

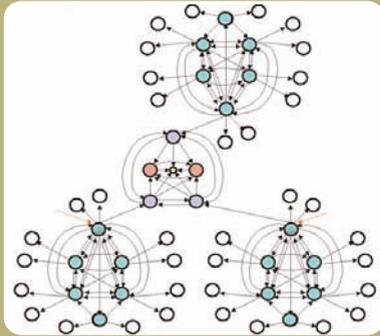
The Newsletter of the IEEE Computational Intelligence Society

VOLUME 3, Number 4

ISSN 1543-4281

November 2005

**Featured in this issue**



**Quantum Computing**

*Marek A. Perkowski*

*“With a brief introduction to quantum fundamentals, the specialists from other fields can become productive researchers in this new quantum-related area of computer engineering.”*

**ALSO IN THIS ISSUE**

President's Message	1
Jacek M. Zurada	
Society Briefs	3
Gary G. Yen	
Family Corner	4
David B. Fogel	
Feature Article	6
Marek A. Perkowski	
Conference Report	13
Danil Prokhorov, Xiaohua Hu	
Call for Papers	15
Jim Keller	
Conference Calendar	16
Okay Kaynak	

**2004-2005 and Beyond**

By all accounts, the years 2004 and 2005 of my Presidency have been thrilling for the young IEEE Computational Intelligence Society (CIS). There have been many gains and little, if any, losses. The Society's membership has been strengthening and growing, as exemplified by our creation of new chapters, wide attendance at conferences, numerous subscribers and submissions to the three Transactions, popularity of this Newsletter, and excellent financial health. New events, initiatives and opportunities are continuing to arise.

Why is our Society growing and remaining energetic and vibrant? In my opinion, our prosperity is due to our technical strengths, outstanding membership and volunteer base. Let me illustrate a few milestones that have contributed to our success in the recent past as well as some initiatives that will assure our growth in the future.

In the spring of 2004, the IEEE Technical Activities Board approved the Neural Networks Society's name change to the Computational Intelligence Society. The new name has been more descriptive and inclusive than the old one, which only covered a fraction of the



Society's scope. With this change, the profile of our publications and conferences, which include such events as the World Congress on Computational Intelligence, has been more appropriately labeled and represented.

Last year we also designed a new CIS website that provided our members with enhanced information about the Society's technical and volunteer activities. Although dozens of individuals contributed to the content, the leadership of Dr. Vincenzo Piuri, 2005 President-Elect, was particularly invaluable. Since the launch of the new web site in the fall of 2004, it has been continuously improved. For instance, the website now accepts online Student Travel Grant applications,

includes multimedia tutorials, and features Yahoo-style postings about major Society events. It will soon feature our newly designed Society logo.

The intellectual property that the Society has created is of both impressive quality and quantity. CIS solely publishes and sponsors three popular IEEE Transactions (NN, FS, EC) that are highly ranked by the ISI in terms of their Impact Factors. In addition, CIS has either partial financial and/or technical sponsorship of several other IEEE Transactions. After all CIS Transactions have migrated to Manuscript Central, submitting a paper to TNN, TFS or TEC has never been simpler.

In addition, last November we launched the CIS E-letter that stemmed from the technical activities led by Dr. Gary Yen, VP-Technical Activities. The E-letters offer monthly updates on upcoming deadlines, publications, special issues, conferences, elections, nominations, awards, regional volunteer opportunities, and other events.

On another exciting note, starting in 2006 the new Computational Intelligence Magazine will be bundled as a part of your CIS membership package. Although this means that the CIS

**President's Message**  
 Jacek M. Zurada  
 University of Louisville

## Executive Officers

*President:* JACEK M. ZURADA, Univ. of Louisville  
*President Elect:* VINCENZO PIURI, Univ. of Milan  
*Vice President - Conferences:* OKYAY KAYNAK, Bogazici Univ.  
*Vice President - Finances:* PIERO P. BONISSONE, General Electric Co.  
*Vice President - Members Activities:* DAVID B. FOGEL, Natural Selection, Inc.  
*Vice President - Publications:* JIM KELLER, Univ. of Missouri-Columbia  
*Vice President - Technical Activities:* GARY G. YEN, Oklahoma State Univ.  
*Secretary:* GLENNA HABERZETLE, Univ. of Louisville

## Editors

*Transactions on Evolutionary Computation:* XIN YAO, Univ. of Birmingham  
*Transactions on Fuzzy Systems:* NIKHIL R. PAL, Indian Statistical Institute  
*Transactions on Neural Networks:* MARIOS POLYCARPOU, Univ. of Cyprus  
*CIS Newsletter:* GARY G. YEN, Oklahoma State Univ.  
*CIS Web Page:* TOMASZ CHOLEWO, Lexmark International Inc.  
*CIS E-Letter:* DERONG LIU, Univ. of Illinois at Chicago

## Technical Committees

*Autonomous Mental Development:* JUYANG (JOHN) WENG, Michigan State Univ.  
*Bioinformatics and Bioengineering:* GARY B. FOGEL, Natural Selection, Inc.  
*Computational Finance and Economics:* EDWARD TSANG, Univ. of Essex  
*Data Mining:* JOYDEEP GHOSH, Univ. of Texas, Austin  
*Emergent Technologies:* LIPO WANG, Nanyang Technological Univ.  
*Evolutionary Computation:* GARRISON W. GREENWOOD, Portland State Univ.  
*Fuzzy Systems:* JERRY M. MENDEL, Univ. of Southern California  
*Intelligent Systems Applications:* WITOLD PEDRYCZ, Univ. of Alberta  
*Neural Networks:* GEORGE G. LENDARIS, Portland State Univ.  
*Technology Transfer:* PAUL WERBOS, National Science Foundation

