowledge Graphs for Advanced Reasoning
		229	Assessing the Impact of Large Language Models on Problem-Solving Skills of Undergraduates- A Systematic Literature Review
		265	Understanding Catchment Impacts: Enhanced Water Level Prediction with LSTM and Explainable AI
	Session: *S2 – Agri-Tech Computing Innovations* Venue: *Olu*	161	IoT Based Smart Beehive Monitoring System
		188	High-Resolution Optical Imaging Incorporated Non-Destructive Morphological Boundary Detection of Fruit Disorders: A Pilot Study
		237	Integrating Deep Learning for Plant Growth Monitoring and Browning Disease Severity Identification in Coconut Tissue Culture
		280	Effectiveness of Deep Learning and IoT for Disease Classification and Characterizing Tissue Culture Calli

2.00 pm to 3.30 pm	Session: **S3 –** *Secure Digital Ecosystems* Venue: *Manel*	119	Machine Learning and Browser Fingerprinting Based Approach for Web Bot Detection
		129	Project ALVI: Privacy-Driven Defences: Federated Learning Security and Authentication
		176	Design and Implementation of a Secure Documentation System for Robust Document Transfer and Access Control
	Session: **S4 -** *Communication and Networked Services* Venue: *Link*	25	Advancing Marine Communication and Sustainability: A LoRa Based Ad Hoc Network System for the Fisheries Industry
		77	Telltale Twin - Predicting Latency of Unseen Subflow of Multipath Transmission Control Protocol using Machine Learning
		297	Assessing Quality of Service Performance in SDN Controllers: POX vs. OpenDaylight
		304	Semantic Communication via VAEs for Image Transmission
	Session: **S5 -** *Computer Vision and Natural Language Processing* Venue: *Albatross*	8	GreenGuard: Mobile Application for Real-Time Tea leaves Disease Detection and Treatment Guidance
		22	Sentiment Analysis Using 1-of-m and Log-m Character-Level Embedding Algorithms with Deep Learning
		83	Detection of Fake Reviews in E-commerce Platforms Related to Ayurvedic Cosmetics in Sri Lanka
		249	Semantic Segmentation in Unmanned Aerial Vehicle Surveillance for Detailed Urban Tree Mapping and Species Classification
Tea Break			
4.00 pm to 5.30 pm	Session: **S6 –** *Intelligent Health Tech & Assistive Solutions* Venue: *Nelum*	254	User-Centric Design of Contactless Smart Wheelchair System for Elderly People
		281	Assistive Cartesian Healthcare Robot for Forearm Vein Puncturing
		289	Smart Walking Cane for Enhanced Mobility and Safety of Visually Impaired Residents
		292	Real World Data-Driven Agent-Based Modeling for Health Policy Insights During Epidemics
	Session: **S7 –** *Autonomous Intelligent Machines & Systems* Venue: *Olu*	94	Optimized Multi-Processor System-on-Chip (MPSoC) Design for Low-Resource JPEG Encoding
		136	Towards an Ontological Digital Forensic Investigation Framework for Autonomous Vehicles
		149	A comprehensive Threat Model for Autonomous Vehicle Communication Security
		191	Smart Water Management System for Rainwater Harvesting Tanks
	Session: **S8 –** *Technology Enhanced Learning* Venue: *Manel*	64	From Chalkboards to Chatbots: A Systematic Literature Review on the Evolution of AI in Accounting Pedagogy.
		111	EduGuard – Mobile Application for Sex Education and Sexual Harassment Reporting for Sri Lanka
		162	Deep Learning-Based Recognition System for Hand-Drawn Sketches by Children with Down Syndrome
		236	Enhancing Data Science Education: A Systematic Review of Gamified Learning Platforms for Decision-Making Skills Development
	Session: **S9 –** *Computer Vision and Natural Language Processing* Venue: *Link*	91	GlowUp - Enhancing Salon Experience Through AI-Driven Customer Insights
		140	Adaptive continual learning for defect detection in dynamic textile manufacturing.
		181	Promo-Zen: A Natural Language Processing Based Promotional Text Message Management System
		182	Improving Fake News Detection with a Mixture of Experts: Leveraging Sentiment Analysis and Sarcasm Detection as Core Expert Models

