Conference Program

2026 the 10th International Conference on Mechanical Engineering and Robotics Research (ICMERR 2026)

May 20-22, 2026

Milan, Italy

www.icmerr.com

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Welcome Message

Welcome to the 10th International Conference on Mechanical Engineering and Robotics Research (ICMERR 2026) in Milan! This jubilee edition of the conference marks an important milestone in the history of ICMERR, celebrating ten years of scientific exchange, international cooperation, and continuous development in the fields of mechanical engineering and robotics.

This year conference is hosted by Politecnico di Milano (Polytechnic University of Milan), co-hosted by AGH University of Krakow, sponsored by University of Crete, and co-sponsored by IEEE. INTECO Ltd and SENSORS Open Access Journal are the patrons of this conference.

ICMERR aims to be one of the the significant international conferences for presenting novel and fundamental advances in the fields of mechanical engineering and robotics. The conference brings together experts from academia and industry to promote interdisciplinary collaborations and facilitate the development of innovative solutions to real-world problems.

This anniversary edition highlights not only the latest technological achievements and scientific developments, but also the international community from 18 countries that has been built around the ICMERR conference series over the past decade.

110 articles from all over the world were submitted to the conference. After peer review, 53papers were accepted. Congratulations to these authors!

The accepted papers, after successful presentation, will be published as ICMERR 2026 Conference Proceedings by IEEE. A few selected papers with extended version will be published in the Sensors Open Access Journal and in International Journal of Mechanical Engineering and Robotics Research.

Over the next few days, we will be exploring the latest research and advancements in mechanical engineering, robotics, automation, intelligent systems, and advanced manufacturing. We hope that you will engage in insightful discussions, network with fellow researchers and experts, and gain valuable knowledge and inspiration from the presentations.

I would like to take this opportunity to thank all those who contributed to the realization of ICMERR 2026. I would like to thank Reviewers for taking the time and effort necessary to review the manuscripts. Thanks go to the Keynote Lecturers, who continue the tradition of highest-level keynote lectures at the ICMERR conferences. Special thanks go to all organizing institutions, committee members, sponsors, and partners for their valuable support in preparing this jubilee conference edition.

We look forward to a productive and rewarding conference experience together. We are especially delighted to host this anniversary conference in the vibrant city of Milan — globally recognized as a center of innovation, technology, design, and culture. We hope that, alongside the technical program, keynote speeches, parallel sessions, and networking events, you will also enjoy the inspiring atmosphere and rich

heritage of this remarkable city.

Enjoy your time in Milan!

Yours sincerely,
ICMERR General Chair
Professor Wojciech Grega, AGH University of Krakow, Poland
ICMERR General Co-chair
Professor Hamid Reza Karimi, Politecnico di Milano, Italy

Useful Information

Conference Venue

nhow Milano

Address: Via Tortona 35, 20144 - Milano
Tel.: +39 024898861

Important Notes

- ✧ Please take care of your belongings during the conference. The conference organizer does not assume any possibility for the loss of personal belongings of the participants.
- ✧ Please wear delegate badge during the conference. There will be NO access for people without a badge. Never discard your badge at will.
- ✧ Accommodation is not provided. Early reservation is suggested to be made for delegates.
- ✧ Please show the badge and meal coupons during lunch and dinner.
- ✧ Don't stay too late in the city and don't be alone in the remote area. Be aware of the strangers who offer you service, signature of charity, etc., at scenic spots. More Tourist Information and Security tips are available online.
- ✧ Delegates are advised to carry sufficient cash with them when travelling around.

Important Phone Numbers

Emergency alarm telephone: 112 Medical Emergency: 118 Fire Alarm Call: 115

May Climate & Weather Averages in Milan, Italy

High Temp: 23 °C Low Temp: 11°C Mean Temp: 17 °C

Online APP

ZOOM Download Link: https://zoom.us/download

ZOOM Using & Presentation Instruction:

http://www.icmerr.com/kits.zip

Please rename your screen name before entering the room

Rename Screen Name Before Entering the Room	Examples
Authors: Paper ID-Name	ML001-San Zhang
Delegate: Delegate- Name	Delegate-San Zhang
Keynote Speaker: Keynote-Name	Keynote-San Zhang
Committee Member: Committee-Name	Committee-San Zhang
Session Keynote Lecturer: Session Keynote Lecturer-Name	Session Keynote Lecturer-San Zhang

Time Zone

UTC+2

Materials Prepared by the Presenters

✧ **Oral Presentation:**

PowerPoint or PDF files

PowerPoint Background Template: www.icmerr.com/kits.zip

Duration of Each Presentation

✧ Keynote Speech: 40 Minutes of Presentation including Q&A.

✧ Session Keynote Lecture: 25 Minutes of Presentation including Q&A.

✧ Regular Oral Presentation: 15 Minutes of Presentation including Q&A.

Note

✧ The regular oral presentation time arrangement is for reference only. In case any absence or some presentations are less than 15 minutes, please join your session before it starts.

An excellent presentation will be selected from each session which will be announced and awarded an excellent presentation certificate.

Keynote Speaker I

May 21, 2026, Thursday, 09:10-09:50, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Miami meeting room (The first floor)

Prof. Tom Oomen

Eindhoven University of Technology, The Netherlands

Speech Title: From data to future high-tech systems

Abstract: The future of manufacturing equipment and scientific instruments critically depends on achieving faster and more precise motion. Examples of such mechatronic systems include wafer scanners, wire bonders, die bonders, printing systems, pick-and-place machines, microscopes, and telescopes. These high-tech systems face continuously increasing demands in terms of speed, accuracy, and flexibility. At the same time, current design methodologies lead to excessive cost and are reaching a dead end.

We envisage a new generation of data-intensive mechatronic designs in which a massive number of actuators and sensors are deployed throughout the machine. On a submodule level, performance improvements are achieved through over-actuation, where active control replaces mechanical stiffness, resulting in unprecedented motion accuracy. Since the overall system's goal is to achieve system-level performance, system-level control problems are investigated, involving synchronized motion control and multiphysics problems such as thermo-mechanical control.

The vast amount of data originating from the massive number of actuators and sensors further enables machines that can learn and adapt during operation. Self-learning automatically adapts and improves the behavior of the system while operating. Self-healing machines enable submodules to dynamically take over tasks from faulty components, thereby significantly increasing machine uptime and robustness.

These concepts are demonstrated through several industrial case studies, illustrating the potential of data-intensive mechatronic design for future high-tech systems.

Bio: Tom Oomen is a full professor in the Department of Mechanical Engineering at Eindhoven University of Technology, The Netherlands. He has also held academic positions at KTH Royal Institute of Technology (Sweden), The University of Newcastle (Australia), and Delft University of Technology. He is the recipient of several awards, including the 7th Grand Nagamori Award, the Corus Young Talent Graduation Award, and NWO Veni and Vidi

personal grants. He currently serves as Senior Editor of IEEE Control Systems Letters (L-CSS) and Co-Editor-in-Chief of IFAC Mechatronics. His research involves the development of advanced motion control solutions for precision mechatronics, ranging from semiconductor equipment and printing to space and astronomy.

