Thursday

August 8

8:00 AM	Registration	**Session Chairs:** Dr. Farrokh Janabi-Sharifi
9:00 AM – 9:20 AM	Official Opening of Conference	
9:20 AM – 10:00 AM	Keynote Lecture I: *Development of Actuators for Precision and Microsystems Applications* **Ridha Ben Mrad University of Toronto, Canada**	
10:00 AM – 10:40 AM	Keynote Lecture II: *Certain Aspects of Flows over Rough Surfaces* **Jerzy M. Floryan The University of Western Ontario, Canada**	
10:40 AM – 11:00 AM	Coffee Break	

11:00 AM – 12:40 PM

Session Name: Instrumentation & Control	**Session Chairs: Dr. Seyed Mohammad Rajaai & Dr. Carlo Menon**
11:00 AM – 11:20 AM	Paper 176: "Elements of an Enterprise Level Precision Agriculture System" **James Ellingson*,** Bonnie Holub, Chih Lai ***University of St. Thomas, United States**
11:20 AM – 11:40 AM	Paper 56: "Inhibition of Mild Steel Corrosion by 2-(3,4,5-trimethoxybenzylidene) Hydrzinecarbothiamide in Hydorochloric Acid Solution" **Prakasha Shetty*,** Preethi Kumari P., Suma A. Rao, Dhanya Sunil ***Manipal University, India**
11:40 AM – 12:00 PM	Paper 89: "A New HHT Technique for Bearing Health Condition Monitoring" **Shazali Osman*,** Wilson Wang ***Lakehead University, Canada**

12:00 PM – 12:20 PM	Paper 34: "PID Controller Design for Unstable System with Desired Phase Margin Using D-curve Method" **Thirunavukkarasu Indiran*,** George Vadakekara Itty, W. Tielemans ***Manipal University, India**
12:20 PM – 12:40 PM	Paper 51: "A Comparison Between Continuous and Discrete Optimal Control of a Gantry Crane" **Firooz Bakhtiari-Nejad*,** Mostafa Nazemizadeh ***Amirkabir University of Technology, Iran**
12:40 PM – 1:40PM	Lunch

1:40 PM – 4:00 PM

Session Name: Applied Mechanics	Session Chairs: Dr. Simon Li & Dr. Marton Takacs
1:40 PM – 2:00 PM	Paper 49: "A New Damage Detection Algorithm for Impedance Based Structural Health Monitoring" Naserodin Sephry, **Firooz Bakhtiari-Nejad*,** Mahnaz Shamshirsaz ***Amirkabir University of Technology, Iran**
2:00 PM – 2:20 PM	Paper 169: "Dynamic Fracture Analysis of Isotropic Materials Using the Extended Finite Element Method with Optimal Frequency Dissipation" **Ashkan Mahdavi*,** Soheil Mohammadi ***University of Tehran, Iran**
2:20 PM – 2:40 PM	Paper 177: "A New Cantilever Beam-Rigid-Body MEMs Gyroscope: Mathematical Model and Linear Dynamics" **Seyed Amir Mousavi Lajimi*,** Glenn Heppler, Eihad Abdel-Rahman ***University of Waterloo, Canada**
2:40 PM – 3:00 PM	Paper 178: "Eigenvalue Analysis of a Cantileve Beam-Rigid-Body MEMs Gryoscope" **Seyed Amir Mousavi Lajimi*,** Glenn Heppler, Eihad Abdel-Rahman ***University of Waterloo, Canada**
3:00 PM – 3:20 PM	Paper 179: "Analysis of Nonlinear Dynamics of a Cantilever Beam-Rigid-Body MEMs Gryoscope Using a Continuation Method" **Seyed Amir Mousavi Lajimi*** ***University of Waterloo, Canada**
3:20 PM – 3:40 PM	Paper 181: "Characterising the Suspension Anisotropy of a Computerized Foucault Pendulum" **René Verreault*,** Christian Tremblay ***Université du Québec à Chicoutimi, Canada**

3:40 PM – 4:00 PM	Paper 162: "Comparison of Impact Behaviour of Different Materials Used in the Car Interior Structure Using Modelling and FEM" **Seyed Mohammad Rajaai*** ***Azad University, Iran**
4:00 PM – 4:20 PM	Coffee Break