	Session: **S10 –**	48	An Automated Model for Predicting Weekly Tea Auction Prices at Colombo Tea Auction for Specific Elevations and Grades
	Sustainable Socio-Economic Ecosystems	98	Predicting Employee Attrition & Employee Retention Period Using Supervised Learning
		264	Towards Holistic Crime Management through Descriptive Analysis and Predictive Forecasting
	Venue: *Albatross*	294	Unveiling Motion Patterns Through Unsupervised Clustering
			End of the Day 01

Conference Day 2 – 13th December

8.30 am to 9.00 am	Registration

Technical Sessions

	Session: **S11 –**	65	Todly: Multimodal Approach for Toddler Safety and Well-Being Using Advanced Machine Learning
	Intelligent Health Tech & Assistive Solutions	71	"BeMyVoice" – A Communicative Platform to Assist Deaf Students
		139	A Multimodal Interaction System for Speech-Based Autism Intervention in Sinhala-Speaking Sri Lankan Children Using the NAO Robot
	Venue: *Nelum*	192	Diabetic Retinal Disease Detection through Transfer Learning Techniques
		105	Benefits and Implication in AI Adoption in the Health Sector: A Survey of Cultural, Privacy, and Legal Issues in Nepal
9.00 am 10.40 am	Session: **S12 –**	95	Rear-End Collision Avoidance Using Multi-Agent Deep Reinforcement Learning
	Autonomous Intelligent Machines & Systems	117	Dynamic Queue Management System for Multi-Cashier Supermarkets Using IoT and Real-Time Monitoring
		174	Automated Monitoring and Analysis of Avian Behavior and Hatching Success Using YOLOv8: A Case Study on Red-wattled Lapwings
	Venue: *Olu*	186	Sagittarius: Floating Self Navigating Robot for Monitor the Water Quality of Rural Reservoirs
		201	Efficient Path Estimation via Sensor Fusion of IMU, GPS, and Wheel Encoder and Control Parameter Optimization
	Session: **S13 –**	42	Usability Evaluation of E-Learning Website
	Technology Enhanced Learning	107	Machine Learning-Driven Toolkit for Sinhala Text-to-Speech and Spell Checker.
		115	Enhancing G.C.E. Ordinary Level Mathematics Through Adaptive Learning In Sri Lanka
		153	Galaxy Morphology Classification based on VGG19 Deep Convolutional Neural Network
	Venue: Manel	154	Mindfulness: A Mental Health Aid for University Students
	Session: **S14 –**	40	Exploring Radiologists' Reluctance Towards Machine Learning Models and Explainable AI in Brain Tumor Detection
	Advances in GenAI, LLMs and Explainable AI	53	A Generative Adversarial Network to Upscale the Resolution of Low-Resolution Galaxy Images
		152	The Impact of AI-Driven Educational Transformation in Sri Lanka's Higher Education
	Venue: *Link*	295	Leveraging Large Language Models and Deep Learning for Wikipedia Quality Assessment

