Editorial: The IEEE TRANSACTIONS ON NEURAL NETWORKS 2010 and Beyond

IT gives me great pleasure to write this first editorial of the year and to say "Happy New Year!" to all of you. I have great hope for 2010, which is the year of the tiger according to the Chinese lunar calendar. Coincidentally, I was born in the year of the tiger, which is said to represent courage, passion, speed, and generosity. So I look forward to a wonderful year, and I wish the best for all of you.

On that note, I would like to address four important topics as we move forward into 2010: our new Associate Editors, a hearty "thank you" to our outgoing Editor-in-Chief, challenges in 2010, and a brief self-introduction.

Welcome New Associate Editors

Associate Editors play a very critical role in maintaining the quality of a journal and in getting all submissions reviewed in a professional and timely manner. So, I would like to begin our year by introducing them. All of them are established authorities in their respective fields and have been carefully selected based on their expertise and past publication experience with the IEEE TRANSACTIONS ON NEURAL NETWORKS (TNN).

It is my great pleasure to welcome the following new Associate Editors, whose term officially starts on January 1, 2010 (B. DasGupta, A. Hirose, and Z. Yi started on August 1, 2009):

- Hojjat Adeli, Ohio State University, USA
- Amit Bhaya, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
- Pau-Choo (Julia) Chung, National Cheng Kung University, Taiwan
- Bhaskar DasGupta, University of Illinois at Chicago, USA
- El-Sayed M. El-Alfy, King Fahd University of Petroleum and Minerals, Saudi Arabia
- Haibo He, Stevens Institute of Technology, USA
- Akira Hirose, University of Tokyo, Japan
- Sanqing Hu, Drexel University, USA
- Hossein Javaherain, General Motors R&D Center, USA
- Li-Wei (Leo) Ko, National Chiao-Tung University, Taiwan
- Frank L. Lewis, University of Texas at Arlington, USA
- Guo-Ping Liu, University of Glamorgan, U.K.
- Seiichi Ozawa, Kobe University, Japan
- Stefano Squartini, Universita Politecnica delle Marche, Italy
- Changyin Sun, Southeast University, China
- Draguna Vrabie, University of Texas at Arlington, USA
- Zhang Yi, Sichuan University, China
- Zhigang Zeng, Huazhong University of Science and Technology, China
- Huaguang Zhang, Northeastern University, China
- Nian Zhang, University of the District of Columbia, USA
- Liang Zhao, Universidade de Sao Paulo, Brazil
- Nanning Zheng, Xi'an Jiaotong University, China.

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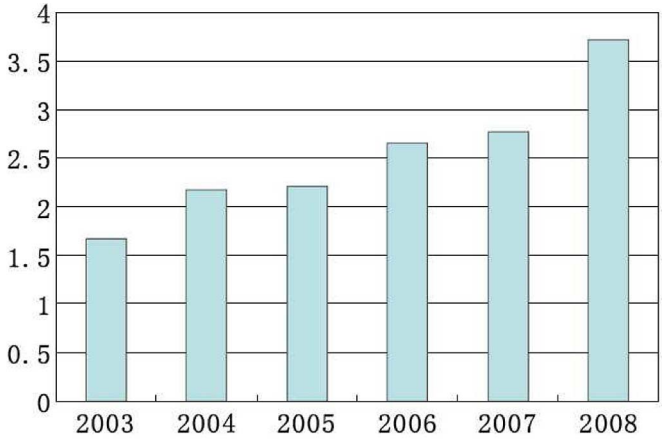

Fig. 1. TNN impact factors between 2003 and 2008.

