

TC ANNUAL REPORTING FORM

IMS Technical Committee

TC-22 - Intelligent Measurement Systems

Reporting period

Starting date (dd/mm/yy)	Ending date (dd/mm/yy)	Date of submission (dd/mm/yy)
01/01/25	31/12/25	30/01/25

Website

<https://iee-ims.org/technical-committee/tc-22-intelligent-measurement-systems>

Last update (mm/yy)

TC Chair or co-Chairs

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	Date of election
Pasquale		Coscia	Università degli Studi di Milano, Italy	94198290	+39 02 503 16650	pasquale.coscia@unimi.it	July 1, 2023
Mel		Siegel	Carnegie Mellon University, USA		+1 412 268 8742	mws@cmu.edu	

Secretary (check the right box) Present Not Present X

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	Date of election
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* Please add as many rows as needed

TC Membership list^(*)

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	TC assignments (joining year)
Pasquale		Coscia	Università degli Studi di Milano, Italy	94198290	+39 02 503 16291	pasquale.coscia@unimi.it	
Mario		Diván	National University of La Pampa, Argentina			mjdivan@eco.unlpam.edu.ar	
Angelo		Genovese	Università degli Studi di Milano, Italy	92187688	+39 02 503 16249	angelo.genovese@unimi.it	
Vincenzo		Piuri	Università degli Studi di Milano, Italy		+39 02 503 16244	vincenzo.piuri@unimi.it	
Fabio		Scotti	Università degli Studi di Milano, Italy		+39 02 503 16229	fabio.scotti@unimi.it	
Mel		Siegel	Carnegie Mellon University, USA		+1 412 268 8742	mws@cmu.edu	
Zsolt János		Viharos	Hungarian Academy of Sciences, Hungary		+36 1 279 6 195	viharos.zsolt@sztaki.mta.hu	

TC mission - field of expertise (max. 1000 char. Including spaces)

Scope

Fostering development and use of artificial intelligence, computational intelligence, and soft computing in measurement systems and related applications.

Goals

- Develop, promote, and support artificial intelligence and soft computing in instrumentation and measurement systems.
- Develop, promote, and support the integration of artificial intelligence and soft-computing technologies in advanced instrumentation and measurement procedures and systems.
- Develop, promote, and support standards in the field of artificial intelligence and soft-computing technologies for intelligent instrumentation and measurement applications.
- Disseminate information and knowledge about artificial intelligence and soft-computing technologies for instrumentation and measurement applications and attract a wider audience to their benefits.
- Maintain liaisons with other committees, groups, societies, and organizations working on artificial intelligence and soft-computing technologies and in the applications fields.

^{*} Please add as many rows as needed

TC meetings in the reporting period^(*)

Date (dd/mm/yy)	Online / Face2Face	Attendance (number)	TC Members	Information sent within 4 months to (Yes/No)		
				Chair of TSAC	IM Magazine	Other (specify)

Minutes of the yearly meeting (separate file)¹:

Participation in Society sponsored Events (Conferences, Symposia, Workshops)^(*)

Name of the Event	Starting date (event) (dd/mm/yy)	Ending date (event) (dd/mm/yy)	Date Participation (dd/mm/yy)	Type of participation (Yes/No)		
				Sponsorship Session	Tutorial	Other (specify) ²
Workshop on Edge Intelligence: Smart, Efficient, and Scalable Solutions for IoT, Wearables, and Embedded Devices (SEEDS), in conjunction with the Int. Conf. on Image Processing (ICIP), Anchorage, Alaska, 14 - 17 September, 2025.	Sept. 14, 2025	Sept. 17, 2025	Sept. 14-17, 2025			Workshop organization
2025 IEEE I2MTC Int. Instrumentation and Measurement Technology Conference, Chemnitz, Germany.	May 19, 2025	May 22, 2025				Associate Technical Committee
2025 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Piraeus, Greece.	June 12, 2025	June 14, 2025	June 12-14, 2025			Organizing Committee Special Session Chair: "Security and Privacy", "Industry 2", "Security 2", "Health 2", "Methodologies", "Health 3", "Medical Imaging". Submission of papers Reviewing papers

¹ Yes/No, date of the yearly meeting;

² For example, Involvement in reviewing papers (and indicate approximate number of paper reviews for the listed event)

* Please add as many rows as needed

Involvement in standard development^(*)

Standard	Working Group	Revision	Activity in the reporting period, including dates	Notes, attendance

