

CIS: Technically Speaking...



The Computational Intelligence Society continuously strives to evolve and adapt its activities and products to better serve your needs in the various theoretical and application areas of computational intelligence. To achieve this purpose and allow you to maintain a leading role in your profession and in your community, we will focus our attention on the various aspects of our activities and organization to verify our effectiveness and enhance our services. In particular, I will point out and discuss, in this President's column, the various CIS activities.

At the beginning of this year, I like to consider the basis of all of our operations—the technical activities. They are directed to foster the advancement of the theory and practice in the field of interest of the Society, the interaction between scientists and professionals, and the development of their professional careers. Our technical activities aim to study all aspects of the behaviors of nature to capture how they can be reproduced to tackle practical problems, i.e., as the Society's tag says: "Mimicking nature for problem solving."

Historically we had three major technical committees that served as technical forums for the three oldest computational intelligence technologies: the Technical Committees on Neural Networks, on Fuzzy Systems and on Evolutionary Computation. These first committees had the privilege of being the promoters of the outstanding status and worldwide relevance of our Society. They nurtured and disseminated the respective technologies and created a momentum from which much research and many practical applications were developed.

From these initial steps, during the last few years, CIS created some additional technical committees to address some impelling interests. From a technological point of view, we were interested in identifying new technologies that could be valuable in describing the nature operation and approaches for better problem solving in some application areas. The Technical Committee on Autonomous Mental Development studies the natural creation of mental processes so they can be exploited, e.g., for learning and robotics. The Technical Committee on Emergent Technologies is now the incubator of new technologies that may be relevant in our arena, e.g., quantum computing and granular computing.

Orthogonally to the technological areas, CIS has also created some technical committees that specialize in application areas. The goal is to synergistically use all experiences in the various computational intelligence technologies to tackle specific targets in a coordinate way, by exploiting the best characteristics and opportunities from each technology.

The Technical Committee on Computational Finance and Economics was the first example in this direction, followed by the Technical Committee on Bioinformatics and Bioengineering and the one on Data Mining. Presently, CIS has also a Technical Committee on Intelligent Systems Applications, which is a sort of incubator for new

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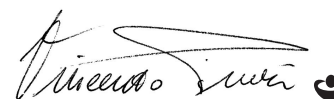
technical committees that specialize in studying the use of computational intelligence in application areas; among these fields, there are intelligent measurement systems, homeland security and personal safety, and games.

Having a two-dimensional structure of our technical activities is one of the points of force of our Society. The theoretical research on the foundations of computational intelligence, its technologies and its methodologies is, in fact, fundamental to promote the scientific advancement. However, theory without practice will have little opportunity to expand and become useful. Theory needs the challenges that come from the applications; they stimulate new ideas and

approaches and push to refine the theory. On the other side, theory finds verification in real cases provided by applications and enhances, or even makes feasible, the solution of practical problems.

In the future, CIS will continue to work in synergic and intertwined directions—looking for new computational intelligence technologies and studying the use of computational intelligence technologies in application areas. In particular, we would like to aggregate interest for working groups within the Technical Committee on Intelligent Systems Applications; for example, on automotive, avionics and space, earth monitoring, industrial automation, internet security and entertainment.

If you have any comment, suggestion, or criticism, or if you wish to join our technical committees, or if you want to propose a working group within a technical committee, then please do not hesitate to contact me at piuri@dti.unimi.it; or the Vice President for Technical Activities, Dr. Lipo Wang, at ELPWang@ntu.edu.sg; or the chairs of the technical committees (visit the CIS Web site for their e-mail addresses). We will be very glad to hear from you and involve you in the Society's life!



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