MERCon 2017

Conference Programme

Day 1	Workshops		
29 May 2017	**Track 1**	**Track 2**	**Track 3**
8:30am - 9:00am	Registration		
9:00am - 12:00pm	Integrating Renewable Energy Resources: PSCAD-Based Network Integration Studies	Waste Water Treatment Fundamentals, Plant Monitoring, and Operations	Modeling and Simulation of MEMS/NEMS Based Smart Devices and Systems
12:00pm - 1:30pm	Lunch (on your own)		
1:30pm - 4:30pm	Photovoltaic Power Conversion Systems: Current Trends	Modelling Wireless Sensor Networks with Network Simulator 3	Writing, Publishing, Presenting, and LaTeX

Day 2	Conference		
30 May 2017	**Track 1**	**Track 2**	**Track 3**
8:00am - 8:30am	Registration		
8:30am - 10:00am	Session 1: Chemical and Process Engineering	Session 2: Robotics and Control	-
10:00am - 10:30am	ERU Symposium Poster Session and Tea		
10:30am - 12:30pm	Inauguration and Keynotes by: • Prof. Dr.-Ing. Christoph Bayer • Prof. Srikantha Herath		
12:30pm - 1:30pm	Lunch (on your own)		
1:30pm - 3:15pm	Session 3: Materials Science and Engineering I	Session 4: Software Engineering	Session 5: Transport and Logistics Management
3:15pm - 3:45pm	ERU Symposium Poster Session and Tea		
3:45pm - 5:15pm	Session 6-A: Materials Science and Engineering II Session 6-B: Textile and Apparel	Session 7: Mechanical Engineering Systems	Session 8-A: Signal Processing and Telecommunication Systems Session 8-B: Engineering Mathematics and Statistics
6:00pm - 7:00pm	Banquet (for registered authors, students, and invitees)		

Day 3	Conference		
31 May 2017	**Track 1**	**Track 2**	**Track 3**
8:30am - 9:00am	Registration		
9:00am - 10:30am	Session 9: Civil and Environmental Engineering I	Session 10-A: Biomedical Engineering and Instrumentation Session 10-B: Micro/Nano Electro Mechanical Systems, Mechatronics, and Micromechatronics Session 10-C: Machine Vision and Image Processing	-
10:30am - 11:00am	ERU Symposium Poster Session and Tea		
11:00am - 12:30pm	Session 11: Civil and Environmental Engineering II	Session 12: Power Systems, Electrical Machines and High Voltage	-
12:30pm - 1:30pm	Lunch (on your own)		
1:30pm - 3:00pm	Keynotes by: • Dr. Susumu Sugiyama • Dr. Darshana Muthumuni		
3:00pm - 3:30pm	ERU Symposium Poster Session and Tea		
3:30pm - 5:15pm	Session 13: Energy and Environmental Engineering	Session 14: Big Data, Machine Learning, and Cloud Computing	Session 15: Technology Management
5:15pm - 5:45pm	Awards Ceremony		

Session Topics

Session 1 - Chemical and Process Engineering

S1-1 [08:30] - Investigation of the effectiveness of nanocellulose extracted from Sri Lankan Kapok, as a filler in Polypropylene polymer matrix

S1-2 [08:45] - Particle Modelling for Convective Drying of Copra

S1-3 [09:00] - Extraction and Modification of Lignin Biopolymer: Spectroscopic Structure Elucidation and Thermal Analysis Coir Pith and Straw

S1-4 [09:15] - Conversion of textile industry effluent treatment plant sludge into a valuable organic fertilizer using Delta-D technology

S1-5 [09:30] - Cost Competitive "Soft Sensor" for Determining Product Recovery in Industrial Methanol

S1-6 [09:45] - Removal of Lead from Synthetic Wastewater Using Chemically Modified Jackfruit Leaves

Session 2 - Robotics and Control

S2-1 [08:30] - Accurate Attitude Estimation under High Accelerations and Magnetic Disturbances

S2-2 [08:45] - Attention Level Approximation of a Conversation in Human-Robot Vocal Interaction Using Prosodic Features of Speech

S2-3 [09:00] - Identifying Spatial Terminology and Boundaries for Human Robot Interaction: A Human Study

S2-4 [09:15] - Development of an Upper Limb Master-Slave Robot for Bimanual Rehabilitation

S2-5 [09:30] - Extended Kalman Filter based Fusion of Reliable Sensors using Fuzzy Logic

Session 3 - Materials Science and Engineering I

S3-1 [13:30] - Extraction and Characterisation of Montmorillonite Nano Clay from Sri Lankan Clay Deposits