Keynote Speaker II

May 21, 2026, Thursday, 09:50-10:30, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Miami meeting room (The first floor)

Prof. Teresa Zielinsk

Warsaw University of Technology, Poland

Deputy Director of the Institute of Aeronautics and Applied Mechanics

Speech Title: Embodied Mechanical Intelligence: From Physics-Based Modelling to Intelligent Motion and Control

Abstract: This keynote presentation explores the integration of embodied mechanical intelligence in robotic systems, focusing on the connection between mechanical design, motion generation, and intelligent control. We discuss how our studies on mechanical systems—specifically walking machines, humanoids, and mobile robotic support systems—were prototyped through careful design and intelligent algorithms to perform complex tasks autonomously and efficiently.

The discussion begins with an introduction to embodied intelligence, examining how physical design, energy constraints, and control laws are intertwined to enable robots to interact effectively with their environments. Special emphasis is placed on walking robots and humanoid locomotion systems, where the principles of physics-based modelling are applied to optimize the structure, efficiency, and stability of robots in motion.

We present mobile robotic support systems developed for automated machining, demonstrating how this system was created considering the physical constraints and using intelligent motion planning.

The presentation emphasizes human action prediction and highlights the importance of semantic descriptions for real-time interaction and task execution, enabling robots to recognize and adapt to human behaviour.

The keynote also covers the development of robotic systems that are not only capable of intelligent motion generation but also equipped with context-aware capabilities for human-robot collaboration.

The second part addresses the complex challenges in robot and mechanical system design, such as nonlinear behaviour, geometric instabilities, and insufficient control authority. We present AI-based solutions like Graph Neural Networks (GNNs) and Model Predictive Control (MPC), which enable robots to handle these issues in real-time. Additionally, we emphasize how AI can assist in solving many relevant problems in the development of mechanisms and robot systems.

Overall, the presentation demonstrates how the combination of AI and mechanical design holds the potential to create more intelligent, adaptable, and energy-efficient robots and machines—capable of real-time decision-making, learning from their environment, and enhancing human-robot collaboration.

Bio: Prof. Teresa Zielińska is a Full Professor in Technical Sciences and the Deputy Director of the Institute of Aeronautics and Applied Mechanics at the Warsaw University of Technology (WUT). She graduated from the Faculty of Electronics and Information Technology at WUT (M.Sc.), obtained her Ph.D. from the Faculty of Power and Aeronautical Engineering at WUT, and completed her habilitation at the Institute of Biocybernetics and Biomedical Engineering of the Polish Academy of Sciences.

She is a member and Vice-Chair of the Committee of Automatic Control and Robotics of the Polish Academy of Sciences. She previously served as Vice-Chair of the IEEE Robotics and Automation Section in Poland (2016–2019) and as Secretary General of the International Federation for the Promotion of Mechanism and Machine Science (IFToMM) from 2011 to 2019, an organization uniting over 40 member countries (http://iftomm.net/).

Prof. Zielińska is President of the Indo-European Universities Network HERITAGE (30 universities), which aims to strengthen higher education cooperation—both in research and training—between Europe and India in the field of engineering sciences (https://heritagenetwork.org/english-version/governance). She is also a member of the CHIST-ERA Advisory Board, a European coordination and cooperation activity of national and regional research funding organizations, where she advises on research funding strategies in the area of information technology. From 2019 to 2022, she served as a member of the Council of the National Science Centre (NCN) in Poland.

She is the local coordinator of the international programs European Master on Advanced Robotics (EMARO) and Japan-Europe Master on Advanced Robotics (JEMARO) , and she previously served as a member of the Team of Experts at the Ministry of Science and Higher Education (2017–2018).

Prof. Zielińska has conducted research at several leading universities, including the Polytechnic University of Turin (Italy, under a grant from the Italian Ministry of Education), Loughborough University of Technology (United Kingdom, under a grant from the Science and Engineering Research Council), and Nanyang Technological University (Singapore), where she was employed as a Senior Research Fellow.

She has also been a Visiting Professor at the National University of Singapore, Nanyang Technological University (Singapore), Griffith University (Brisbane, Australia), Keio University (Hiyoshi, Japan), Shanghai Jiao Tong University (China), and Waseda University (Japan). She has collaborated with The Ohio State University (USA) within the framework of the Poland–USA Marie Curie-Skłodowska Fund.

Prof. Zielińska is a co-recipient of two national patents and the author or co-author of over 300 scientific publications. She has received numerous awards, including the Award of the Minister of Higher Education (Poland) for her research monograph, the Gold Cross of Merit, and the Medal of the Commission of National Education, as well as multiple university-level awards for research excellence.

Her research interests focus on robotics, particularly the development of real-time control systems, motion synthesis, and the design of novel robotic systems. She has worked extensively on walking machines, humanoid and mobile robots, and has developed a sensor prototype for measuring shear forces and a control system for teams of autonomous walking machines. Her current research is centered on bio-robotics.

Prof. Zielińska serves on several national and international journal editorial boards and has managed or participated in numerous national, European, and international research grants.

Keynote Speaker III

May 21, 2026, Thursday, 10:50-11:30, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Miami meeting room (The first floor)

Assoc. Prof. Fredy O. Ruiz P.

Politecnico di Milano, Italy

Speech Title: Dealing With Uncertainty In Data-Based Learning: From Parametric Estimation To Black-Box Optimization

Abstract: Many science and engineering problems entail the derivation of mathematical models (learning) from prior information and data. A crucial aspect when learning models from data is handling the uncertainty caused by noisy and incomplete information. In this talk, we will explore Set Membership (SM) approaches, which provide a theoretical framework and practical tools for computing models with minimal uncertainty. In the case of numerical optimization, there are problems where both the objective function and the constraints have no closed-form expression or are too complex to be managed analytically, so that they can only be evaluated through experiments. To address such issues, we will describe a global optimization technique for problems with black-box objective and constraints within the Set Membership framework. The algorithm, named Set Membership Global Optimization with black-box constraints (SMGO-Δ), features tunable risk parameters, which the user can intuitively adjust to trade off safety, exploitation, and exploration.

Bio: Prof. Ruiz is an Associate Professor of Systems and Control at the Department of Electronics, Information and Bioengineering of Politecnico di Milano. He earned his Bachelor's (2002) and Master's (2005) degrees in Electronics Engineering from Pontificia Universidad Javeriana in Colombia, and completed his PhD (2009) at Politecnico di Torino, Italy. He served as Assistant Professor (2010–2014) and later Associate Professor (2015–2019) at Pontificia Universidad Javeriana, where he also held the position of Chair of the Electronics Engineering Department from 2014 to 2016. In 2019, he joined Politecnico di Milano as a tenured Associate Professor. Prof. Ruiz has been a visiting scholar at the University of California, Berkeley (2013) and at Politecnico di Torino (2018). His research focuses on data-driven methods for system identification, automatic control, and optimization. He has developed theoretical and computational frameworks for the analysis, design, and control of dynamical systems with incomplete information, leveraging data generated by the system itself, with applications in mechatronics, power electronics, smart grids, and industrial processes.

