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The 14th International Conference on Education and Information Systems, Technologies and Applications: EISTA 2016
in the context of
The 10th International Multi-Conference on Society, Cybernetics and Informatics: IMSCI 2016



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Number of Papers Included in these Proceedings per Country
(The country of the first author was the one taken into account for these statistics)

Country	# Papers	%
TOTAL	62	100.00
United States	18	29.03
Brazil	4	6.45
Canada	4	6.45
Mexico	4	6.45
Belgium	3	4.84
Thailand	3	4.84
Croatia	2	3.23
Ecuador	2	3.23
France	2	3.23
Germany	2	3.23
South Korea	2	3.23
Switzerland	2	3.23
Turkey	2	3.23
China	1	1.61
Guatemala	1	1.61
India	1	1.61
Japan	1	1.61
Pakistan	1	1.61
Portugal	1	1.61
Slovakia	1	1.61
South Africa	1	1.61
Sweden	1	1.61
Taiwan	1	1.61
United Arab Emirates	1	1.61
Zambia	1	1.61

Foreword

Informatics and Cybernetics (communication and control) are having an increasing impact on societies and in the globalization process that is integrating them. Societies are trying to regulate this impact, and adapt it to their respective cultural infra-structures. Societies and cultures are in reciprocal co-adaptations with Information and Communication Technologies. Synergic relationships might emerge in this co-adaptation process by means of positive and negative feedback loops, as well as feedforward ones. This would make the whole larger than the sum of its parts, generating emergent properties in the parts involved as well as in the whole coming forth. The academic, private, and public sectors are integrating their activities; multi-disciplinary groups and inter-disciplinary teams are being formed, and collaborative research and development projects are being organized in order to facilitate and adequately orient the design and implementation of the feedback and the feedforward loops, and potentially generating synergic relationships. This phenomenon persuaded the Organizing Committee to organize The 10th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2016) in a multi-disciplinary context along with other collocated events. Consequently, participants may focus on one discipline, while allowing them the possibility of attending conferences from other disciplines. This systemic approach stimulates cross-fertilization among different disciplines, inspiring scholars, originating new hypothesis, supporting production of innovations and generating analogical thinking.

IMSCI 2016 was organized and sponsored by the International Institute of Informatics and Systemics (IIIS, www.iiis.org), member of the International Federation of Systems Research (IFSR). The IIIS is a **multi-disciplinary organization for inter-disciplinary communication and integration**, which includes about 4500 members. Consequently, a main purpose of the IIIS is to foster knowledge integration processes, interdisciplinary communication, and integration of academic activities. Based on 1) the transdisciplinarity of the systemic approach and its emphasis on *relationships* and *integrating* processes, and 2) the multi-disciplinary support of cybernetics' and informatics' concepts, notions, theories, technologies, and tools, the IIIS has been organizing multi-disciplinary conferences as a platform for fostering inter-disciplinary communication and knowledge integration processes.

Multi-disciplinary conferences are organized by the IIIS as support for *both intra- and inter-disciplinary* communication. Processes of intra-disciplinary communication are mainly achieved via traditional paper presentations in corresponding disciplines, while conversational sessions, regarding trans- and inter-disciplinary topics, are among the means used for inter-disciplinary communication. Intra- and inter-disciplinary communications might generate *co-regulative cybernetic loops*, via negative feedback, and *synergic* relationships, via positive feedback loops, in which both kinds of communications could increase their respective effectiveness. Figure 1 shows at least two cybernetic loops if intra- and inter-disciplinary are adequately related. A necessary condition for the effectiveness of Inter-disciplinary communication is an adequate level of *variety* regarding the participating disciplines. *Analogical thinking and learning processes* of disciplinarians depend on it; which in turn are potential sources of the creative tension required for cross-fertilization among disciplines and the generations of new hypothesis. An extended presentation regarding this issue can be found at www.iiis.org/MainPupose.

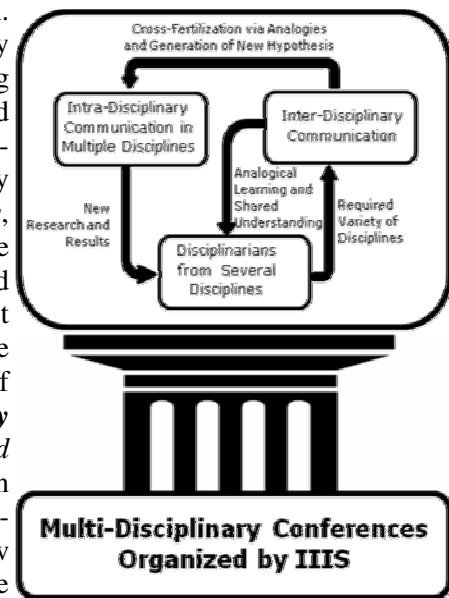


Figure 1

One of the main purposes of IMSCI 2016 is to bring together academics, professionals, and managers from the private and the public sectors, in order to share ideas, results of research, and innovative services or products, in a multi-disciplinary and multi-sector forum.