S3-2 [13:45] - Thermally Induced Wrinkling of Poly-L-lactic Acid with Palladium Nanolayers

S3-3 [14:00] - Synthesis of Nanosilica Using Acrylic Polymers as Surface Modifiers

S3-4 [14:15] - Ultrasonic Non Destructive Evaluation of Corrosion Damage in Concrete Reinforcement Bars

S3-5 [14:30] - Study of the Dielectric Behavior of Graphite Oxide Upon Exposure to Chlorine

S3-6 [14:45] - Development of Heterojunction CZTS Based Solar Cell Using Solution Deposition Methods

S3-7 [15:00] - Novel antimicrobial nano coated polypropylene based materials for food packaging systems

Session 4 - Software Engineering

S4-1 [13:30] - WireMe - IoT Development Platform for Everyone
S4-2 [13:45] - Parameterized Diamond Tiling for Parallelizing Stencil Computations
S4-3 [14:00] - Analyzing Source code Identifiers for Code reuse using NLP Techniques and
WordNet
S4-4 [14:15] - Change Detection Optimization in Frequently Changing Web Pages
S4-5 [14:30] - Semi-automated Recommendation Platform for Data Visualization: Roopana
S4-6 [14:45] - Automatic Assessment and Error Identification of Multi-Step Answers for
Matrix Questions
S4-7 [15:00] - Tool Support for Traceability Management of Software Artefacts with DevOps
Practices

Session 5 - Transport and Logistics Management

S5-1 [13:30] - Structural Characteristics of Complex Supply Chain Networks
S5-2 [13:45] - Measuring the Economic Costs of Traffic Congestion
S5-3 [14:00] - A Decision Support System for Demand Planning: A Case Study from
Manufacturing Industry
S5-4 [14:15] - Longitudinal Analysis of Supply Chain Transformation Project Management:
Case Based Learnings from the Sri Lankan Manufacturing Sector
S5-5 [14:30] - Value Chain Approach for Modelling Resilience of Tiered Supply Chain
Networks
S5-6 [14:45] - Passenger Perception on Terminal Building Facilitation at Bandaranaike
International Airport
S5-7 [15:00] - An Intelligent Highway Traffic Model using Cooperative Vehicle Platooning
Techniques

Session 6A - Materials Science and Engineering II

S6A-1 [15:45] - Synthesis and Characterization of Cellulose from Locally Available Rice
Straw
S6A-2 [16:00] - Development of Cellulose Based Light Weight Polymer Composites

Session 6B - Textile and Apparel

S6B-1 [16:15] - Method and apparatus to weave a fully interlaced three-dimensional textile
structure
S6B-2 [16:30] - Modeling of Compressed Air Requirement for different weft yarns on Air Jet
Weaving
S6B-3 [16:45] - Improving Flame Retardant Properties of Pigment Printed Materials

Session 7 - Mechanical Engineering Systems

S7-1 [15:45] - Development of a best-fit algorithm for feature based assembly

S7-2 [16:00] - Effects of Forced-Draft Fan Speed on Overall Performance of Biomass Combuster-Heat Exchanger System

S7-3 [16:15] - Evaluation of The Applicability of Zimont's Turbulent Flame Speed Closure Model to An Octane Fueled Engine With Moderate Level of Turbulent Intensity

S7-4 [16:30] - Development of temperature prediction model for rubber caster wheels using finite elements

S7-5 [16:45] - A Novel Fixturing System for Complex Shaped Components

Session 8A - Signal Processing and Telecommunication Systems

S8A-1 [15:45] - Blind Channel Equalization in the Presence of Co-channel Interference using Higher Order Statistics

S8A-2 [16:00] - Energy-Efficient ULF/VLF Transmitters Based on Mechanically-Rotating Dipoles

S8A-3 [16:15] - Towards Moisture Sensing Using Dual-Polarized Printable Chipless RFID Tag

S8A-4 [16:30] - Design Methodology of an Analog 9-Beam Squint-Free Wideband IF Multi-Beamformer for mmW Applications

Session 8B - Engineering Mathematics and Statistics

S8B-1 [16:45] - Statistical Modeling of Weekly Rainfall: A Case Study in Colombo City in Sri Lanka

S8B-2 [17:00] - Identifying the Influence of Mathematics on Academic Performance of Engineering Students

Session 9 - Civil and Environmental Engineering I

S9-1 [09:00] - High Volume Fly Ash Mixes Supplemented with Colloidal Nano Silica

S9-2 [09:15] - Integrating Design Freeze in to large-scale construction projects in Sri Lanka

S9-3 [09:30] - An Exact Finite Element Using Hyperbolic Shear Deformation Beam Theory