Keynote Speaker IV

May 21, 2026, Thursday, 11:30-12:10, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Miami meeting room (The first floor)

Assoc. Prof. Breiffni Fitzgerald

University of Dublin, Ireland

Speech Title: From Structural Control to Digital Twins: Dynamics and Learning in Offshore Wind Turbines

Abstract: The next generation of offshore wind turbines presents unprecedented challenges in structural dynamics, control, and reliability. As turbines grow taller and more flexible, dynamic coupling between aerodynamic, hydrodynamic, and structural loads becomes increasingly pronounced, demanding advanced strategies for vibration mitigation and real-time monitoring. This lecture explores the evolution of offshore wind turbine dynamics research from model-based control to data-driven intelligence. It begins with recent advances in vibration control using inerter-based tuned mass dampers, highlighting their potential to enhance robustness under stochastic wind and wave excitations. The talk then transitions to data-driven modelling and machine learning approaches for dynamic response prediction, virtual sensing, and fatigue estimation. By integrating physics-informed neural networks with high-fidelity aeroelastic simulations, this work aims to bridge the gap between analytical control design and digital-twin-based structural health monitoring. The lecture concludes with perspectives on reliability, uncertainty quantification, and future directions for intelligent, resilient offshore energy systems.

Bio: Dr Breiffni Fitzgerald is an Associate Professor in the Department of Civil, Structural and Environmental Engineering at Trinity College Dublin. He is also a Fellow of Trinity College Dublin. His research is at the forefront of structural dynamics and control, with a primary focus on wind energy systems. He applies methodologies that span from classical dynamic modelling to cutting-edge machine learning, advancing the performance, reliability, and climate resilience of wind energy systems. Dr Fitzgerald has published widely in top-tier journals and serves as an editor of Wind Energy, the leading international journal in the field. Dr Fitzgerald is currently the Director of Postgraduate Teaching and Learning for the School of Engineering. This senior management role involves shaping the postgraduate (PG) experience within the School for PG taught and research students. He leads doctoral education strategy, postgraduate policy development, and student experience initiatives across the School. He was awarded a TCD Teaching Excellence Award in 2023 in recognition of his contributions to research-led teaching and supervision. Dr Fitzgerald is a Chartered Engineer of the Institution of Engineers of Ireland and the American Society of Civil Engineers. He has been recognised with several industry awards, including a nomination for Chartered Engineer of the Year.

Session Keynote Lecturer I

May 21, 2026, Thursday, 12:10-12:35, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Miami meeting room (The first floor)

Prof. Iqbal Shareef

Bradley University, USA

Speech Title: Impact of Tooth Surface Pitting and Friction on Load Transfer and Static Transmission Error in Spur Gears

Abstract: This study investigates the combined influence of tooth surface pitting and friction on the static performance characteristics of involute spur gear pairs. A numerical framework based on linear elastic static analysis is employed to evaluate gear meshing behavior for both undamaged and damaged teeth. Localized surface damage is represented using parabolic pit profiles introduced at multiple locations along the line of action, with three pit depths considered to simulate increasing damage severity. In addition, the coefficient of friction varies from zero to 0.30 in increments of 0.05 to examine frictional effects under a wide range of operating conditions.

Bio: Dr. Iqbal Shareef is a Professor of Industrial and Manufacturing Engineering at Bradley University, Peoria, Illinois, USA. He holds BS, MS, and PhD degrees in Mechanical Engineering and completed his post-doctoral research in tribology and the mechanics of composite materials at the Illinois Institute of Technology. Over a distinguished academic career spanning more than four decades at Bradley University, Dr. Shareef has taught both undergraduate and graduate courses in manufacturing processes, design for manufacturing, optimal design, and tribology.

In addition to his academic career, Dr. Shareef has served as a consultant to several industrial organizations, including extensive professional experience at Caterpillar Inc., where he earned Certified Six Sigma Black Belt and Certified CPS Black Belt credentials. He has also held faculty fellow appointments at NASA Glenn Research Center (GRC) and Argonne National Laboratory, strengthening his contributions at the intersection of academia, industry, and national research laboratories. His keynote presentation draws on research conducted at NASA Glenn Research Center, highlighting the application of advanced mechanical engineering principles to high-performance and mission-critical systems.

Dr. Shareef is a Fellow of the American Society of Mechanical Engineers (ASME) and a Fellow of ASM International, recognizing his sustained contributions to engineering education, research, and professional practice. He has authored

and co-authored more than 100 technical publications and is a Certified Manufacturing Design Engineer through the Society of Manufacturing Engineers (SME). He is also a registered Professional Engineer in the State of Illinois and has contributed more than 100 questions to the Professional Engineering (PE) examination through his service with the National Council of Examiners for Engineering and Surveying (NCEES).

Dr. Shareef actively contributes to engineering accreditation and education quality assurance as an ABET Program Evaluator, Team Chair, and Commissioner. His professional affiliations include ASM, ASME, SME, TMS, ISPE, NSPE, Tau Beta Pi, and Sigma Xi.

Session Keynote Lecturer II

May 21, 2026, Thursday, 14:00-14:25, UTC+2, Milan Time
Panama meeting room (The first floor)

Prof. Anthony James C. Bautista

University of Santo Tomas, Philippines

Speech Title: Benchmark Assessment of Commercial 2D LiDAR Sensors in SLAM: Impact on Map Fidelity using Gmapping

Abstract: The geometric fidelity of occupancy grids is fundamentally constrained by the hardware specifications of the LiDAR sensors employed. This study presents a benchmark assessment of two commercial 2D LiDAR sensors—LiDAR A1 and LiDAR A2—evaluating their specific impact on the structural integrity of digital reconstructions generated via Gmapping. While existing literature often emphasizes software refinement, this work isolates hardware variables, specifically angular resolution and scan frequency, to determine their role in map distortion and dimensional error. Experimental trials were conducted in a feature rich indoor environment. Map quality was quantified through a multidimensional Map Fidelity Assessment focusing on linear scaling, orthogonality, and structural artifacts like "ghosting." Results demonstrate that LiDAR A2, featuring a 0.5° angular resolution, achieved a six-fold reduction in average dimensional error (0.025 m) compared to LiDAR A1 (0.145 m). The study establishes that sensor scan density is the primary determinant of the structural reliability of environmental models.

Bio: Prof. Anthony James C. Bautista, PME, ACPE, MBA, PhD, is a faculty researcher specializing in Agricultural Robotics, Precision Farming, and the Development of Service Robots at the University of Santo Tomas. Notable among his achievements is the creation of the AGROTIS Navigation system, a GPS-guided Autonomous system for Hand Tractor, supported by DOST-PCAARRD, and the deployment system for Unmanned Aerial Vehicles used in water quality monitoring, supported by DOST-PCIEERD. The LISA (Logistic Indoor Service Assistant) Telepresence Robot, a project under DOST-PCHRD, stands out as a significant contribution during the COVID-19 pandemic, leading to Dr. Bautista's recognition with prestigious awards such as the J. Amado Araneta Foundation Living Heroes for Technology and Ginebra Lalaban Ako Awards. Additionally, he received the Gregorio Y. Zara Award for Applied Research from the Philippine Association for the Advancement of Science and Technology and was honored as one of Asia's most outstanding researchers for 2022.

