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)
11/09/19	11/09/20	11/09/20

Website

http://ieee-ims.org/content/tc-22-intelligent-measurement-systems-0	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
Angelo		Genovese	Università degli Studi di Milano, Italy	92187688	+39 02 503 16249	angelo.genovese@unimi.it	
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

TC Membership list[(*)]

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	TC assignments (joining year)
Angelo		Genovese	Università degli Studi di Milano, Italy	92187688	+39 02 503 16249	angelo.genovese@unimi.it	
Mel		Siegel	Carnegie Mellon University, USA		+1 412 268 8742	mws@cmu.edu	
Mario		Diván	National University of La Pampa, Argentina			mjdivan@eco.unlpam.edu.ar	
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	
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.

TC meetings in the reporting period(*)

Date (dd/mm/yy)	Online / Face2Face	Attendance (number)	TC Members	Chair of TSAC	IM Magazine	Other (specify)
				Information sent within 4 months to (Yes/No)		
26/05/20	Online		Angelo Genovese			

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 Partecipation (dd/mm/yy)	Sponsorship Session	Tutorial	Other (specify) [2]
				Type of participation (Yes/No)		
2020 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2020), Tunis, Tunisia	22/06/20	22/06/20	22/06/20			Program chair activities Reviewing papers (about 10) Submission of paper

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

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[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)

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
Teaching			Dr. Angelo Genovese, Ph.D. course: "Deep Learning for Signal and Image Processing", Università degli Studi di Milano, Italy, November-December 2020	
Teaching			Prof. Fabio Scotti, Dr. Ruggero Donida Labati, Ph.D. course: "Biometrics: Challenges and Research Trends", Università degli Studi di Siena, Italy, July 2020	
Teaching			Prof. Fabio Scotti, Course: "Intelligent Systems for Industry, Supply Chain, and Environment", A. Y. 2019/2020 (March-June 2020)	
Thesis supervision			S. Mena, "Image processing based on Deep Learning for car marketing applications", M.Sc. thesis in Computer Science, 2020	
Thesis supervision			V. Dinapoli, "Multibiometric detection based on face and palmprint", B.Sc. thesis in Computer Science, 2019	
Thesis supervision			D. Marcosano, "Biometric systems for ambient intelligence: features and applications", B.Sc. thesis in Computer Science, 2019	
Thesis supervision			G. Nurgaliyeva, "Simulation modeling of water level in canals for decision making in emergency situations", B.Sc. thesis in Computer Science, 2019	
Society membership			Dr. Angelo Genovese, IEEE Computational Intelligence Society, Neural Networks Technical Committee, Task Force on Deep Learning (April 2020 – present)	
Visiting researcher	2/12/2019	2/3/2020	Dr. Angelo Genovese, Visiting Researcher at the Multimedia Laboratory, University of Toronto, ON, Canada	
Collaboration			Collaboration with Yildiz Technical University, Istanbul, Turkey (March 2019 – present)	
Award			The work "PalmNet: Gabor-PCA Convolutional Networks for touchless palmprint recognition" (authors: A. Genovese, V. Piuri, K. N. Plataniotis, F. Scotti), published in the international journal IEEE Transactions on Information Forensics and Security, vol. 14, no. 12, December 2019, pp. 3160–3174 (already published in the online issue in April 2019), was considered by the Editorial Board of the IEEE Biometrics Compendium as one of the most significant works in the field of biometric recognition and therefore was included in the IEEE Biometrics Compendium, no. 38, November 2019 [DOI: 10.1109/biomvj.2019.0000038]	
Publication			D. Gümüşbaş, T. Yıldırım, A. Genovese, F. Scotti, "A comprehensive survey of databases and Deep Learning methods for cybersecurity and intrusion detection systems", in IEEE Systems Journal, 2020	