Participation in the development of Society Educational Programs^(*)

Program name	Involvement of chapters and sections	Activity in the reporting period, including dates	Notes, attendance

Other Activities (tutorials, teaching, career, cooperation, publications, joint activity with chapters or sections)^(*)

Type of activity	Starting date (dd/mm/yy)	Ending date (dd/mm/yy)	Activity in the reporting period	Notes, attendance
Collaboration			Collaboration with STMicroelectronics, Catania, Italy.	
Collaboration			Collaboration with Multimedia Laboratory, University of Toronto, Canada.	
Collaboration			Collaboration with Wuyi University, Guangdong, China.	
Teaching			Dr. P. Coscia, Ph.D. Course: "Optimized Artificial Intelligence in Edge Computing and IoT", Università degli Studi di Milano, Italy, (A.Y. 2025-2026).	
Teaching			Prof. A. Genovese, Ph.D. Course: "Deep Learning for Signal and Image Processing", Università degli Studi di Milano, Italy, (A.Y. 2025-2026).	
Teaching			Dr. P. Coscia, M.Sc. Course: "Intelligent Monitoring and Control Systems", Università degli Studi di Milano, Italy, (A.Y. 2025-2026).	
Teaching			Prof. A. Genovese, M.Sc. Course: "Artificial Intelligence", Università degli Studi di Milano, Italy (A.Y. 2025-2026).	
Teaching			Prof. A. Genovese, M.Sc. Course: "Sensing and vision for industry and environment", Università degli Studi di Milano, Italy (A.Y. 2025-2026).	
Teaching			Prof. A. Ruggero D. Labati, Prof. V. Piuri, M.Sc. Course: "Advanced foundations of artificial intelligence", Università degli Studi di Milano, Italy (A.Y. 2025-2026).	
Teaching			Prof. F. Scotti, M.Sc. Course: "Intelligent systems for industry, supply chain and environment",	

* Please add as many rows as needed

	Università degli Studi di Milano, Italy (A.Y 2025-2026).
Publication	C. Dong, W. Qiu, Y. Li, Y. Zhai, X. Liu, C. Mai, H. Zhu, J. Zhou, P. Coscia, A. Genovese, and C. L. P. Chen, "Bidirectional Interactive Multi-Scale Aggregation Network for Vehicle Detection in Urban Traffic," in IEEE Transactions on Intelligent Transportation Systems, 2025, pp. 1-21. DOI: 10.1109/TITS.2025.3639483.
Publication	Q. Chang, J. Xu, Y. Cui, Y. Zhai, P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "Useg-PanoDepth: Unified 360° Depth Estimation for Indoor and Outdoor Scenes with Semantic Assistance," in IEEE Transactions on Multimedia, 2025, pp. 1-12. DOI: 10.1109/TMM.2025.3623503.
Publication	P. Coscia, A. Genovese, V. Piuri, K. N. Plataniotis, and F. Scotti, "Distributed Anomaly Detection with Attention-guided Diffusion Models and Client-side Defect Generation", in IEEE Systems Journal, 2025. DOI: 10.1109/JSYST.2025.3619401
Publication	Y. Xu, B. Li, Y. Zhai, F. Ke, J. Zhou, P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "PBSD-Net: Prismatic Battery Surface Defect Detection via Sliding Slice Amplification and Shunted Dynamic Snake Convolution", in IEEE Transactions on Automation Science and Engineering, October 2025. ISSN:1558-3783. DOI: 10.1109/TASE.2025.3620333.
Publication	Y. Zhai, Z. Shen, J. Zeng, H. Zhang, H. Zhu, Q. Chang, Y. Cui, P. Coscia, and A. Genovese, "Remote Sensing Change Detection via Centralized Low-High Rank Representation", in IEEE Transactions on Geoscience and Remote Sensing, Ottobre 2025. DOI: 10.1109/TGRS.2025.3616118.
Publication	P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "OneN: Guided Attention for Natively-Explainable Anomaly Detection", in Image and Vision Computing, Elsevier, November, 2025, pp. 105741. ISSN: 0262-8856. DOI: 10.1016/j.imavis.2025.105741
Publication	F. Rundo, A. A. Messina, M. Fiore, M. Calabretta, P. Coscia, and S. Battiato, "Hyperbolic Deep Learning System for Intelligent Gate-Driving and Health Monitoring of Silicon-Carbide Power MOS- FETs", in IEEE Open Journal, 2025. DOI: 10.1109/OJCS.2025.3614091.
Publication	Z. Liang, Y. Xu, Y. Zhai, H. Zhu, J. Xi, P. Coscia, and A. Genovese, "Dimension Decoupling Vision-Language Transformer for industrial container marking and natural scene text spotting", in Journal of Industrial Information Integration, Novembre 2025, pp. 100926. ISSN: 2452-414X. DOI: 10.1016/j.jii.2025.100926.
Publication	J. Zeng, S. Deng, Y. Zhai, X. Jia, C. Qin, P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "Spatial Reconstruction and Joint Training in Transformer Network for Cross-Domain Remote Sensing Images Semantic Segmentation", in IEEE Transactions on