Dr. Bautista is also the founder of Filrobotics Technologies Inc., a startup dedicated to developing robots for various applications. His commitment to advancing robotics technology to address real-world challenges is exemplified by his

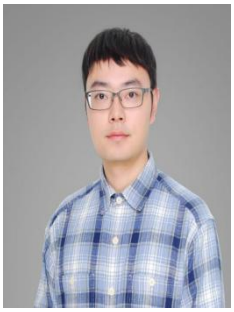
advocacy, and he was honored with the Community Outreach Award during the 2022 eLearning Forum Asia for his exemplary practices within the eLearning communities in the Philippines.

Session Keynote Lecturer III (Online)

May 22, 2026, Friday, 09:00-09:25, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022



Assoc. Prof. Taohan Wang

Shanghai Electric Group, China

Speech Title: From Simulation to Deployment: Embodied AI for Precision Industrial Cleaning

Abstract: This presentation examines the process of transferring robotic skills from simulated training environments to real-world deployment on industrial production lines, focusing on the critical task of "characteristic scenario cleaning." By constructing an "Industrial Embodied Skill Training Ground," the research conducts large-scale simulation training for perception-action coordination, enabling robots to acquire complex cleaning skills. The core argument is that this transfer signifies the transformation of industrial cleaning from a repetitive task reliant on manual experience and labor into an intelligent, quantifiable, optimizable, and replicable process. Deployed on production lines, the robotic system utilizes embedded vision and force-control algorithms to achieve consistent and precise handling of microscopic contaminants while generating operational data. The findings indicate that this model not only enhances production line cleanliness stability and product quality but also liberates human experts from labor-intensive tasks, allowing them to focus on process standardization and system optimization, thereby advancing the overall evolution of intelligent manufacturing systems. This study provides a feasible paradigm for the implementation of embodied intelligence in the field of industrial fine manipulation, spanning from virtual training to physical validation.

Bio: Taohan Wang is an Associate Professor at the Central Research Institute of Shanghai Electric Group and the head of its robotics technology team. He holds a PhD from the University of Tokyo and has over a decade of experience in robotics research and engineering. His research focuses on robotic manipulators, soft-body control, mobile robots, and humanoid robotics, with prior research experience at the University of California, Berkeley in autonomous driving and robotics. He has led and contributed to multiple major robotics research projects and is dedicated to advancing intelligent robotics from fundamental research to industrial applications.

Session Keynote Lecturer IV

May 21, Thursday, 16:30-16:55, UTC+2, Milan Time

ZOOM ID: 829 4728 6937

Password: 052022

Dubai meeting room (The first floor)

Dr. Shumiao Zuo

Beihang University, China

Speech Title: Digital Twin-Driven Fault Diagnosis of Planetary Gear Set

Abstract: Planetary gear sets (PGS) are extensively employed in a wide spectrum of power-transmission applications. Because gear faults significantly deteriorate the reliable service of PGS, real-time health monitoring of gears is imperative. To address this limitation, the present study proposes a digital twin-driven framework for the diagnosis of PGS gears. First, a PGS dynamic model is established for both healthy and faulty gears, and then the corresponding simulation signals can be obtained. Meanwhile, a domain discriminator is designed, enabling a transfer-learning network to align fault-related features from the simulation (source) domain to the real (target) domain. Consequently, the diagnostic model can be trained exclusively on the simulated data generated by the digital twin (PGS dynamic model), yet still deliver accurate fault-type and fault-severity diagnosis for actual measured signals.

Bio: Dr. Shumiao Zuo received his bachelor's degree in 2019 and doctoral degree in 2025, both from Beihang University. He works for Intelligent Transmission Research Center, Beihang University. He has an extensive research background in gear transmission, with significant contributions to dynamic analysis, failure mechanisms, optimization for high-strength, and fault monitoring. His work has resulted in 12 publications in prestigious journals such as *International Journal of Mechanical Sciences*, *Mechanical Systems and Signal Processing*, and *Mechanism and Machine Theory*. He also holds 12 granted patents and has presented his research at five international conferences. His innovative findings have been applied to enhance the performance and reliability of listed models, including Geely's Weirui electric drive system.

Lab Visit to Politecnico di Milano

Railway Engineering Laboratory

The laboratory provides a series of specialized test rigs designed designed for the testing and the characterization of several subsystems in both, rail vehicle (axle, pantograph, bogie frame) and rail infrastructures (sleepers, insulated rail joints, fastening system). The wide range of general-purpose hydraulic actuators and the great number of measurement devices allows the laboratory to the development of custom designed setups for testing great number of rail subcomponents such as springs, silent blocks, air spring. Moreover, the laboratory is capable of conducting in-line testing to asset dynamic behavior, comfort and aerodynamic of vehicles according to several European standard.

More details: https://www.mecc.polimi.it/en/departmental-laboratories/railway-engineering

Wind Tunnel Laboratory

Politecnico di Milano Wind Tunnel laboratory (GVPM), is one of the 4 PoliMi Research Large Infrastructures: we believe in the key role of the experimental approach through high potential laboratories as a fundamental tool for the development of knowledge. At the same time we believe in the key role of the analytical and numerical modelling for a predictive and focused addressing of the experimental research.

We aim to support the virtuous loop among numerical and experimental approaches generated by a never ending practice of modelling validation through experiments and generation of innovative ideas through the insight capability of the experiments and the predictive vision of the numerical modelling.

We have the vision of the facility as a natural meeting point for researchers coming from different countries and institutions, making it a great opportunity of creating new links and value from the meeting of different cultures.

More details: https://www.windtunnel.polimi.it/

Agenda Overview

Day 1- May 20, 2026 (Wednesday, UTC+2, Milan Time)

Onsite Sign-in		
Time	**Event**	**Venue**
13:00-17:00	Onsite Sign-in	nhow Milano Lobby (The Ground Floor)

Online Pretest

Time	Presenters	ZOOM Information
9:00-12:00	Keynote Speakers (Online), Session Keynote Lecturers (Online), Session Chairs (Online), Committee Members (Online)	ZOOM ID: 829 4728 6937 Password: 052022
9:00-12:00	**Online Session 1: Environment-Aware Robot Motion Control and Path Planning** ML540-A(Session Keynote Lecturer), ML551, ML527, ML579, ML584, ML587, ML585, ML544	
	Online Session 2: Experimental and Simulation Analysis of Mechanical Properties of Engineering Materials ML583, ML586, ML535, ML578, ML513, ML514, ML573	
	Online Session 3: Mechanical System Design and Intelligent Control Technologies ML589, ML549, ML506, ML507, ML523, ML524	

Online Test Tips:

- ✧ Please get your presentation file ready for the pretest.
- ✧ Please unmute audio and start video while your presentation.
- ✧ It's suggested to use headset with microphone or earphone with microphone.

