PROGRAMME 🏛 uOttawa

2025 CCToMM Symposium on Mechanisms, Machines, and Mechatronics

Ottawa, Ontario, Canada
June 19-20, 2025

The 2025 CCToMM M^3 Symposium will take place at the following address:

Desmarais building (DMS)
55 Laurier Avenue East
Ottawa, Ontario,
Room: 2101

Programme at-a-glance

Thursday, June 19, 2025

08:15 – 09:00 Welcome and registration
09:00 – 10:00 Keynote
10:20 – 12:00 Session I: Machines and Mechanisms I
12:00 – 13:00 Lunch
13:00 – 15:00 Session II: Kinematics and Dynamics
15:20 – 17:00 CCToMM Annual General Meeting
19:00 – 21:00 Banquet Dinner

Friday, June 20, 2025

09:00 – 10:20 Session III: Machines and Mechanisms II
10:40 – 12:00 Session IV: Manipulation
12:00 – 13:00 Lunch
13:00 – 14:40 Session V: Vehicles
15:00 – 15:20 Awards ceremony

Symposium papers are available [here](#).
Password: CCToMM2025

Thursday, June 19, 2025

Welcome and Registration
8:15 – 9:00

Keynote Lecture
9:00 – 10:00

"Low-Impedance Robotics and Proprioceptive Actuation: Designing the Next Generation of Collaborative Robots" Clément Gosselin

Coffee break
10:00 – 10:20

Session I: Machines and Mechanisms I
10:20 - 12:00
Chair: Eric Lanteigne, University of Ottawa

P23 "Design and prototyping of a new 3-DOf SCARA-like robot" Houssem-Eddine Souayah, Tan Sy Nguyen, Jean Brousseau, and Jean-Christian Méthot

P5 "Improving the result accuracy of the analytical method for natural frequencies of compliant mechanisms" Vivien Platl, Lena Zentner, and Nobuyuki Iwatsuki

P9 "Bearing over-skidding detection using frequency analysis during constant speed working condition" Mohammadjavad Haghdoust Manjili and Xihui Liang

P10 "From zero-stiffness to neutral stability using stress relaxation" Matthias Blaakman and Giuseppe Radaelli

P26 "Angular-velocity-partitioned linkages: generalized planar parallel-guiding linkages" Craig Lusk

Lunch
12:00 – 13:00

Session II: Kinematics and Dynamics
13:00-15:00
Chair: Lionel Birglen, Polytechnique Montréal

P1 "The Algebraic parametric coupler point curve equation" M. John D. Hayes and Mirja Rotzoll

P4 "The Chebyshev-Grübler-Kutzbach mobility criterion revisited" M. John D. Hayes and Allyssia Colla

P25 "Linearization of point-mass cable-driven parallel robot dynamics through constrained cable tension-to-length ratios" Mitchell Rushton

P19 "Kinematic analysis and workspace enhancement of a novel (6+3)-DoF kinematically redundant parallel robot" Qide Ma, Ying Quan, and Kefei Wen

P20 "Kinematic analysis of an isotropic kinematically redundant (6+3)-DoF hybrid parallel robot" Kefei Wen, Qide Ma, Yuyang Zhang, Yifei Liu, and Jia Hong Sun

P24 "A new metric for motion approximation for the synthesis of planar four-bar linkages" Huan Liu and Qiaode Jeffrey Ge

Coffee break
15:00 - 15:20

CCToMM Annual General Meeting
15:20 – 17:00
The CCToMM AGM will be bimodal. Virtual access is provided through MS TEAMS here.

Banquet Dinner
19:00 - 22:00
Tosca Ristorante
144 O'Connor St, Ottawa, ON, K2P 2G7

Friday, June 20, 2025

Session III: Machines and Mechanisms II
09:00 - 10:20
Chair: John Hayes, Carleton University

P15 "Correlation-based misalignment diagnosis in rotating machines using order tracking and signal segmentation" Farshid Golnary, Mohammadali Sadaghian, and Xihui Liang

P7 "Realization of anisotropic properties of compliant 2D tensegrity grids for the use in soft robotics" Lukas Lehmann, David Herrmann, Leon Schaeffer, and Valter Böhm

P11 "A fully compliant pendulum balancer with a spherical range of motion" Riley Barendse and Giuseppe Radaelli

P21 "Parametrically tuned arched microbeam using compliant mechanism for mass sensing applications" Fehmi Najar and Emine Zaouali

Coffee break
10:20 – 10:40

Session IV: Manipulation
10:40 – 12:00
Chair: Scott Nokleby, Ontario Tech University

P12 "Kinematic analysis and design of a novel 9-DoF parallel robot with grasping capabilities" Grover Aruquipa, Patrice Lambert and Clément Gosselin

P13 "A compliant Q^2 linkage to model the human lower limb motion" Lionel Birglen

P3 "Tensegrity manipulator based on deformable, compressed members" David Herrmann, Lukas Lehmann, Leon Schaeffer, and Valter Böhm

P16 "Velocity analysis of a 6-DoF hybrid manipulator with two parallel modules" Kirill Mukhin, Anton Antonov, and Alexey Fomin

Lunch
12:00 – 13:00

Session V: Vehicles
13:00 – 14:40
Chair: Pierre Larochelle, South Dakota School of Mines and Technology

P6 "Extended testing of a map merging algorithm for long-term autonomous navigation of mobile robots" Christopher Baird and Scott Nokleby

P14 "Reinforcement learning application for controlling a quadcopter carrying a slung payload" Nourah Al Saud and Eric Lanteigne

P17 "Experimental study of bat-inspired robot aerodynamics using wind tunnel test" Tingting Sui and Ting Zou

P18 "Automatic weight-shift aircraft control with experimental fly-by-wire flights" Nathaniel Mailhot, Teresa de Jesus Krings, and Davide Spinello

P22 "Design of an electro-permanent magnet based aerial landing dock for mobile robots in multi-modal robotic systems" Troy Radam, Christopher Baird, and Scott Nokleby

Awards ceremony
15:00 – 15:20
The recipients of the Jorge Angeles Best Student Paper Award and the Ron Podhorodeski Best Student Presentation Award will be announced.