Thank you, Marios

Next, I want to offer a heartfelt "Thank you!" to my predecessor, Marios Polycarpou. Under the leadership of Marios, not only has the quantity of submissions to the TNN increased, but also the quality. In 2008, the TNN received 585 submissions, and in 2009, that number will be more than 600. In addition, we have seen a steady increase in the quality of papers submitted to our TRANSACTIONS. Since Marios took over the TRANSACTIONS on January 1, 2004, he has led the transition from a manual to an all-electronic submission and review system, the ScholarOne Manuscripts system (previously, the Manuscript Central system). Our TRANSACTIONS also went from six issues per year to 12 issues per year currently. Thank you, Marios, for a job well done.

With the ScholarOne Manuscripts system, we have now streamlined all submissions and reviews in a paperless fashion with an environment- and user-friendly process. This has resulted in a faster procedure for paper review and handling. It also makes it easier for the Editor-in-Chief to communicate with Associate Editors and authors. I would like to mention that my predecessor has exerted tireless efforts to transition through several versions of the ScholarOne Manuscripts system.

The most recent ISI journal citation report indicated that our TRANSACTIONS has an impact factor of 3.726 (see Fig. 1). With this, it is ranked fourth among all journals in artificial intelligence, ninth among all IEEE journals, and eleventh among all journals in electrical and electronic engineering. I would like to congratulate Marios for his leadership and hard work in achieving what we have today. Thank you again, Marios.

Challenges

In terms of challenges for 2010, I see this year as a crucial period of potential growth and development. This issue marks the beginning of the 21st year of the TNN. Founded in 1990, the TNN has undergone many changes. However, just as a young person crossing the threshold into adulthood, our TRANSACTIONS is coming of age and must continue to grow and change.

I am very excited about the related challenges ahead of me. I can imagine how difficult it was to increase the rankings of our

TRANSACTIONS in recent years. So my primary challenge will be to start with the current ranking and try to improve it further. Other challenges include making the TNN the number one choice for young and senior researchers in our field to publish their best research results and to search for the latest information. The TNN has been growing steadily since it was founded 20 years ago. We must make sure that this trend continues and that the TNN will show significant further growth in the years to come.

Self-Introduction

Finally, let me say a few words about myself.

I started working in neural networks after I joined the University of Notre Dame as a Ph.D. student in electrical engineering with a Michael J. Birck Fellowship in 1990. I worked with Prof. Anthony N. Michel on nonlinear dynamical systems with saturation nonlinearities that include several classes of recurrent neural networks. Our work included analysis and synthesis of recurrent neural networks, robust analysis and design of associative memories, and synthesis algorithms for cellular neural networks.

In addition to neural networks, my research interests include intelligent control with a primary focus on adaptive dynamic programming and reinforcement learning (ADPRL) and its applications. Neural networks are used as a tool for functional approximation to the implementation of adaptive dynamic programming, even though other functional approximation tools may be employed.

I am working with my Ph.D. students and collaborators on the fundamental theoretical development of ADPRL and applications with significant economic impact. I have also started working in the field of computational neuroscience, which I view as a natural next step in the quest for understanding brain functions and brain-like intelligence.

The ultimate goal of my research is to understand and mimic natural, biological neural networks, i.e., our brain. My current study on adaptive dynamic programming is closely related to the learning functions of the brain. Computational neuroscience is an exciting interdisciplinary field, which is at the intersection of neuroscience, biological science, computer science, and engineering. It is a multidisciplinary research effort, and I am collaborating with others in medical and psychological disciplines.

In conclusion, I would like to express my sincere gratitude to the Institute of Automation, Chinese Academy of Sciences (Prof. Fei-Yue Wang, Vice-President of CASIA, and Director of the KLCSIS) and the Department of Electrical and Computer Engineering, University of Illinois at Chicago (Prof. Mitra Dutta, Head of UIC's Electrical and Computer Engineering Department) for allowing me and the TNN staff to use the extra office space as well as the computing and networking facilities for the benefit of our TRANSACTIONS.

I look forward to a wonderful new year and this exciting new opportunity with the TNN.