Day 2- May 21, 2026 (Thursday, UTC+2, Milan Time)

Opening Ceremony and Keynote Speeches *Onsite Meeting Room –Miami meeting room (The first floor)* *ZOOM ID: 829 4728 6937* *Password: 052022* ***Host: Prof. Wojciech Grega, AGH University of Krakow, Poland***	
09:00-09:05	**Welcome Message** Prof. Hamid Reza Karimi Politecnico di Milano, Italy
09:05-09:10	**Opening Remarks** Prof. Wojciech Grega AGH University of Krakow, Poland
09:10-09:50	**Keynote Speech I** Prof. Tom Oomen Eindhoven University of Technology, The Netherlands **Speech Title: From data to future high-tech systems**
09:50-10:30	**Keynote Speech II** Prof. Teresa Zielinska Warsaw University of Technology, Poland Deputy Director of the Institute of Aeronautics and Applied Mechanics **Speech Title: Embodied Mechanical Intelligence: From Physics-Based Modelling to Intelligent Motion and Control**
10:30-10:50	**Group Photo & Coffee Break**
10:50-11:30	**Keynote Speech III** Assoc. Prof. Fredy O. Ruiz P. Politecnico di Milano, Italy **Speech Title: Dealing With Uncertainty In Data-Based Learning: From Parametric Estimation To Black-Box Optimization**
11:30-12:10	**Keynote Speech IV** Assoc. Prof. Breiffni Fitzgerald University of Dublin, Ireland **Speech Title: From Structural Control to Digital Twins: Dynamics and Learning in Offshore Wind Turbines**

12:10-12:35		**Session Keynote Lecturer I** Prof. Iqbal Shareef Bradley University, USA **Speech Title: Impact of Tooth Surface Pitting and Friction on Load Transfer and Static Transmission Error in Spur Gears**
12:35-14:00		**Lunch (nhow Milano Restaurant)**
Onsite Parallel Sessions		
14:00-16:10	**Panama meeting room (The first floor)**	**Onsite Session 1: Scene-Understanding-Based Machine Vision and Robot Control Systems** Session Chair: Prof. Anthony James C. Bautista, University of Santo Tomas, Philippines Session Keynote Lecturer: Prof. Anthony James C. Bautista, University of Santo Tomas, Philippines ML511, ML548, ML593, ML594, ML537, ML534, ML550
14:00-16:15	**Dubai meeting room (The first floor)**	**Onsite Session 2: Robot Collaborative Control and Intelligent Control Systems** Session Chair: Assoc. Prof. Nicola Pellegrini, Università delgi Studi di Brescia, Italy ML547, ML545, ML516, ML556, ML539, ML528, ML555, ML529, ML581
16:10-16:30	**Coffee Break**	
16:30-18:25	**Panama meeting room (The first floor)**	**Onsite Session 3: Materials Mechanics Experiment and Performance Analysis** Session Chair: Prof. Parameshachar B D, Nitte University Campus, Bengaluru Session Keynote Lecturer: Dr.-Ing. Hagen Bankwitz, Mittweida University of Applied Sciences, Germany ML519-A, ML525-A, ML522-A, ML600, ML531-A, ML580
16:30-18:30	**Dubai meeting room (The first floor)**	**Onsite Session 4: Fault Diagnosis and Health Management of Power Machinery** Session Chair: Prof. Dr. (Mrs.) Rashmi Bhardwaj, Guru Gobind Singh Indraprastha University, India Session Keynote Lecturer: Dr. Shumiao Zuo, Beihang University, China ML526-A, ML520-A, ML604, ML598, ML518, ML517
19:00-20:30	**Dinner (nhow Milano Restaurant)**	

Day 3- May 22, 2026 (Friday, UTC+2, Milan Time)

Onsite- Lab Visit to Politecnico di Milano

Time	Event	Venue
10:00-11:00	Lab Visit to Politecnico di Milano	Gather at **the Wind Tunnel of Politecnico di Milano** at **9:55**

Online Parallel Sessions
ZOOM ID: 829 4728 6937
Password: 052022

09:00-11:10	**Online Session 1: Environment-Aware Robot Motion Control and Path Planning** **Session Chair:TBA** **Session keynote lecturer:** Assoc. Prof. Taohan Wang, Shanghai Electric Group, China ML551, ML527, ML579, ML584, ML587, ML585, ML544
11:10-13:00	**Break**
13:00-14:45	**Online Session 2: Experimental and Simulation Analysis of Mechanical Properties of Engineering Materials** **Session Chair:TBA** ML583, ML586, ML535, ML578, ML513, ML514, ML573
14:45-15:00	**Break**
15:00-16:30	**Online Session 3: Mechanical System Design and Intelligent Control Technologies** **Session Chair:TBA** ML589, ML549, ML506, ML507, ML523, ML524

Onsite Session 1

Time: 14:00-16:10, May 21, 2026 (Thursday, UTC+2, Milan Time)
Venue: Panama meeting room (The first floor)
Topic: Scene-Understanding-Based Machine Vision and Robot Control Systems
Chaired by: Prof. Anthony James C. Bautista, University of Santo Tomas, Philippines

Session keynote lecture **14:00-14:25**	**Title:** Benchmark Assessment of Commercial 2D LiDAR Sensors in SLAM: Impact on Map Fidelity using Gmapping **Author(s):** Anthony James Bautista, Eugenia Zhuo, Arianne Joy D. Evangelista, Stephanie Nicole Arroyo, Gerrard Troy Fider **Session keynote lecturer:** Anthony James C. Bautista, University of Santo Tomas, Philippines
ML511 **14:25-14:40**	**Title:** Analysis of Scan-Pattern Induced Bias in Deep Learning Methods for Cross-Calibration of LiDAR and Camera **Author(s):** Alessandro Bruno, Florian Simroth **Presenter:** Alessandro Bruno, Robert Bosch GmbH, Germany
ML548 **14:40-14:55**	**Title:** ADASense: A Scalable Framework for Vision Data Analysis in Advanced Driver Assistance Systems **Author(s):** Patryk Siwek, Paweł Skruch, Dariusz Marchewka, Mateusz Wójcik, Marcin Wróbel **Presenter:** Patryk Siwek, AGH University of Krakow, Poland
ML593 **14:55-15:10**	**Title:** Deep Unfolding Low-rank Tensor Completion for Large-scale High-dimensional Data Recovery **Author(s):** Zhirong Zhong, Xuanhao Hua, Zhongyi Zhang, Zhi Zhai, Meng Ma and Jinxin Liu **Presenter:** Zhirong Zhong, Xi'an Jiaotong University, China
ML594 **15:10-15:25**	**Title:** ROI-Driven Foveated Attention for Unified Egocentric Representations in Vision-Language-Action Systems **Author(s):** Xinhai Sun, Xiang Shi, Menglin Zou, Wenlong Huang **Presenter:** Xinhai Sun, Politecnico di Milano, Italy
ML537 **15:25-15:40**	**Title:** A Data-Driven Analysis of Gesture-Based Human–Robot Interaction in Social Robots Using Latent Dirichlet Allocation **Author(s):** Rattawut Vongvit **Presenter:** Rattawut Vongvit, Department of Industrial Engineering, Faculty of Engineering, aThammasat School of Engineering Thammasat University Pathumthani 12120, Thailand
ML534 **15:40-15:55**	**Title:** A Condition-Partitioned Dataset and Baseline Evaluation for Robust Apple Detection in Natural Orchard Environments **Author(s):** Chaitanya Grandhi, Dr. Jörg Eberhardt **Presenter:** Chaitanya Grandhi, University of Applied Sciences Ravensburg-Weingarten, Germany