Publication	Geoscience and Remote Sensing, . DOI: 10.1109/TGRS.2025.3599841.
Publication	C. Qin, Z. Chen, D. Wang, B. Zheng, J. Luo, J. Zeng, X. Jia, J. Wen, M. Hu, Y. Zhai, P. Coscia, and A. Genovese, "DUR-Net+: Semi-supervised abdominal CT pheochromocytoma segmentation via dynamic uncertainty rectified and prior knowledge from SAM-Med3D", in IEEE Journal of Biomedical and Health Informatics, . DOI: 10.1109/JBHI.2025.3594897.
Publication	Z. Ying, Y. Zhou, Y. Zhai, H. Zhu, H. Zhang, P. Coscia, A. Genovese, F. Scotti, V. Piuri, and C. L. Philip Chen, "AEG-Net: Adaptive Multiscale Global-Local Feature Fusion Network for Remote Sensing Change Detection", in IEEE Transactions on Geoscience and Remote Sensing, 2025, pp. 1-1. ISSN: 1558-0644. DOI: 10.1109/TGRS.2025.3575591.
Publication	H. Zhu, J. You, Y. Zhai, Y. Xu, T. Wang, Y. Chen, J. Zhou, P. Coscia, A. Genovese, and C. L. P. Chen, "DS2 A-Former: Battery Surface Defect Segmentation via Dual Stream Spatial Attention Transformer Network", in IEEE Transactions on Instrumentation and Measurement, May 2025, pp. 1-18. ISSN: 1557-9662. DOI: 10.1109/TIM.2025.3572164. S
Publication	T. Wang, Z. Li, Y. Xu, Y. Zhai, X. Xing, K. Guo, P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "CLIP-Vision Guided Few-Shot Metal Surface Defect Recognition", in IEEE Transactions on Industrial Informatics, March 2025, pp. 2-12. ISSN: 1941-0050. DOI: 10.1109/TII.2025.3547353.
Publication	Y. Zhai, W. Pan, Y. Liang, H. Zhu, Z. Long, P. Coscia, A. Genovese, V. Piuri, and F. Scotti, "Bidirectional Feature Pyramid Siamese Anomaly Detection Network with Cellular Anomaly Generation for Container Marking", in IEEE Transactions on Instrumentation & Measurement, March 2025, pp. 1-17. ISSN: 1557-9662. DOI: 10.1109/TIM.2025.3554326.
Publication	A. Aragon-Molina et al., "Towards Automatic Computation of the SkullCode: A Novel Biometric Approach for Cranial Identification," 2025 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Piraeus, Greece, 2025, pp. 1-6, doi: 10.1109/CIVEMSA65862.2025.11084837.
Publication	N. Fakhraei, R. D. Labati, V. Piuri and F. Scotti, "Deep Learning-based Iris Quality Assessment for Images Sourced from Websites and Social Media," 2025 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Piraeus, Greece, 2025, pp. 1-7, doi: 10.1109/CIVEMSA65862.2025.11084826.
Research project	EU Horizon Europe Framework Programme, EdgeAI - Edge AI Technologies for Optimised Performance Embedded Processing