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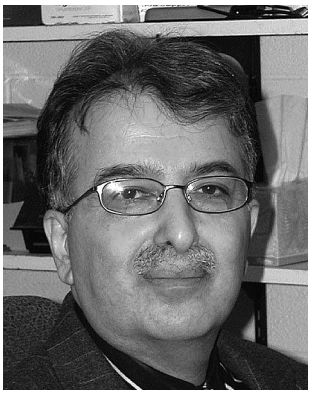
Derong Liu (S'91–M'94–SM'96–F'05) received the B.S. degree in mechanical engineering from the East China Institute of Technology (now Nanjing University of Science and Technology), Nanjing, China, in 1982, the M.S. degree in automatic control theory and applications from the Institute of Automation, Chinese Academy of Sciences, Beijing, China, in 1987, and the Ph.D. degree in electrical engineering from the University of Notre Dame, Notre Dame, IN, in 1994.

He was a Product Design Engineer with China North Industries Corporation, Jilin, China, from 1982 to 1984. He was an Instructor with the Graduate School of the Chinese Academy of Sciences, Beijing, China, from 1987 to 1990. He was a Staff Fellow with General Motors Research and Development Center, Warren, MI, from 1993 to 1995. He was an Assistant Professor in the Department of Electrical and Computer Engineering, Stevens Institute of Technology, Hoboken, NJ, from 1995 to 1999. He joined the University of Illinois at Chicago in 1999, where he became a Full Professor of Electrical and Computer Engineering and of Computer Science in 2006. He was selected for the "100 Talents Program" by the Chinese Academy of Sciences in 2008. He has published nine books (five research monographs and four edited volumes).

Dr. Liu is an Associate Editor of *Automatica*. He was General Chair for the 2007 International Symposium on Neural Networks, Nanjing, China. He was a member of the Conference Editorial Board of the IEEE Control Systems Society (1995–2000), an Associate Editor of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—PART I: FUNDAMENTAL THEORY AND APPLICATIONS (1997–1999), the IEEE TRANSACTIONS ON SIGNAL PROCESSING (2001–2003), the IEEE COMPUTATIONAL INTELLIGENCE MAGAZINE (2006–2009), the IEEE CIRCUITS AND SYSTEMS MAGAZINE (2008–2009), and the IEEE TRANSACTIONS ON NEURAL NETWORKS (2004–2009), and the Letters Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS (2006–2008). He was the Editor of the IEEE Computational Intelligence Society's ELECTRONIC LETTER (2004–2009). Currently, he is the Editor-in-Chief of the IEEE TRANSACTIONS ON NEURAL NETWORKS. He was General Chair for the 2009 IEEE Conference on Service Operations, Logistics, and Informatics, Chicago, IL, and the 2008 IEEE International Conference on Networking, Sensing and Control, Sanya, China. He was an elected AdCom member of the IEEE Computational Intelligence Society (2006–2008). He received the Michael J. Birck Fellowship from the University of Notre Dame (1990), the Harvey N. Davis Distinguished Teaching Award from Stevens Institute of Technology (1997), the Faculty Early Career Development (CAREER) award from the National Science Foundation (1999), the University Scholar Award from University of Illinois (2006–2009), and the Overseas Outstanding Young Scholar Award from the National Natural Science Foundation of China (2008). He is a member of Eta Kappa Nu.

Introduction of New TNN Associate Editors



Hojjat Adeli (M'94–SM'09) received the Ph.D. degree from Stanford University, Stanford, CA, in 1976.

He is the Abba G. Lichtenstein Professor at the Ohio State University (OSU), Columbus. He has authored over 440 publications including 240 journal articles, and 14 books, four of them in the area of neural networks, such as *Machine Learning—Neural Networks, Genetic Algorithms, and Fuzzy Systems* (New York: Wiley, 1995) and *Neurocomputing for Design Automation* (Boca Raton, FL: CRC Press, 1998). He holds a U.S. patent for his neural dynamics model (with H. S. Park). His research interests include computing and information science and technologies, transportation engineering, biomedical engineering and informatics, neuroscience, and neurology.