ML550 **15:55-16:10**	**Title:** Vision-guided autonomous detection and sorting using a cobot and custom gripper with an eye-in-hand camera **Author(s):** Daniel Patryk Głąbicki, Marcin Przemysław Kaczmarek, Adam Krzysztof Piłat **Presenter:** Daniel Patryk Głąbicki, AGH University of Krakow, Poland

Onsite Session 2

Time: 14:00-16:15, May 21, 2026 (Thursday, UTC+2, Milan Time)
Venue: Dubai meeting room (The first floor)
Topic: Robot Collaborative Control and Intelligent Control Systems
Chaired by: Assoc. Prof. Nicola Pellegrini, Università delgi Studi di Brescia, Italy

ML547 **14:00-14:15**	**Title:** Mathematical Modeling of Electric Vehicle Powertrain Components for Real-Time Capability and Control Co-Design **Author(s):** Longhui Qiu, Ziyin Ju, Zongchen Liu, Zirui Wang, Zhiwei Qiao, Xiangyang Xu and Shuhan Wang **Presenter:** Longhui Qiu, Beihang University, China
ML545 **14:15-14:30**	**Title:** Energy-Based Condition Monitoring of Cobots via Hybrid Machine Learning Framework **Author(s):** Francesco Aggogeri, Angelo Merlo and Nicola Pellegrini, **Presenter:** Nicola Pellegrini, Università delgi Studi di Brescia, Italy
ML516 **14:30-14:45**	**Title:** LLM-BT-Grasp: Large Language Model to Behavior Tree for Grasping **Author(s):** David Kötter, Dichen Du, Emna Cherif, Nick Luckas, Oliver Petrovic, Christian Brecher **Presenter:** David Kötter, Laboratory for Machine Tools and Production Engineering (RWTH Aachen University), Germany
ML556 **14:45-15:00**	**Title:** Experimental Adaptive ANFIS-PD Trajectory Control of a Wheeled Mobile Robot **Author(s):** Mohamed Amine Nehmar, Hocine Khati, Arezki Fekik, Mourad Laghrouche, Mohand Achour Touat, Hand Talem **Presenter:** Mohamed Amine Nehmar, Hocine Khati, Arezki Fekik, Mourad Laghrouche, Mohand Achour Touat, Hand Talem
ML539 **15:00-15:15**	**Title:** Research on an End-to-End Force-Position Hybrid Control Method for Robots Integrating Haptic Information Author(s): PENG Tianchen, HOU Song, ZHANG Tao, ZHANG Haifeng **Presenter:** PENG Tianchen, Robot Control Team Shanghai Electric Group Central Academe, Shanghai China
ML528 **15:15-15:30**	**Title:** Design and Simulation of a Buffering Guidance Dock for AUV Recovery **Author(s):** Bohao He, Anzhe Yi, Mingwei Lin, Canjun Yang, Jiaqi Hu, Ying Liu **Presenter:** Bohao He, Zhejiang University, China
ML555 **15:30-15:45**	**Title:** Design and Embedded Implementation of Funnel Adaptive Sliding Mode Control for Nonlinear Systems **Author(s):** Hocine Khati, Mohamed Amine Nehmar, Arezki Fekik, Mohand Achour Touat, Hand Talem, Rabah Mellah **Presenter:** Hocine Khati, Faculty of Electrical and Computing Engineering, University Mouloud Mammeri, Tizi-Ouzou, Algeria
ML529 **15:45-16:00**	**Title:** Enhancing Electro-Hydraulic Control Precision: A Hybrid HSO and Anti-Windup PID Strategy **Author(s):** Dapeng Zhou, Zhidan Weng, Junkui Dong, Ziqi Liu, Lei Chen, Yujian Tang, Zexin Meng and Bo Jin **Presenter:** Dapeng Zhou, Zhejiang University, China

ML581 **16:00-16:15**	**Title:** Optimum control for lateral dynamics of a rail vehicle with track irregularities **Author(s):** Selim Sivrioğlu and Bahadır Kazanci **Presenter:** Selim Sivrioglu, Piri Reis University, Turkey

Onsite Session 3

Time: 16:30-18:25, May 21, 2026 (Thursday, UTC+2, Milan Time)
Venue: Panama meeting room (The first floor)
Topic: Materials Mechanics Experiment and Performance Analysis
Chaired by: Prof. Parameshachar B D, Nitte University Campus, Bengaluru

Session keynote lecture **16:30-16:55**	**Title:** Functional thermoplastics for real-time wear measurement in tribological components **Author(s):** Hagen Bankwitz, Pascal Winkler and Norman Katzer **Session keynote lecturer:** Dr.-Ing. Hagen Bankwitz, Mittweida University of Applied Sciences, Germany
ML519-A **16:55-17:10**	**Title:** Experimental study on the burning rate of HTPB propellant considering lateral strain **Author(s):** Jiahao Peng **Presenter:** Jiahao Peng, National University of Defense Technology, China
ML525-A **17:10-17:25**	**Title:** Experimental and Theoretical Research on the Mullins Effect Mechanism in Cyclic-Loaded Filled Rubber **Author(s):** Dapeng Zhang, Wenqin Zhang, Haitao Sun and Yuke Jiang **Presenter:** Dapeng Zhang, National University of Defense Technology, China
ML522-A **17:25-17:40**	**Title:** Experimental study on low-frequency fatigue behavior of composite solid propellants **Author(s):** Haitao Sun, Yuke Jiang, Guanlin Ye and Baoshi Yu **Presenter:** Haitao Sun, National University of Defense Technology, China
ML600 **17:40-17:55**	**Title:** Koopman Theory Assisted Fourier Neural Operator for Fluid Mechanics **Author(s):** Liu Fu, Meng Ma **Presenter:** Liu Fu, Xi'an Jiaotong University, P.R. China
ML531-A **17:55-18:10**	**Title:** Curing Response Analysis of Solid Motor Propellant Considering Heat Transfer Size Effect **Author(s):** Baoshi Yu, Dapeng Zhang, Guanlin Ye and Wenqin Zhang **Presenter:** Baoshi Yu, National University of Defense Technology, China
ML580 **18:10-18:25**	**Title:** Rotor Dynamic Simulation of Thin-Rimmed High-Speed Helical Geared Systems: Modal Characteristics and Frequency Response Analysis **Author(s):** Bing Liu, Yanfang Liu, Hengwen Qiao, Junbin Lai, Xiangyang Xu, Shuhan Wang **Presenter:** Bing Liu, Beihang University, China