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4:20 PM – 6:40 PM

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Session Name: Design & Manufacturing	**Session Chairs:** **Dr. James Ellingson &** **Dr. René Verreault**
4:20 PM – 4:40 PM	Paper 65: "Preparation of Ni-Zr Alloy by Levitation Containerless Processing Method" Peng Lv, Kai Zhou, Jian Chang, **Haipeng Wang*** ***Northwestern Polytechnical University, China**
4:40 PM – 5:00 PM	Paper 73: "Integration of Quality Function Deployment and Functional Analysis for Eco-Design Improvement" Abdulbaset Alemam, **Simon Li*** ***Concordia University, Canada**
5:00 PM – 5:20 PM	Paper 74: "Fuzzy Environmental Impact Assessments for the Early Design Decisions" Abdulbaset Alemam, **Simon Li*** ***Concordia University, Canada**
5:20 PM – 5:40 PM	Paper 84: "Active Vehicle Suspension Design Using H_∞ Control Technique" **Shenjin Zhu*,** Manjurul Islam, Yuping He, Jing Ren, Ebrahim Esmailzadeh ***University of Ontario Institute of Technology, Canada**
5:40 PM – 6:00 PM	Paper 159: "Interdisciplinary Semantic Interactions within a Unified Feature Model for Product Cost Estimation" **Narges Sajadfar*,** Luis Campos Triana, Yongsheng Ma ***University of Alberta, Canada**
6:00 PM – 6:20 PM	Paper 171: "Computer Aided Design and Analysis of a Single Stage Gearbox" **M.V.N. Sankaram*,** Pranav Bhatnagar ***Birla Institute of Technology & Science, United Arab Emirates**
6:20 PM – 6:40 PM	Paper 173: "A Test Facility for Characterizing Infrared Heaters" Rayhaan Farrelly, Karl Brown, Sean Nolan, Samuel Siedel, Garret O'Donnell, Cathal Wilson, **Anthony Robinson*** ***Trinity College Dublin, Ireland**

Friday

August 9

9:00 AM – 9:40 AM	Keynote Lecture III: *Advanced Cooling in Gas Turbines for Clean Power Generation* **Je-Chin Han** **Texas A&M University, United States**	**Session Chairs:** **Dr. Dan Zhang**
9:40 AM – 10:20 AM	Keynote Lecture IV: *Flow Control in Building Ventilation Using Synthetic Jet Actuator* **N.A. Ahmed** **University of New South Wales, Australia**	
10:20 AM – 10:40 AM	Coffee Break	
10:40 AM – 12:40 PM	Poster Session[i]	

10:40AM – 12:40 PM

Session Number 1 **Session Name: Mechatronics**	**Session Chairs:** **Dr. Moshe Porat &** **Dr. Mohammad Kassemi**
10:40 AM – 11:00 AM	Paper 50: "A New Forecasting Technique for System State Prognosis" **Dezhi Li*,** Wilson Wang, Fathy Ismail ***University of Waterloo, Canada**
11:00 AM – 11:20 AM	Paper 76: "Robust Cruise Control System for Electric Vehicle" Ankur Arora, Yi Lu, **Fereydoon Dida*,** Ebrahim Esmailzadeh ***University of Ontario Institute of Technology, Canada**
11:20 AM – 11:40 AM	Paper 72: "High Dynamic Control of Hybrid Vehicle Combustion Engine Test Beds" **Raphael Priesner*,** Robert Bauer ***Vienna University of Technology, Austria**
11:40 AM – 12:00 PM	Paper 148: "An RFID-based Automated Warehouse Project for a Course in Mechatronics" **Heshan Fernando*,** Brian Surgenor ***Queen's University, Canada**

12:00 PM – 12:20 PM	Paper 71: "Integral-Filter Observer for Linear and Nonlinear Systems" Esmaeel Bagherpour, **Mohammadreza Hairi Yazdi*** ***University of Tehran, Iran**
12:20 PM – 12:40 PM	Paper 81:"An Improved Unknown Input Observer for Linear Systems with Noisy Measurement" Esmaeel Bagherpour, **Mohammadreza Hairi Yazdi*** ***University of Tehran, Iran**

Session Number 2 **Session Name: Fluid Dynamics and Heat & Mass Transfer**	**Session Chairs:** **Dr. Haipeng Wang &** **Dr. Balkar Singh**