Dr. Adeli is the Editor-in-Chief of *Integrated Computer-Aided Engineering* and *International Journal of Neural Systems*. He is a Distinguished Member of the American Society of Civil Engineers (ASCE) and a Fellow of the American Association for the Advancement of Science (AAAS). In 1998, he received the OSU Distinguished Scholar Award "in recognition of extraordinary accomplishment in research and scholarship." He is also the recipient of the OSU College of Engineering Peter L. and Clara M. Scott Award for Excellence in Engineering Education.

Amit Bhaya was educated at the Indian Institute of Technology, Kharagpur, India and the University of California at Berkeley.

Since 1986, he has been with the Federal University of Rio de Janeiro (COPPE/UFRJ), Rio de Janeiro, Brazil, where is currently a Professor at the Electrical Engineering Department of the Graduate School of Engineering. He coauthored the books *Matrix Diagonal Stability in Systems and Computation* (Cambridge, MA: Birkhäuser, 2000) and *Control Perspectives on Numerical Algorithms and Matrix Problems* (Philadelphia, PA: SIAM, 2006). His research interests include systems and control theory, parallel computation, neural networks, matrix stability theory, and mathematical ecology. His research has been supported over the years by numerous grants from the Brazilian National Council for Scientific and Technological Development (CNPq), the State Foundation for Support of Research in Rio de Janeiro (FAPERJ/CNE), as well as from the Brazilian Innovation Agency for Research and Projects Financing (FINEP).

Dr. Bhaya is currently an Associate Editor for the *Journal of Control Science and Engineering*, a Hindawi open access publication. He has served as a program committee member for several international conferences.

Pau-Choo (Julia) Chung (S'89–M'91–SM'02–F'08) received the Ph.D. degree in electrical engineering from Texas Tech University, Lubbock, in 1991.

She then joined the Department of Electrical Engineering, National Cheng Kung University (NCKU), Tainan City, Taiwan, and became a Full Professor in 1996. She served as the Vice Director, and then the Director, of the Center for Research of E-life Digital Technology, NCKU, during 2001–2008. She was also the Director of Electrical Laboratory, NCKU, in 2005–2008. Currently, she is the Director of Institute of Computer and Communication Engineering, NCKU. Her research interests include image/signal analysis and pattern recognition, neural networks and intelligent systems, and their applications to healthcare.

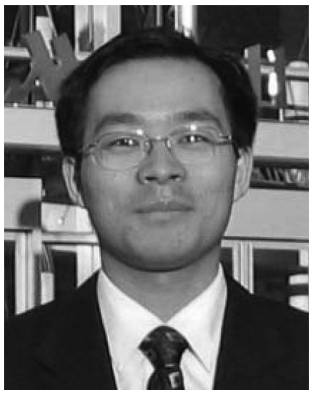
Dr. Chung received many awards and served major roles in many international conferences. She was the Chair of the IEEE Computational Intelligence Society, Tainan Chapter (2005–2006) and the IEEE Distinguished Lecturer (2006–2007). She is currently a member of Board of Governors (BoG) of the IEEE Circuits and Systems Society and an administrative committee (ADCOM) member of the IEEE Computational Intelligence Society. She is a member of Phi Tau Phi honor society.

Bhaskar DasGupta (M'97–SM'98) is currently an Associate Professor at the Computer Science Department, University of Illinois at Chicago (UIC). He is also affiliated with the Bioengineering Department, UIC. His specific research interests include designing and implementing efficient computational methods for computationally hard problems in application areas such as bioinformatics, systems biology, and hybrid systems. Outside biology, his broader research interests in computer science include designing efficient algorithms for computationally hard problems in diverse areas such as computational geometry, parallel computing, optical networks, and combinatorial auctions. His research works have been supported by numerous National Science Foundation (NSF) grants, including an NSF CAREER award.