Onsite Session 4

Time: 16:30-18:25, May 21, 2026 (Thursday, UTC+2, Milan Time)
Venue: Dubai meeting room (The first floor)
Topic: Fault Diagnosis and Health Management of Power Machinery
Chaired by: Prof. Dr. (Mrs.) Rashmi Bhardwaj, Guru Gobind Singh Indraprastha University, India

Session keynote lecture **16:30-16:55**	**Title:** Digital Twin-Driven Fault Diagnosis of Planetary Gear Set **Author(s):** Shumiao Zuo, Wanheng He, Jiayu Mo, Yanfang Liu, Xiangyang Xu, Qihong Chu **Session keynote lecturer:** Shumiao Zuo, Beihang University, China
ML526-A **16:00-17:10**	**Title:** A Hybrid Surrogate Method for the Structural Integrity Assessment of Pore-Defected SRMs **Author(s):** Wenqin Zhang, Dapeng Zhang, Jiahao Peng and Baoshi Yu **Presenter:** Wenqin Zhang, National University of Defense Technology, China
ML520-A **17:10-17:25**	**Title:** Shear Creep Damage of Bonded Interfaces in Long-Term Vertically Stored Solid Rocket Motors **Author(s):** Guanlin Ye, Haitao Sun, Jiahao Peng and Yuke Jiang **Presenter:** Guanlin Ye, National University of Defense Techology， China
ML604 **17:25-17:40**	**Title:** A Fault Diagnosis Method for Liquid Rocket Engines Based on a Propagation-Aware Dynamic Graph Network **Author(s):** Xuanhao Hua, Zhirong Zhong, Yang Hu, Meng Ma, Zhi Zhai **Presenter:** Xuanhao Hua, Xi'an Jiaotong University, China
ML598 **17:40-17:55**	**Title:** Learning Semantically Aligned Time Series Representations for Engine Diagnostic Question Answering **Author(s):** Zhongyi Zhang, Longfei Zhang, Meng Ma, and Zhirong Zhong **Presenter:** Zhongyi Zhang, Xi'an Jiaotong University, China
ML518 **17:55-18:10**	**Title:** Kinematic Study of a Novel High-Load Cylindrical Cam-Roller Transmission Mechanism **Author(s):** Zhiheng Chen, Wenzhi Wu, Shijun Wu, Canjun Yang **Presenter:** Zhiheng Chen, State Key Laboratory of Fluid Power and Mechatronic Systems, Zhejiang University, Hangzhou 310027, China
ML517 **18:10-18:25**	**Title:** Dynamic Load Distribution Analysis of Bearings in NW Planetary Gear Sets **Author(s):** Qihong Chu; Yunzhe Hou; Shuaiqun Yang; Shumiao Zuo; Yanfang Liu; Xiangyang Xu **Presenter:** Qihong Chu, Beihang University, China

Online Session 1

Time: 09:00-11:10, May 22, 2026 (Friday, UTC+2, Milan Time)
ZOOM ID: 829 4728 6937
Password: 052022
Topic: Environment-Aware Robot Motion Control and Path Planning
Chaired by: TBA

Session keynote lecture **09:00-09:25**	**Title:** From Simulation to Deployment: Embodied AI for Precision Industrial Cleaning **Author(s):** Taohan Wang **Session keynote lecturer:** Assoc. Prof. Taohan Wang, Shanghai Electric Group, China
ML551 **09:25-09:40**	**Title:** Stability Analysis in LiDAR Odometry through Kalman Filter Fusion and Fourier-based Analytical Differentiation **Author(s):** Jose Carlos Sanchez Tapia, Andres Chacha, and Luis Alfredo Calle Arevalo **Presenter:** Jose Carlos Sanchez Tapia, Universidad Politécnica Salesina, Ecuador
ML527 **09:40-09:55**	**Title:** Single-Shot Targetless LiDAR–Camera Calibration with Automatic ROI Selection and Particle Swarm Optimization **Author(s):** Mahsun Bingöl and Volkan Sezer **Presenter:** Mahsun Bingol, Istanbul Technical University, Türkiye
ML579 **09:55-10:10**	**Title:** Real-Time Feasibility of SOCP-Based Trajectory Optimization on Embedded Hardware for Multi-Axis Systems: A Solver Comparison **Author(s):** Rajanya Yalamanchili, Michael Hammerl, Prof. Dr.-Ing. Frank A. King, Prof. Dr.-Ing. Mario Porrmann **Presenter:** Rajanya Yalamanchili, Technical University of Applied Sciences Rosenheim Rosenheim, Germany
ML584 **10:10-10:25**	**Title:** Enhancing Robotic Equipment Handling through Real-Time Human Action Prediction **Author(s):** Sarut Panjan, Tarinee Tonggoed, Arisa Phanmaneelak,Noramon Kongoon,Chaiyaporn Silawatchananai,Anan Suebsomran **Presenter:** Tarinee Tonggoed, King Mongkut's University of Technology North Bangkok Bangkok, Thailand
ML587 **10:25-10:40**	**Title:** Finite-Time Super-Twisting Sliding Mode Control for Robust 3D Trajectory Tracking of a Quadrotor UAV **Author(s):** Mak Mesanovic, Almir Salihbegovic, Emir Sokic and Nedim Osmic **Presenter:** Mak Mesanovic, University College London, Department of Computer Science, Gower Street, London, WC1E 6BT, United Kingdom
ML585 **10:40-10:55**	**Title:** A Bidirectional Speech-to-Text and Sign-Language Translation System for Communication Assistance in Service Environments **Author(s):** Tarinee Tonggoed, Sarut Panjan **Presenter:** Sarut Panjan, King Mongkut's University of Technology North Bangkok Bangkok, Thailand
ML544 **10:55-11:10**	**Title:** Point Cloud-Based Decision System for Object Detection in Indoor and Outdoor Environments for Autonomous Mobile Robots **Author(s):** Jordi Castel-Tapia; Juan Gonzales-Loja; Luis Calle-Arevalo **Presenter:** Jordi Castel Tapia, Universidad Politecnica Salesiana, Cuenca

Online Session 2

Time: 13:00-14:45, May 22, 2026 (Friday, UTC+2, Milan Time)
ZOOM ID: 829 4728 6937
Password: 052022
Topic: Experimental and Simulation Analysis of Mechanical Properties of Engineering Materials
Chaired by: TBA