Educational technologies, socio-economic organizations, and socio-political processes are essential domains among those involved in the evolving co-adaptation and co-transformation between societies and cultures on the one hand, and between informatics and cybernetics (communication and control) on the other hand. Consequently, the main conference in the context of the IMSCI 2016 Multi-Conference is the 14th International Conference on Education and Information Systems, Technologies and Applications: EISTA 2016

The relationship between education/training and Information and Communication Technologies (ICT) is quickly intensifying and sometimes appears in unexpected forms and in combination with original ideas, innovative tools, methodologies, and synergies. Accordingly, the primary purpose of EISTA 2016 has been to bring together researchers and practitioners from both areas together to support the emerging bridge between education/training and the ICT communities.

In the context of EISTA 2016, practitioners and consultants were invited to present case studies and innovative solutions. Corporations were invited to present education/training information systems and software-based solutions. Teachers and professors were invited to present case studies, specifically developed information systems, and innovative ideas and designs. Educational scientists and technologists were invited to present research or position papers on the impact and the future possibilities of ICT in educational systems, training processes, and methodologies. Managers of educational organizations and training consultants were invited to present problems that might be solved by ICT or solutions that might be improved by different approaches and designs in ICT.

EISTA 2016 provides a forum for the presentation of solutions and problems in the application of ICT in the fields of education/training. Authors of the papers included in the proceedings provided diverse answers to the following questions:

- What is the impact of ICT in education and training?
- How are ICTs affecting and improving education and training? What networks and models are emerging?
- How are universities, schools, corporations and other educational/training organizations making use of ICT?
- What electronic tools are there to facilitate e-learning, distance education and co-operative training?

On behalf of the Organizing Committees, I extend our heartfelt thanks to:

1. The 108 members of the Program Committees (including the events and the special tracks organized in the context of IMSCI 2016) from 26 countries;
2. The 243 additional reviewers, from 58 countries, for their *double-blind peer reviews*; and
3. The 115 reviewers, from 30 countries, for their efforts in making the **non-blind peer reviews**. (Some reviewers supported both: non-blind and double-blind reviewing for different submissions)

A total of 692 reviews made by 358 reviewers (who made at least one review) contributed to the quality achieved in IMSCI 2016. This means an average of 4.71 reviews per submission (147 submissions were received). *Each registered author had access, via the conference web site, to the reviews that recommended the acceptance of their respective submissions.* Each registered author could also get information about: 1) the average of the reviewers evaluations according to 8 criteria, and the average of a global evaluation of his/her submission; and 2) the comments and the constructive feedback made by the reviewers, who recommended the acceptance of his/her submission, so the author would be able to improve the final version of the paper.

In the organizational process of IMSCI 2016, about 147 articles were submitted. These pre-conference proceedings include about 62 papers, from 25 countries that were accepted for presentation (43 countries taking into account the presentations in collocated events). We extend our thanks to co-chairs special tracks organizers for their support. The submissions were reviewed as carefully as time permitted; it is expected that most of them will appear in a more polished and complete form in scientific journals.

This information about IMSCI 2016 is summarized in the following table, along with the other collocated conferences:

Conference	# of submissions received	# of reviewers that made at least one review	# of reviews made	Average of reviews per reviewer	Average of reviews per submission	# of papers included in the proceedings	% of submissions included in the proceedings
WMSCI 2016	214	741	1173	1.58	5.48	108	50.47 %
IMSCI 2016	147	358	692	1.93	4.71	62	42.18 %
CISCI 2016	133	510	1120	2.20	8.42	62	46.62 %
TOTAL	494	1609	2985	1.86	6.04	232	46.96 %

We extend our gratitude to the co-editors of these proceedings for the hard work, energy and eagerness they shown preparing their respective sessions. We express our intense gratitude to Professor William Lesso (1931-2015) for his wise and opportune tutoring, for his eternal energy, integrity, and continuous support and advice, as the Program Committee Chair of past conferences, and as Honorary President of WMSCI 2016, as well as for being a very caring old friend and intellectual father to many of us. We also extend our gratitude to Professor Belkis Sánchez, who brilliantly managed the organizing process.