Dr. DasGupta has served on the organizing committees of several international conferences. He also currently serves on the editorial boards of the journals *Advances in Bioinformatics*, *Theoretical Biology Insights*, *International Journal of Data Mining and Bioinformatics*, *International Journal of Information Sciences and Computer Engineering*, and *Discrete Mathematics, Algorithms and Applications*.

El-Sayed M. El-Alfy (S'00–M'01–SM'09) received the B.S. degree in electronics: computer and control engineering (excellent with honor) and the M.S. degree in intelligent systems from El-Mansoura University, Egypt and the M.S. degree in computer science and the Ph.D. degree in computer engineering from Stevens Institute of Technology, Hoboken, NJ, in 2001.

Currently, he is an Assistant Professor at the Department of Information and Computer Science, KFUPM, Dhahran, Saudi Arabia. He formed an "Intelligent Information Systems Research Group (IISRG)" at KFUPM and co-translated a book on computer networking. He teaches graduate and undergraduate courses in the areas of computer networking, network design and performance evaluation, data encoding and compression, operating systems, client/server programming, web design and engineering, object-oriented programming, and data structures. His research interests include intelligent systems, machine learning, evolutionary computation, security management, and performance evaluation and optimization of computer networks. He has been actively involved in a number of funded research projects and has published a number of technical papers and reports.



Haibo He (S'03–M'06) received the B.S. and M.S. degrees in electrical engineering from Huazhong University of Science and Technology, Wuhan, China, in 1999 and 2002, respectively, and the Ph.D. degree in electrical engineering from the Ohio University, Athens, in 2006.

Currently, he is an Assistant Professor at the Department of Electrical and Computer Engineering, Stevens Institute of Technology, Hoboken, NJ. His research interests include self-adaptive systems, machine learning, neural networks, hardware design (VLSI and FPGA) for intelligent systems, and various application domains such as renewable energy and power grids, cognitive radios, and sensor networks.

Dr. He has served on the organizing committees and the program committees of many international conferences, including the Program Chair of the 2009 International Symposium on Neural Networks and the Special Sessions Chair of the 2010 IEEE International Conference on Networking, Sensing, and Control. He has delivered numerous invited talks. He has served as a Guest Editor and an Editorial Board member for several international journals. Currently, he is the Editor of the IEEE Computational Intelligence Society's ELECTRONIC LETTER.

Akira Hirose (S'85–M'88–SM'08) received the Ph.D. degree in electrical engineering from the University of Tokyo, Tokyo, Japan, in 1991.

He is a Professor at the Department of Electrical Engineering and Information Systems, University of Tokyo. He was a visiting researcher at the Institute for Neuroinformatics, University of Bonn, Bonn, Germany, from 1993 to 1995, and at the Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA), Kanagawa, Japan, from 2006 to 2008. His research interests include neural networks and wireless electronics. He is the author of more than 80 peer-reviewed journal articles, and several books including a monograph *Complex-Valued Neural Networks*.

Dr. Hirose received the 1998 Outstanding Research Award of the Research Foundation for Opto-Science and Technology, the 2000 Inamori Scholars Membership, the 2004 ICONIP Best Paper Award, and the 2006 IEEE/INNS WCCI-IJCNN Best Session Presentation Award. He is a senior member of the Institute of Electrical, Information and Communication Engineers, Japan (IEICE). He serves as the chair of the IEICE Neurocomputing Technical Group, a member of the steering committee of IEEE CIS Japan Chapter, and a governing board member of JNNS and APNNA. He also serves as an Associate Editor of the IEEE Geoscience and Remote Sensing Society NEWSLETTER and the editorial secretary of the *IEICE Transactions on Electronics*.

Sanqing Hu (M'05–SM'06) received the B.S. degree from Hunan Normal University, Changsha, China, in 1992, the M.S. degree from Northeastern University, Shenyang, China, in 1996, and the Ph.D. degrees from the Department of Automation and Computer-Aided Engineering, The Chinese University of Hong Kong, Hong Kong, and the Department of Electrical and Computer Engineering, University of Illinois at Chicago, in 2001 and 2006, respectively.