Research project	EU Horizon 2020 Research and Innovation Programme (H2020), MARSAL - Machine Learning-based Networking and Computing Infrastructure Management for Beyond 5G
Invited Speaker	Dr. P. Coscia, "Transparent and Reliable AI for Visual Industrial Anomaly Detection", 9th International Conference on Advances in Artificial Intelligence (ICAAI 2025), Manchester, United Kingdom, November 14-16, 2025.
Invited speaker	Prof. V. Piuri, "Industrial anomaly detection at the Edge", 13th IEEE Int. Conf. on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS 2025), September 5, 2025;
Invited speaker	Prof. V. Piuri, "Machine learning for DDoS detection", Int. Conf. on Innovations in Engineering and Emerging Technologies (ICIEET 2025), June 10, 2025;
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud/Fog/Edge Computing and Internet-of-Things," in 7th International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2025), Kalyani, West Bengal, India, December 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence for Ambient Intelligence," in 4th International Conference on Embedded Systems and Artificial Intelligence (ESAI 2025), Fez, Morocco, December 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence for Biometric Technologies and Systems," in 5th International Conference on Artificial Intelligence and Knowledge Processing (AIKP 2025), Murcia, Spain, October 23, 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud Computing and Internet-of-Things," in IEEE Research and Technologies for Society and Industry (RTSI 2025), Gammarth, Tunisia, August 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud Computing and Internet-of-Things," in 21st International Conference on Smart Technologies (EUROCON 2025), Gdynia, Poland, June 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud/Fog/Edge Computing and Internet-of-Things," in International Forum on Emerging Frontiers (iFEF 2025), May 2025 (panel).
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud Computing and Internet-of-Things," 2025 World Summit and Expo on Electronics and Electrical Engineering (WSEEE-2025), Budapest, Hungary, May 2025.
Invited speaker	Prof. V. Piuri, "Biometrics and AI: Challenges and Opportunities," University of Science and Technology Beijing, Beijing, China, April 2025.
Invited speaker	Prof. V. Piuri, "Artificial Intelligence in Cloud/Fog/Edge Computing and Internet-of-Things", 1st International Conference

Invited speaker	on Machine Intelligence and Data Science (MIDAS 2025), Odisha, India, March 2025.
Seminar	Prof. V. Piuri, "Artificial Intelligence in Cloud Computing and Internet-of-Things", 4th International Conference on Universal Threats in Expert Applications and Solutions (UNI-TEAS 2025), Jaipur & Bhopal, India, February 2025.
Tutorial Chair	Prof. A. Genovese, "Deep Learning for Intrusion Detection", Università degli Studi di Salerno, Italy.
Publication Chair	Prof. A. Genovese, 9th Int. Conf. on Advances in Artificial Intelligence (ICAAI 2025), Manchester, UK, 11-13 September 2025.
	2025 Int. Conf. on Innovation, Management, and Sustainability Development (ICIMSD 2025), Biel/Bienne, Switzerland, 15-16 September 2025.

Recommended candidates^(*)

Type (ADCOM, Fellow, Award -specify-)	First Name	Second Name	Family Name	Affiliation /Address	Motivation
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TC operating Plan: near-term plans for the upcoming year, including scheduled meetings, activities, and so on (max. 1000 char. Including spaces)

The TC will organize, together with the IEEE Computational Intelligence Society (CIS) and other IEEE members, the next edition of the International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2026). As in previous years, the conference will be an interesting venue for researchers and interested scholars to publish works and exchange ideas related, among others, to the key activities of the TC.

Topics in the scope of the CIVEMSA conference include

- Intelligent Measurement Systems
- Multi-Sensor Data Fusion & Intelligent Sensor Fusion
- Intelligent Monitoring & Control Systems
- Neural & Fuzzy Signal/Image Processing for Industrial, Environmental & Domotics Applications
- Machine & Deep Learning for Intelligent Systems
- Computational Intelligence Technologies for Robotics & Vision
- Computational Intelligence Technologies for Medical & Bioengineering Applications
- Hardware Implementation of Neural & Fuzzy Systems for Measurements
- Neural & Fuzzy Techniques for Quality Measurement

* Please add as many rows as needed

TC operating plan: long term vision from 2-5 years out, based on IMS Strategic Plan, including areas of strength , areas for improvement, how is the subject area going to change, planned actions for lifting achievement succession plans etc. (max. 1000 char. Including spaces)

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- Organization of internships on intelligent measurement systems
 - Theses supervision on intelligent measurement systems
 - Organization and promotion of conferences and workshops
 - Organization and chairing of special sessions
 - Presentation and dissemination of papers and tutorials
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TC convergence, synergy, cooperation with other TC, from I&M or other societies (max. 1000 char. Including spaces)

The TC-22 is planning joint activities with other societies and councils that have a similar scope, including organization and sponsorship of conferences and workshops, organization of special sessions, and organization of special issues in journals in the field of intelligent measurement systems.

Societies and councils include:

- IEEE Computational Intelligence Society
 - IEEE Systems Council
 - IEEE Biometrics Council
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Comments/Suggestions (max. 1000 char. Including spaces)