10:40 AM – 11:00 AM	Paper 186: "Experimental Measurement of the Velocity Field of a Round Wall Jet in Counter-Flow" **Mohammad Mahmoudi*,** David Nobes, Brian Fleck ***University of Alberta, Canada**
11:00 AM – 11:20 AM	Paper 190: "Simulation of Frost Growth with Uniform Variation of Wall Temperature Using CFD" Masoud Darbandi, Ehsan Asgari, **Gerry E. Schneider*** ***University of Waterloo, Canada**
11:20 AM – 11:40 AM	Paper 158: "Numerical Simulation of Particle Deposition in Larger Nozzle-to-Surface Distance Impinging Jet Flow" **Eid Alatawi*,** Edgar Matida Matida ***Carleton University, Canada**
11:40 AM – 12:00 PM	Paper 45: "A Multi-Level Computational Tool for Axial Flow Turbine Analysis" Pouya Saberi, **Ali Ashrafizadeh*** ***K.N. Toosi University of Technology, Iran**
12:00 PM – 12:20 PM	Paper 174: "Atmospheric Water Generator Using Renewable Energy" Jason Boeck, Milkias Tesfaye, Nathan Wardrip, **Yongli Zhao*** ***St. Cloud State University, United States**
12:20 PM – 12:40 PM	Paper 44: "Research on the Fatigue Life Prediction of IGBT Power Module" **Kexin Wei*,** Zhen Hu, Mingxing Du, Yanhai Guo ***Tianjin University of Technology, China**
12:40 PM – 1:40 PM	Lunch

1:40 PM – 3:40 PM	
Session Number 1 **Session Name: Robotics**	**Session Chairs:** **Dr. Gerald E. Schneider &** **Dr. Mohammadreza Hairi Yazdi**
1:40 PM – 2:00 PM	Paper 33: "Experimental Study of a Parallel Manipulator with Reconfigurable Dynamics" **Jonathon Hodgins*, Dan Zhang*, Gianmarc Coppola*,** Kefu Liu ***University of Ontario Institute of Technology, Canada**
2:00 PM – 2:20 PM	Paper 85: "Design and Field Test of an Advanced Throwing Information Acquisition System" Zhen Gao, **Dan Zhang*** ***University of Ontario Institute of Technology, Canada**
2:20 PM – 2:40 PM	Paper 86: "Multi-Objective Pareto Optimization of a Three-Degree-of-Freedom Parallel Manipulator" **Dan Zhang*,** Zhen Gao ***University of Ontario Institute of Technology, Canada**
2:40 PM – 3:00 PM	Paper 163: "Nonlinear, Visual Servoing based Controller Design and Implementation for Restaurant Robot with Landmark based Self-localization" Chyi-Yeu Lin, **Zelalem Abay Abebe*** ***National Taiwan University of Science and Technology, Taiwan**
3:00 PM – 3:20 PM	Paper 196: "Critical Maneuvers of an Autonomous Parallel Robot in a Confined Environment" **Hassan Sarfraz***, Davide Spinello, **Wail Gueaieb*** ***University of Ottawa, Canada**
3:20 PM – 3:40 PM	Paper 61: "Design and Development of a Swinging Arm Mechanism for an Aerial Manipulator System" **Tony Baltovski*,** Scott Nokleby, Remon Pop-Iliev ***University of Ontario Institute of Technology, Canada**

Session Number 2 Session Name: Mechanical Engineering	Session Chairs: Dr. Yongli Zhao & Dr. Mullapudi Venkata Naga Sankaram
1:40 PM – 2:00 PM	Paper 43: "Analysis of Symmetric Asymmetric Single Row Hole-Entry Hybrid Journal Bearing with Micropolar Lubrication" Suresh Verma, **Balkar Singh***, Vijay Kumar ***Punjab Technology University, India**
2:00 PM – 2:20 PM	Paper 67: "Inhibition Behaviour of PHOH on the Corrosion of 15 Vol. % 6061 Al Alloy SiCp Composite in 0.5 M Hydrochloric Acid Medium" **Divakara Shetty***, Achutha Kini, **Prakash Shetty*** ***Manipal Institute of Technology, India**
2:20 PM – 2:40 PM	Paper 77: "Comparative Anlaysis of Hybrid Vehicle Braking System - A Perspective of KERS" **Radhika Kapoor***, Mallika C. Parveen ***Birla Institute of Technology & Science, United Arab Emirates**
2:40 PM – 3:00 PM	Paper 90: "An Energy Harvesting Nonlinear Energy Sink: Design and Test" **Daniel Kremer***, Kefu Liu ***Lakehead University, Canada**
3:00 PM – 3:20 PM	Paper 149: "A Lateral Vibration Analysis of a Flexible Rotor-Bearing System" **Ekin Dede***, Helen Wu ***University of Western Sydney, Australia**
3:20 PM – 3:40 PM	Paper 202: "Numerical Simulation of Chip Removal Process Performed by Cutting Insert with Unique Edge Geometry" **Marton Takacs*** ***Budapest University of Technology and Economics, Hungary**
3:40 PM – 4:00 PM	Coffee Break