Publication	R. Donida Labati, A. Genovese, V. Piuri, F. Scotti, and G. Sforza, "A decision support system for wind power production", in IEEE Transactions on Systems, Man, and Cybernetics: Systems, vol. 50, no. 1, January, 2020, pp. 290-304. ISSN: 2168-2216
Publication	Y. Zhai, W. Deng, B. Sun, T. Li, B. Sun, Z. Ying, J. Gan and C. Mai, J. Li, R. Donida Labati, V. Piuri, F. Scotti, "MFFA-SARNET: Deep Transferred Multi-level Feature Fusion Attention Network for Small Samples SAR ATR with Dual Optimized Loss", in Remote Sensing, MDPI, April 28, 2020
Publication	Y. Xu, J. Liu, Y. Zhai, J. Gan, J. Zeng, H. Cao, F. Scotti, V. Piuri, R. Donida Labati, "Weakly supervised facial expression recognition via transferred DAL-CNN and active incremental learning", in Soft Computing, Springer, pp. 5971-5985, April, 2020
Publication	Z. Ying, C. Xuan, Y. Zhai, B. Sun, J. Li, W. Deng, C. Mai and F. Wang, R. Donida Labati, F. Scotti, V. Piuri, "TAI-SARNET: Deep Transferred Atrous-inception CNN for Small Samples SAR ATR", in Sensors, pp. E-1724, March, 2020. ISSN: 1424-8220
Publication	J. Gan, L. Xiang, Y. Zhai and C. Mai, G. He, J. Zeng and Z. Bai, R. Donida Labati, V. Piuri, F. Scotti, "2M BeautyNet: Facial Beauty Prediction Based on Multi-Task Transfer Learning", in IEEE Access, 2020
Publication	Y. Zhai, W. Deng, B. Sun, T. Li, B. Sun, Z. Ying, J. Gan and C. Mai, J. Li, R. Donida Labati, V. Piuri, F. Scotti, "MFFA-SARNET: Deep Transferred Multi-level Feature Fusion Attention Network for Small Samples SAR ATR with Dual Optimized Loss", in Remote Sensing, 2020
Publication	A. Genovese, V. Piuri, K. N. Plataniotis, and F. Scotti, "PalmNet: Gabor-PCA Convolutional Networks for touchless palmprint recognition", in IEEE Transactions on Information Forensics and Security, vol. 14, no. 2, December, 2019, pp. 3160-3174
Publication	R. Donida Labati, E. Muñoz, V. Piuri, A. Ross, F. Scotti, "Non-ideal iris segmentation using Polar Spline RANSAC and illumination compensation", in Computer Vision and Image Understanding, Elsevier, November, 2019
Publication	R. Donida Labati, E. Muñoz, V. Piuri, R. Sassi, F. Scotti, "Deep-ECG: Convolutional Neural Networks for ECG biometric recognition", in Pattern Recognition Letters, Elsevier, pp. 78-85, September, 2019
Publication	M. Abukmeil, S. Ferrari, A. Genovese, V. Piuri, and F. Scotti, "Unsupervised learning from limited available data by β-NMF and dual autoencoder", in Proc. of the 27th IEEE Int. Conf. on Image Processing (ICIP 2020), Abu Dhabi, UAE, October 25-28, 2020
Publication	M. Abukmeil, S. Ferrari, A. Genovese, V. Piuri, F. Scotti, "On approximating the non-negative rank: Applications to unsupervised image reduction", in Proc. of the 2020 IEEE Int. Conf. on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2020), Tunis, Tunisia, June 22-24, 2020

Publication	A. Genovese, V. Piuri, F. Scotti, "Towards explainable face aging with Generative Adversarial Networks", in Proc. of the 26th IEEE Int. Conf. on Image Processing (ICIP 2019), Taipei, Taiwan, pp. 1-5, September 22-25, 2019. ISBN: 978-1-5386-6249-6
Publication	R. Donida Labati, A. Genovese, V. Piuri, F. Scotti, and S. Vishwakarma, "Computational intelligence in cloud computing", in Recent Advances in Intelligent Engineering, ser. Topics in Intelligent Engineering and Informatics, L. Kovács, T. Haidegger, and A. Szakál (eds.), vol. 14, Springer, Cham, 2020, pp. 111-127. ISBN: 978-3-030-14350-3
Publication	R. Donida Labati, A. Genovese, V. Piuri, and F. Scotti, "A scheme for fingerphoto recognition in smartphones", in Selfie Biometrics – Advances and Challenges, ser. Advances in Computer Vision and Pattern Recognition, A. Rattani, R. Derakhshani, and A. Ross (eds.), Springer International Publishing, 2019, pp. 49-66. ISBN: 978-3-030-26972-2

Recommended candidates[(*)]

Type (ADCOM, Fellow, Award –specify-)	First Name	Second Name	Family Name	Affiliation /Address	Motivation

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 other IEEE members, the next edition of the International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2021). As the 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

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[*] 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)

- 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

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

Comments/Suggestions (max. 1000 char. Including spaces)