He was a Research Fellow at the Department of Neurology, Mayo Clinic, before joining the School of Biomedical Engineering, Science and Health Systems, Drexel University, Philadelphia, PA, as a Research Assistant Professor. His research interests include biomedical signal processing, cognitive and computational neuroscience, neural networks, and dynamical systems. He is a coauthor of more than 50 international journal and conference papers.

Dr. Hu is an Associate Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS, the IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS, and the IEEE TRANSACTIONS ON SYSTEMS, MAN AND CYBERNETICS—PART B: CYBERNETICS. He was a Guest Editor of *Neurocomputing* in 2007.

Hossein Javaherian (M'88) received the M.Sc. and Ph.D. degrees in control systems from Imperial College, London, U.K., in 1974 and 1978, respectively.

He held a postdoctoral position at the Imperial College in 1979 and was an Assistant Professor at the Mechanical Engineering Department, Tehran University of Technology, Tehran, Iran, before joining the General Motors Research Laboratories, Warren, MI, in 1985, where he is currently a GM Technical Fellow at the Power Systems Research Lab, working on engine control algorithm development for future propulsion systems with emphasis on emissions and fuel economy. He holds 16 patents and has published a number of journal and conference papers. His research interests are in the areas of adaptive and learning systems, nonlinear systems control, embedded systems, and computational intelligence.

Dr. Javaherian is the recipient of two McCuen Awards (1996, 1998) and the prestigious "Boss" Kettering Award (2000) at General Motors for innovations in engine control and diagnostics. He serves as an editor of the *Journal of Optimal Control, Methods and Applications*.

Li-Wei (Leo) Ko received the Ph.D. degree in electrical engineering from National Chiao Tung University (NCTU), Hsinchu, Taiwan, in 2007.

Currently, he is an Executive Officer/Research Scientist of the Brain Research Center (BRC), Department of Electrical Engineering, NCTU. He was also a visiting scholar at the Institute for Neural Computation, University of California, San Diego. His primary research interests are applications of computational intelligence technologies to the analysis of neural activities associated with human cognitive functions and development of the mobile and wireless brain machine interface. Relevant research fields cover neural networks, neural fuzzy systems, machine learning, brain computer interface, and computational neuroscience.

Dr. Ko currently serves as an Associate Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS, and a Reviewer of the IEEE TRANSACTIONS ON INFORMATION TECHNOLOGY IN BIOMEDICINE, the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS, and *Organization for Human Brain Mapping*.

Frank L. Lewis (S'78–M'81–SM'86–F'94) received the B.S. degree in physics/electrical engineering and the M.S. degree in electrical engineering from Rice University, Houston, TX, in 1971, the M.S. degree in aeronautical engineering from the University of West Florida, Pensacola, in 1977, and the Ph.D. degree from Georgia Institute of Technology, Atlanta, in 1981.

He spent six years in the U.S. Navy, serving as Navigator aboard the frigate USS Trippe (FF-1075), and Executive Officer and Acting Commanding Officer aboard USS Salinan (ATF-161). He was a Professor at the Georgia Institute of Technology from 1981 to 1990 and is currently an Adjunct Professor. He is a University Distinguished Scholar and Professor of Electrical Engineering at the University of Texas at Arlington, where he was awarded the Moncrief-O'Donnell Endowed Chair in 1990 at the Automation & Robotics Research Institute. His research interests include intelligent control, neural and fuzzy systems, wireless sensor networks, nonlinear systems, robotics, condition-based maintenance, microelectromechanical systems (MEMS) control, and manufacturing process control.