## Standing Committees

*Awards:* ROBERT J. MARKS, Baylor Univ.  
*Constitution & Bylaws:* VINCENZO PIURI, Univ. of Milan  
*Distinguished Lecturers:* PABLO A. ESTEVEZ, Univ. of Chile  
*Educational Activities:* SLAWO WESOLKOWSKI, Univ. of Waterloo  
*Fellows:* PIERO P. BONISSONE, General Electric Co.  
*Multimedia Tutorials:* JENNIE SI, Arizona State Univ.  
*Nominations and Appointments:* EVANGELIA MICHELI-TZANAKOU, Rutgers Univ.  
*Standards:* LESZEK RUTKOWSKI, Technical Univ. of Czestochowa  
*Women in Computational Intelligence:* BERNADETTE BOUCHON-MEUNIER, Pierre & Marie Curie Univ.

## conneCtionS Newsletter

### Editor:

GARY G. YEN  
Oklahoma State University  
School of Electrical and Computer Engineering  
Stillwater, OK  
74078-5032, USA  
(Phone) +1-405-744-7743  
(Fax) +1-405-744-9198  
gyen@okstate.edu

### Assistant Editor:

MONICA WU  
Oklahoma State University  
School of Electrical and Computer Engineering  
Stillwater, OK  
74078-5032, USA  
(Phone) +1-405-744-6511  
(Fax) +1-405-744-9198  
wzheng@okstate.edu

Newsletter is being phased out, Dr. Gary Yen will continue to provide his excellent editorial leadership for the new CIM. I therefore hope that Gary will enlighten us on current events of CIS life in addition to technical subjects in this archival periodical.

Today, CIS is in charge of several important technical functions and events. We organize four major, well-established conferences each year and also run a number of specialized conferences, symposia and workshops. As a part of this growth, we have recently launched smaller and successful conferences on swarm intelligence, granular computing, homeland security and personal safety, computational intelligence and games, and developmental learning. Furthermore, to embrace our fast-growing membership and technical talent, we have contributed to numerous conferences through "Technical Co-sponsorship." Such conferences are especially important since they often involve CIS volunteers educating their foreign colleagues on the conference business. These activities are dedicated to further the Society and IEEE's goals outside Regions 1-7, especially in Region 10 (Asia and Australia).

CIS runs numerous technical activities which are coordinated by one of the Society's nine Technical Committees: Neural Networks, Fuzzy Systems, Evolutionary Computation, Emergent Technologies, Bioinformatics and Bioengineering, Intelligent Systems Applications, Data Mining, Computational Finance, and Autonomous Mental Development. The Society's other programs manage educational activities, such as continuing education and multimedia tutorials. CIS also supports student travel grants and summer research programs, sponsors the Distinguished Lecturer Program for Chapters' events, and remains actively involved in projects that extend special opportunities for women in computational intelligence.

One of CIS's objectives has been to reward its most distinguished members or entities with Society awards. We have the following CIS-level Awards: three Outstanding Paper Awards (one for each of its Transactions), three Pioneer Awards in each area of NN, FS and EC, and one Meritorious Service Award. In 2005, we

also established the Outstanding Chapter Award and CIS Outstanding Ph.D. Dissertation Award. In addition, we recently solicited the first nominations for the CIS-sponsored IEEE-level award, namely the Frank Rosenblatt Technical Field Award.

This year has been the final year of transition from the former NN Council to the new CI Society. The last five elected CIS volunteers will become AdCom members beginning January 1, 2006. For the first time, CIS members have a choice of voting online at <http://iee-cis.org>, via mail ballot, or via fax. I hope that you can make a difference by voting before the November 3 deadline.

This year has also been the year of challenges. As most of you are aware, the main "product" of IEEE is the intellectual property (IP) in electrical, electronic, and computer technologies. This activity, however, also attracts commercial competitors. To address this challenge, IEEE has redefined the formula for income received by the societies and councils (S/C) that are contributors to IEEE IP. Beginning in 2006, S/C will be paid in proportion to the count of papers they contribute to the body of IEEE IP and to the number of downloads (PDF views) of their papers. According to the new formula, only periodicals that are read parts of the electronic subscription package (known as IEL) will continue bringing income.

Finally, the Society would not exist without the active, unselfish dedication of many of its volunteers. I am especially indebted to the following CIS officers who served during my tenure: Drs. Piero Bonissone, David Fogel, Okyay Kaynak, Jim Keller, Evangelia (Litsa) Micheli-Tzanakou, and Bogdan (Dan) Wilamowski.

In conclusion, I am extremely proud of the Society's accomplishments and future direction and, as of January 1, will be passing the Society's leadership to my capable successor, Dr. Vincenzo Piuri. To ensure our continued growth in the years to come, we need your support, time, and talent. We encourage you to participate in the Society and contribute to the field. For more information, please check our website at [www.ieee-cis.org](http://www.ieee-cis.org). We appreciate your help.

IEEE conneCtionS (ISSN 1543-4281) is published quarterly by the IEEE Computational Intelligence Society. Headquarters address: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. The cost is free for each member of the Society. IEEE Customer Service: 1-800-678-IEEE (USA and Canada), 732-981-1393 (outside USA and Canada), FAX 732-981-0027.

© 2003 IEEE. Information contained in this newsletter may be copied with permission provided that copies are not made or distributed for direct commercial advantage, the title of the publication and its date appear on each copy, and 2 copies of your publication are sent to the Editor for reference purposes. Periodicals postage paid at New York, NY and at additional mailing offices. Postmaster: send address changes to IEEE Connections, IEEE 445 Hoes Lane, Piscataway, NJ 08855. Printed in the U.S.A.