4:00 PM – 6:40 PM	
Session Number 1 **Session Name: Miscellaneous Topics**	**Session Chairs:** **Dr. Prakasha Shetty &** **Dr. Shyh-Chin Huang**
4:00 PM – 4:20 PM	Paper 57: "Parametric Optimisation of Face Milling for Deburring" Sehijpal Singh Khangura, **Balkar Singh***, S. S. Sidhu ***Guru Nanak Dev Engineering College, India**
4:20 PM – 4:40 PM	Paper 64: "The Effect of Vapour Quality of EHD Augmented Flow Boiling" Gerard McGranaghan, **Anthony Robinson*** ***Trinity College Dublin, Ireland**
4:40 PM – 5:00 PM	Paper 87: "Investigation of Management Philosophies in Lean and Green Supply Chain – Impact of Employee Empowerment in Improving Productivity" **C. Mallika Parveen***, Tanmay Panda ***Birla Institute of Technology & Science, United Arab Emirates**
5:00 PM – 5:20 PM	Paper 48: "Monitoring Gearbox System Deterioration by Using a Multivariate Bayesian Control Technique" **Chen Lin***, Viliam Makis ***University of Toronto, Canada**
5:20 PM – 5:40 PM	Paper 187: "A Simple Solution for Adaptive Cruise Control System in Electric Vehicles" Shahryar Garmsiri, **Fereydoon Dida***, Ebrahim Esmailzadeh ***University of Ontario Institute of Technology, Canada**
5:40 PM – 6:00 PM	Paper 197: "Gravitational Effects on Cardiac Shape and Stress" Ilana Iskovitz, **Mohammad Kassemi***, James Thomas ***National Center for Space Exploration Research, United States**
6:00 PM – 6:20 PM	Paper 145: "The Biomechanics of the Heart as a Diagnostic Tool for Myocardial Infarction Using Multiple Hypothesis Tracking" Eyal Braiman, **Moshe Porat*** ***Technion, Israel**
6:20 PM – 6:40 PM	Paper 42: "An Experimental Study on Thermal Conductivity of Nanofluids Containing New Produced Carbon Nanotubes in Distilled Water: Empirical Model Development" Mohammad Fallahiyekta, **M. Reza Jafari Nasr***, Ali Morad Rashidi, Mehdi Arjmand

Session Number 2 Session Name: Computational Fluid Dynamics (CFD)	Session Chairs: Dr. Abdulkarim Busedra & Dr. Firooz Bakhtiari-Nejad
4:00 PM – 4:20 PM	Paper 188: "Numerical Simulation of Slip Flow Through Microchannels Described in the Curvilinear Coordinate System" Masoud Darbandi, Hossein Mahboub Fouladi, Mahdi Zakyani, **Gerry E. Schneider*** ***University of Waterloo, Canada**
4:20 PM – 4:40 PM	Paper 191: "Transport of Large Solute Particles in a Poiseuille Flow: CFD Modeling Using Moving Grids" **Rajib Kumar Saha*** ***Western University, Canada**
4:40 PM – 5:00 PM	Paper 180: "Effect of Channel Size on Heat Transfer in Thin Slabs" Mohammad Ismail, **Shahram Fotowat*,** Amir Fartak ***University of Windsor, Canada**
5:00 PM – 5:20 PM	Paper 189: "CFD Modeling of an Open Channel UV Wastewater Disinfection Reactor" **Rajib Kumar Saha*,** Madhumita Ray, Chao Zhang ***Western University, Canada**
5:20 PM – 5:40 PM	Paper 143: "Numerical Study of Coal Particle Behaviour during Coal Gasification in an Air-Blown Two-Stage Coal Gasifier" **Md. Saiful Alam*,** Agung Tri Wijayanta, Koichi Nakaso, Jun Fukai ***Kyushu University, Japan**
5:40 PM – 6:00 PM	Paper 70: "Numerical Heat Transfer Study on Solar Flat Plate Absorber System with Inbuilt Pebble Box Enhancement" **Yagnesh Sharma N.*,** Manjunath M.S., Nilesh Chimanrao Bagul ***Manipal Institute of Technology, India**
6:00 PM – 6:20 PM	Paper 183: "Comparison Between Finite Volume Methods and Ansys CFD Code to Case of Transonic Flow Pass Through a Turbine Blade Section" **Abobaker Mohammad Alakashi*,** Bambang Basumo, Safiah Binti Othman ***University Tun Hussein Onn, Malaysia**
6:20 PM – 6:40 PM	Paper 144: "Optimization of Automatic Transmission Fluid Parameters using Taguchi Method and its Application" Venkateswaran Santhanam, **Mallika Parveen*** ***Birla Institute of Technology & Science, United Arab Emirates**