S9-4 [09:45] - Effect of aggregate percentage on compressive strength of self-compacting in-situ cast Mud - Concrete load bearing walls

S9-5 [10:00] - Investigation on Elements and their fraction of Housing Construction Cost

S9-6 [10:15] - Prediction of Creased Geometry of Thin Folded Membranes using Finite Element Analysis

Session 10A - Biomedical Engineering and Instrumentation

S10A-1 [09:00] - Robust and Computationally Efficient Approach for Heart Rate Monitoring Using Photoplethysmographic Signals During Intensive Physical Exercise

S10A-2 [09:15] - Does Obesity Affect the Biomechanics of the Foot? A Preliminary Computational and Experimental Study

Session 10B - Micro/Nano Electro Mechanical Systems, Mechatronics, and Micromechatronics

S10B-1 [09:30] - A Novel Concept for Remotely Monitoring Babies

S10B-2 [09:45] - Occupancy Identification Based Energy Efficient Illuminance Controller with Improved Visual Comfort In Buildings

Session 10C - Machine Vision and Image Processing

S10C-1 [10:00] - Quantitative Evaluation of Face Detection and Tracking Algorithms for Head Pose Estimation in Mobile Platforms

S10C-2 [10:15] - Mud and Dirt Separation Method for Floor Cleaning Robot

Session 11 - Civil and Environmental Engineering II

S11-7 [11:00] - Estimating the Vehicle Operating Cost used for economic feasibility analysis of highway construction projects

S11-1 [11:15] - Analysis of Toll Station Operations in Sri Lanka Using a Micro-Simulation Technique

S11-2 [11:30] - Delay analysis at a signalized T intersection

S11-3 [11:45] - Optimal terminal configuration for minimizing passengers' waiting time

S11-4 [12:00] - Mitigation of traffic induced Carbon dioxide concentration through road-side greenery

S11-5 [12:15] - Measuring Structural Dynamics with Smartphones

Session 12 - Power Systems, Electrical Machines and High Voltage

S12-1 [12:30] - Optimized Cost Enabled Rural Electrification System

S12-2 [12:45] - A Fuzzy Logic based Power Management System for an integrated AC-DC Hybrid Microgrid Mode

S12-3 [13:00] - Open Conductor Fault Detection

S12-4 [13:15] - Microstrip Patch Antenna for Partial Discharge Detection as a Condition Monitoring Tool of Power System Assets

S12-5 [13:30] - A Tool For Estimating Remaining Life Time of a Power Transformer

Session 13 - Energy and Environmental Engineering

S13-1 [15:30] - Finite Volume Analysis of Biomass Particle Pyrolysis

S13-2 [15:45] - Performance Analysis of Single Cell Solid Oxide Fuel Cells

S13-3 [16:00] - Fabrication of Dye Sensitized Solar Cells Using Locally Available Sensitizers

S13-4 [16:15] - The impact of green attributes on customer loyalty of supermarket outlets in Sri Lanka

S13-5 [16:30] - Indoor thermal comfort and carbon dioxide concentration

S13-6 [16:45] - Mechanistic Model For Electricity Generation Via Biomethane Production Through Anaerobic Digestion Of Organic Fraction Of Municipal Solid Waste Generated In Sri Lanka

Session 14 - Big Data, Machine Learning, and Cloud Computing

S14-1 [15:30] - Automatic Assessment of Student Answers for Geometric Theorem Proving Questions
S14-2 [15:45] - Effect of Neural Network Structure for Daily Electricity Load Forecasting
S14-3 [16:00] - Automatic Creation of a Word Aligned Sinhala-Tamil Parallel Corpus
S14-4 [16:15] - Rationalizing Police Patrol Beats Using Heuristic-Based Clustering
S14-5 [16:30] - Anomaly Detection in Complex Trading Systems
S14-6 [16:45] - Short Tamil Sentence Similarity Calculation using Knowledge-Based and Corpus-Based Similarity Measures
S14-7 [17:00] - Question Answering System for the Travel Domain

Session 15 - Technology Management

S15-1 [15:30] - Knowledge Improvisation during Floods
S15-2 [15:45] - Impact of groups on Academic Entrepreneurs in Sri Lanka
S15-3 [16:00] - Emotional Intelligence, Technology Strategy and Firm's Non-Financial Performance
S15-4 [16:15] - Tool Support for Effective Employee Performance Appraisal in Software Engineering Industry
S15-5 [16:30] - Sustaining Technopolis in Sri Lanka; A Technological Innovation Systems Approach
S15-6 [16:45] - Effect of 3D Product Presentation on Consumer Preference in E-Commerce
S15-7 [17:00] - Critical Factors for Market Sales Promotion on Social Media in Banking Sector