	Session: **S15 –** *Computer Vision and Natural Language Processing* Venue: *Albatross*	194	Combating Digital Deception: Machine Learning Approaches for Detecting Political Misinformation and Clickbait on Social Media
		195	Machine Learning based Detection System for Identifying Deepfake Images and Social Bots
		203	Enhancing Typing Dynamics Emotion Recognition: A Multi-Class XGBoost Approach for Accurate Sentiment Detection
		212	Deep Learning Framework for Exploring Customized CNN With Customer Demographics and Salon Visuals
		89	Optimizing User Experience in Mobile Travel Applications: A Study on Personalized Routing, Thematic Content, and Cultural Engagement.
Tea Break			
11.00 am to 12.30 pm	Session: **S16 –** *Autonomous Intelligent Machines & Systems* Venue: *Nelum*	197	An Integrated Framework for Demographic Analysis, Person Recognition, and Path Tracking in Surveillance Systems
		275	Development of a Predictive IOT Based System for Real Time Air Quality Monitoring and Route Optimization
		291	FlarePath: Advanced Vehicle Fire Safety and Monitoring with Rapid Emergency Dispatch Solutions
		296	"AI-Driven SMART K9 CARE SYSTEM" – A Comprehensive System for Reducing Canine Anxiety During Owner Absence
		135	Mining Haulage Road Maintenance Prediction Dashboard Utilising Machine Learning Techniques
	Session: **S17 –** *Intelligent Health Tech & Assistive Solutions* Venue: *Olu*	200	Deep Learning for Early Autism Screening: Analysis of Hand-Flapping Motions in Infants
		202	A Novel Mobile Application for Personalized Hair Care Using Advanced Machine Learning Techniques
		207	Facial Diagnosis Skin Care and Makeup Recommendation Using Advanced Deep Learning Techniques
		231	Assisting Hearing Impaired Children by Personalized Gamification of Auditory Verbal Therapy
	Session: **S18 –** *Intelligent Health Tech & Assistive Solutions* Venue: *Manel*	246	The Advanced Digital Acne Type Diagnostic System
		258	Vision AI: Enhancing Ophthalmic Care with Advanced Detection Technologies
		278	ML and DL Model Comparison with Skin Tone and Dynamic Range Analysis for rPPG
		300	Decoding Diabetics: Diabetic Retinopathy Detection using Machine Learning
	Session: **S19 –** *Technology Enhanced Learning* Venue: *Link*	178	A fully featured and optimized object document mapper for the Go programming language.
		214	An Intelligent Platform for Cricket Technique and Performance Improvement
		225	Enhancing Soft Skills in Autistic Children: The Next Generation of Mind Champ's Technological Approach
		274	Application to Enhance the Programming Knowledge of Children
	Session: **S20 –** *Technology Enhanced Learning* Venue: *Albatross*	256	Adaptive Learning Tool to Enhance Educational Outcomes for Students with Inattentive Attention Deficit Hyperactivity Disorder (ADHD)
		272	Leveraging Smart Video-Based Learning to Enhance Student Engagement and Collaboration
		301	Adapting Pedagogical Frameworks to Online Learning: Simulating the Tutor Role with LLMs and the QUILT Model
		252	VascularVison: Mixed Reality Based Teaching and Learning Environment for Cardiovascular Conditions
Lunch Break			

Time	Session	ID	Title
1.30 pm to 2.45 pm	Session: **S21 –** *Sustainable Socio-Economic Ecosystems* Venue: *Olu*	17	Automated BPMN Diagram Generation
		123	An Integrated Study of Academic, Relational, Economic and Social Factors Affecting University Students Happiness
		227	Telco Customer Churn Prediction Using Composite Deep Learning Technique
		277	Multi-Model System for Sustainable Coral Reef Conservation in Sri Lanka
	Session: **S22 –** *Autonomous Intelligent Machines & Systems* Venue: *Manel*	47	Crafting Tomorrow's Trends with Automated Precision, Efficiency, and Faultless Excellence in apparel Industry for Medium Scale businesses
		88	Integrated Smart Dam Control System Using Machine Learning
		92	Real-Time Quality Monitoring System for the Apparel Industry in Sri Lanka
		102	Multi-Modal Behavior Classification Using Audio Visual Data of Vanellus Indicus
1.30 pm to 2.45 pm	Session: **S23 –** *Secure Digital Ecosystems* Venue: *Link*	159	Enhancing Financial Sector Cybersecurity: A Multi-Component Framework for Supply Chain Risk Mitigation
		169	A BERT-Based Approach to Keyword Search for Digital Evidence Analysis
		279	A Machine Learning Approach for Context Aware Input Output Validation in Mobile Applications
	Session: **S24 –** *Machine Learning Applications* Venue: *Albatross*	218	SmartDine: A Comprehensive System for Enhancing Customer Satisfaction and Optimizing Business Operations in the Restaurant Context
		232	Advanced Convolutional Neural Networks for Detecting and Quantifying Infections in Coconut Tree Tissue Cultures
		223	Optimizing User Experience through Machine Learning: A Review of Key Tools and Technologies
		50	Success Factors of Requirement Engineering that Influence Software Development Efficiency
Tea Break			
3.00 pm to 4.15 pm	Award Ceremony Venue: *Nelum*		
End of ICAC2024			