Poster Session
August 9

10:00 AM – 12:40 PM
Paper 37: "Experimental Study on Mechanical Behavior of Granular Solid under Confined Compression" **Chih-Kiang Lin*,** Po-Hsien Chou, Yun-Chi Chung ***National Central University, Taiwan**
Paper 40: "Robot Control under Impact Loading Using Fuzzy Torque Controller and Optimized LOLIMOT Algorithm" **M. R. Hairi Yazdi*,** Moteaal Asadi Shirzi ***University of Tehran, Iran**
Paper 47: "A Tuneable Vibration Power Harvester by Adjusting Inter-multiple Supports Stiffness" **Shyh-Chin Huang*,** Chao-Yang Tsai ***Ming Chi University of Technology, Taiwan**
Paper 55: "Application of Modified Halpin-Tsai Equation in Nanocomposite Reinforced Carbon Nanotubes" Rezvan Adibipour, **Ali Sadough Vanini*,** Naser Kordani ***Amirkabir University of Technology, Iran**
Paper 60: "Electrical Contact Resistance of Micro-switch Systems" **Reza Haj Mohammad Jafar*,** John R. Dryden ***University of Toronto, Canada**
Paper 63: "Vibration Reduction of a Rotating Beam by Coupled Piezoelectric Absorbers" **Y.M. Huang*,** K. Lee ***National Central University, Taiwan**
Paper 132: "Developing Laminar Mixed Convection with Heat and Mass Transfer in Vertical Semicircular Ducts" A. Budabous, **A. A. Busedra*** ***University of Beghazi, Libya**
Paper 151: "Numerical Investigation of Energy Absorption Capacity of Metallic Foam-Filled Tubes" Mohammad Jarapour Alamdari, Ali Taherkhani, Reza Hedayati, Mojtaba Saidhi, **Ali Sadough Vanini*** ***Amirkabir University of Technology, Iran**
Paper 155: "Investigation of Bird Strike on Different Spots of Airplane Stabilizer Using LS-DYNA" Reza Hedayati, Mohammad Jafarpour Alamdari, **Ali Sadough Vanini*** ***Amirkabir University of Technology, Iran**
Paper 157: "A Miniature Legged Hexapod Robot Controlled by a FPGA" Ausama Ahmed, Michael Henrey, Pavel Bloch, Pranav Gupta, Cristian Panaitiu, Daniel Naaykens, Stefan Strbac, Lesley Shannon, **Carlo Menon*** ***Simon Fraser University, Canada**

Paper 172: "Erosive Smoothing in Abrasive Jet Micro-machining of Glass"
Reza Haj Mohammad Jafar*, Jan K. Spelt, Marcello Papini
*University of Toronto, Canada

Paper 175: "Using a Kinect based Robot for Multi-floor Navigation"
Mitchell Hoffman, Megan McGill, Kundan Nepal, **James Ellingson***, Christopher Greene
*University of St. Thomas, United States

Paper 182: "On-Off Tremor Suppression Orthosis with Electromagnectic Brake"
Gil Herrnstadt, **Carlo Menon***
*Simon Fraser University, Canada