ML583 **13:00-13:15**	**Title:** Effect of Infill Density on the Mechanical Properties of 3D Printed Polylactic Acid (PLA) **Author(s):** Fahad Aldosari, Muhammad Azhar Ali Khan, Muhammad Asad and Faramarz Djavanroodi **Presenter:** Muhammad Azhar Ali Khan, Prince Mohammad Bin Fahd University, Saudi Arabia
ML586 **13:15-13:30**	**Title:** Optimization and Modeling of Weld Bead Geometry in SMAW Bead-on-Plate on S275JR Steel **Author(s):** Vanesa Estremera-Carrera, Rubén Lostado-Lorza, Roberto Fernandez-Martinez, Mato Perić, Sergio Ruiz-Gonzalez and Carlos Berlanga-Labari **Presenter:** Vanesa Estremera-Carrera, Mechanical Engineering Department, Public University of Navarre, Pamplona, Spain
ML535 **13:30-13:45**	**Title:** Automating Hot Rolling Pass Scheduling with Surrogate Models and Reinforcement Learning **Author(s):** Lucky-Aubrey Adam, Tamoghna Majumder, Emad Scharifi, Aymen Gannouni, David Bailly, Anas Abdelrazeq, Junhe Lian, Robert H. Schmitt **Presenter:** Lucky-Aubrey Adam, Chair for Intelligence in Quality Sensing (IQS), RWTH Aachen University, Aachen,
ML578 **13:45-14:00**	**Title:** Finite Element Modeling of Heat Transfer in Welded Tube Joints: Comparison Between SMAW and GMAW Processes **Author(s):** Vanesa Estremera-Carrera, Rubén Lostado-Lorza, Roberto Fernández-Martínez, Mato Perić, Saul Íñiguez-Macedo and Carlos Berlanga-Labari **Presenter:** Vanesa Estremera-Carrera, Public University of Navarra
ML513 **14:00-14:15**	**Title:** Electromagnetic and Thermal Characterization of a Solenoidal Inductor Coil Using FEM Applied to Cocoa Bean Roasting **Author(s):** Austin Damien Calle Nuñez, Christina Xiomara Timana Charry, Jose Luis Becerra Felipe, Jose Alberto Carrizales Navarro, Eddie Angel Sobrado Malpartida and Nain Maximo Ramos Alvarez, **Presenter:** Austin Damien Calle Nuñez, Peruvian University of Applied Sciences, Perú
ML514 **14:15-14:30**	**Title:** CFD Analysis of Heat and Mass Transfer in the Steam Curing Process of Concrete Blocks **Author(s):** Eddy Vivanco; Alex Quevedo; Ayrton Nieves; Jose Becerra; Jose Carrizales; Eddie Sobrado **Presenter:** Eddy Vivanco, Universidad Peruana de Ciencias Aplicadas, Peru
ML573 **14:30-14:45**	**Title:** Electrochemical–Thermal Modeling and Heat-Transfer Optimization of a Fin-Assisted Cold Plate for Prismatic Lithium-Ion Modules **Author(s):** Khaled Alnamasi **Presenter:** Khaled Alnamasi, King Faisal University, Saudi Arabia

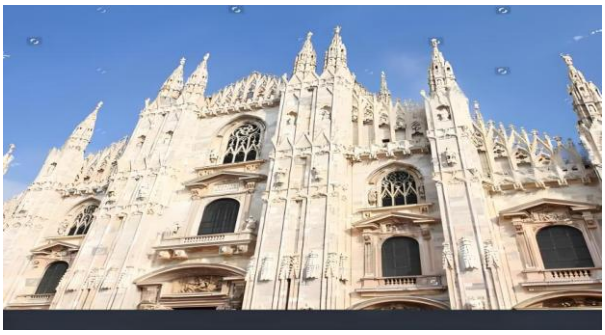
Online Session 3

Time: 15:00-16:30, May 22, 2026 (Friday, UTC+2, Milan Time)
ZOOM ID: 829 4728 6937
Password: 052022
Topic: Mechanical System Design and Intelligent Control Technologies
Chaired by: TBA

ML589 **15:00-15:15**	**Title:** Using EEZ Studio for Data Acquisition and Control: Practical Implementation and Results **Author(s):** Amna Hadzihalilovic, Nedim Osmic, Emir Sokic, Almir Salihbegovic **Presenter:** Amna Hadzihalilovic, University of Sarajevo - Faculty of Electrical Engineering, Bosnia and Herzegovina
ML549 **15:15-15:30**	**Title:** Time-Domain Feature Learning for Combined-Fault Classification in Rotating Machinery **Author(s)**: Sebastian Lopez Gomez, Juliana Velez Mesa and Ricardo Moreno Sanchez **Presenter:** Sebastian Lopez Gomez, University of Antioquia, Colombia
ML506 **15:30-15:45**	**Title:** Optimization of the Rice Hulling Process via DEM-PRM Simulation to Reduce Grain Breakage **Author(s):** Luis Temoche; Jose Becerra; Jose Carrizales; Ayrton Nieves **Presenter:** Luis Temoche, Universidad Peruana de Ciencias Aplicadas, Peru
ML507 **15:45-16:00**	**Title:** DEM-SPH Simulation of Fluid-Particle Interaction in Corn Disinfection in a Hopper and Screw System **Author(s):** José M. Ccerhuayo; Jims J. Caceres; Jose A. Carrizales; Ayrton K. Nieves; Eddie A. Sobrado; Jose L. Becerra **Presenter:** José M. Ccerhuayo, Universidad Peruana de Ciencias Aplicadas, Peru
ML523 **16:00-16:15**	**Title:** Design and Development of a Remote-controlled Mudboat Using the Embedded Control System **Author(s):** Rosalie S. Cabeltes, Danilo P. Dadula **Presenter:** Rosalie S.Cabeltes, Mechanical Engineering Department – College of Engineering and Technology, Koronadal City, Philippines
ML524 **16:15-16:30**	**Title:** Enchanced Maneuvering of Mud boat Tiller Through Microcontroller-based Control Sytem **Author(s):** Rosalie S. Cabeltes **Presenter:** Rosalie S.Cabeltes, Mechanical Engineering Department – College of Engineering and Technology, Koronadal City, Philippines

Milan Introduction

Milan Cathedral



The Milan Cathedral, also known as the Duomo di Milano, is the most iconic landmark in Milan and one of the largest Gothic cathedrals in the world. Construction of the cathedral began in 1386 and took nearly six centuries to complete, resulting in an extraordinary combination of artistic and architectural styles. The exterior is decorated with thousands of statues, intricate carvings, and elegant spires that create a magnificent appearance.

Visitors from around the world come to admire its beautiful stained-glass windows and impressive interior design. One of the highlights of the cathedral is the rooftop terrace, where tourists can enjoy breathtaking panoramic views of the city and closely observe the detailed stone sculptures. Located in the heart of Milan, the Duomo is not only a religious site but also a symbol of the city's cultural heritage and historical significance.

Teatro alla Scala

Teatro alla Scala, commonly known as La Scala, is one of the most famous opera houses in the world and an important cultural symbol of Milan. Opened in 1778, the theater has hosted countless legendary opera performances, concerts, and ballet productions throughout its long history. Many of the world's greatest composers and musicians, including Giuseppe Verdi and Arturo Toscanini, have performed or conducted here.

The interior of La Scala is renowned for its luxurious decoration, elegant red velvet seats, golden balconies, and exceptional acoustics. Music lovers and tourists visit the theater not only to attend performances but also to explore the La Scala Museum, which displays historical costumes, musical instruments, and valuable documents related to opera history. Today, La Scala remains a major center for classical music and performing arts, attracting audiences from all over the world.

Memo