We also express our immense gratitude to Professors Friedrich Welsch, Jorge Baralt, Angel Oropeza, José Ferrer, Andrés Tremante, and José Vicente Carrasquero for chairing or co-chairing the respective Program Committees and/or Organizing Committees.

We also extend our gratitude to the following scholars, researchers, and professionals who accepted to deliver plenary workshops and/or to address the audience of the General Joint Plenary Sessions with keynote conferences.

Plenary Workshops, more details (abstracts and short bios) were included in the Conference Program booklet and at <http://www.iiis.org/summer2016plenaryevents/>

Professor Emeritus Stuart Umpleby, The George Washington University, USA, Former President of The American Society of Cybernetics.

Tom Hull, MS. CIO Florida Polytechnic University, USA, Vice President and Chief Information Officer, CTO of Moffitt Cancer Center, Former VP and CIO - Pace University; VP and CIO - Siena College, IBM Director and Executive Consultant.

Plenary Keynote Speakers, more details more details (abstracts and short bios) were included in the Conference Program booklet and at <http://www.iiis.org/summer2016plenaryevents/>

Professor J. Hanns Pichler, University of Economics & Business Administration, Vienna, Austria, Senior Schumpeter Fellow, Center for European Studies/Harvard University.

Professor Shigehiro Hashimoto, Kogakuin University, Japan, Associate to the President and Dean of Admissions Center, Doctor of Engineering and Doctor of Medicine, Professor and Researcher on Biomedical Engineering.

Professor Stuart A. Umpleby, The George Washington University, USA, Director of the Research Program in Social and Organizational Learning, Former President of The American Society of Cybernetics.

Professor J. Eric Dietz, Purdue University, USA, Computer and Information Technology Department, Director of Purdue Homeland Security Institute.

Anne Connell, MS, CFA, Carnegie Mellon University, USA, Software Engineering Institute – CERT, Cybersecurity Engineer, Forensics, Incident Response, Assessment and Risk Management.

Dr. Karl H. Müller, Director of The Steinbeis Transfer Center, New Cybernetics, Vienna, Austria, Professor at the University of Ljubljana, Slovenia

Professor Hans Mulder, University of Antwerp, Belgium, Executive Professor at the Antwerp Management School European Research Director at the Standish Group.

Jim Johnson, The Standish Group, USA, Founder and Chairman, 40 Years of Experience in the Computer Industry, Mission-Critical Applications and Technology.

Dr. Robert Cherinka, MITRE Corporation, USA, Senior Principal, Information Systems Engineer.

Eng. Joseph Prezzama, MITRE Corporation, USA, Associate Department Head, Tampa Operations

David Shearer, CISSP, The International Information, Systems Security Certification Consortium (ISC)², USA, Chief Executive Officer, Deputy Chief Information Officer at the U.S. Department of the Interior

Dr. Bruce E. Peoples, Université Paris 8, France, Laboratoire Paragraphe, Chair Emeritus of an ISO/IEC Standards Committee, Generated over 50 Invention Disclosures, 15 Patent Applications and 8 Patent Awards.

Dr. Doug Sparkes, University of Waterloo, Canada, Conrad Business Entrepreneurship and Technology Centre, Associate Director, Undergraduate Programs.

Professor Bettina Harriehausen-Mühlbauer, University of Applied Sciences, Germany
Computer Science Department, A.I., Natural Language Processing, and Mobile Applications.

Professor Tomas Zelinka, Czech Technical University in Prague, Czech Republic, Faculty of Transportation Sciences, Vice-Dean, Among his present research interests: Smart Cities & villages.

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Professor Richard Segall, Arkansas State University, USA, Computer Information Technology.

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Conference on Systems, Cybernetics and Informatics: CISCi 2016 (*Décima Quinta Conferencia Iberoamericana en Sistemas, Cibernética e Informática: CISCi 2016*) collocated with WMSCI 2016 and IMSCI 2016

Profesora Gabriela Vilanova, Universidad Nacional de la Patagonia Austral, Argentina.
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Dra. María Dolores García Perea, Instituto Superior de Ciencias de la Educación del Estado de México, Investigadora en Educación.

Professor Andres Tremante, Florida International University, USA, The *Mechanical & Materials Engineering* (MME) Department.

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Professor Andrés Tremante, and
Professor Nagib Callaos (www.iiis.org/Nagib-Callaos)

IMSCI 2016 General Co-Chairs

IMSCI 2016
The 10th International Multi-Conference on Society, Cybernetics and Informatics
Special Track on Social and Organizational Informatics and Cybernetics: SOIC 2016
Special Track on Politics and Information Systems, Technologies and Applications: PISTA 2016
The 14th International Conference on Education and Information Systems, Technologies and Applications: EISTA 2016

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