Guo-Ping Liu (M'97–SM'99) received the B.Eng. and M.Eng. degrees in electrical and electronics engineering from the Central South University of Technology, Changsha, China, in 1982 and 1985, respectively, and the Ph.D. degree in control engineering from the University of Manchester Institute of Science and Technology (UMIST), Manchester, U.K., in 1992.

He was a Research Fellow at the University of Sheffield in 1994. He was a Senior Lecturer at the University of Nottingham in 2000–20003. He has been a Professor at the University of Glamorgan, Pontypridd, U.K., since 2004, a Hundred-Talent Program Visiting Professor of the Chinese Academy of Sciences since 2001, and a Changjiang Scholar Visiting Professor of Harbin Institute of Technology since 2008. He has more than 400 publications on control systems and authored/coauthored six books. His main research areas include networked control systems, nonlinear system identification and control using neural networks, and multiobjective optimization and control.

Dr. Liu is the Editor-in-Chief of the *International Journal of Automation and Computing*. He was the General Chair of the 2007 IEEE International Conference on Networking, Sensing and Control. He is a Fellow of IET.

Seiichi Ozawa (M'01) received the B.E. and M.E. degrees in instrumentation engineering and the Ph.D. degree in computer science from Kobe University, Kobe, Japan, in 1987, 1989, and 1998, respectively.

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Stefano Squartini (S'03–M'05) received the Italian Laurea with honors in electronic engineering and the Ph.D. degree from University of Ancona (now Polytechnic University of Marche, UnivPM), Italy, in 2002 and 2005, respectively.

He was a Visiting Research Fellow at the Department of Computing Science, University of Stirling, Stirling, Scotland, in 2003, and a Visiting Scholar at the Electrical and Computer Engineering Department, University of Illinois at Chicago, in 2004. He joined the Department of Biomedics, Electronics and Telecommunications (DIBET) as an Assistant Professor in Circuit Theory in 2007. He is one of the founding members of the A3LAB research group, actively operating within the DIBET and involved in several European, national, and regional projects on multimedia digital signal processing. He is an author and coauthor of several international journal and conference papers. His current research interests are in the area of DSP and machine learning, including advanced gradient-based techniques for supervised and unsupervised adaptation of dynamical nonlinear circuits, with special attention to speech and audio processing related problems.

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He is a Professor at the School of Automation, Southeast University. He joined the Department of Computer Science, Chinese University of Hong Kong, in 2004, as a Postdoctoral Research Fellow. He was a Program Director at the Department of Information Sciences, National Natural Science Foundation of China (2007–2009). His research interests include neural networks, pattern recognition, and intelligent control theory. He has published more than 50 papers.

Dr. Sun received the First Prize of Natural Science Award of Ministry of Education of China. He is on the editorial boards of several international journals, including the IEEE TRANSACTIONS ON NEURAL NETWORKS, *Neural Processing Letters*, and *International Journal of Swarm Intelligence Research*. He has served on the organizing committees and the program committees of many conferences, including the Program Co-Chair of the Chinese Intelligent Automation Conference and the Special Sessions Chair of the 2010 IEEE International Conference on Networking, Sensing, and Control.

Draguna Vrabie (S'07) received the B.Sc. and M.Sc. degrees from the Automatic Control and Computer Engineering Department, "Gheorghe Asachi" Technical University of Iasi, Romania, and the Ph.D. degree from the University of Texas at Arlington in 2009.

Currently, she is a Research Scientist at the Automation and Robotics Research Institute, University of Texas at Arlington. Her work on direct adaptive optimal control based on reinforcement learning resulted in invited papers both in the computational intelligence and control engineering societies and also a new chapter on approximate dynamic programming in the *Control Handbook*. She has coauthored a book on classical control techniques, two book chapters, and several journal and conference papers. Her research interests include reinforcement learning, approximate dynamic programming, optimal control, adaptive control, model predictive control, and general theory of nonlinear systems. She coauthored an invited feature article on "Reinforcement learning and adaptive dynamic programming for feedback control," published by the IEEE CIRCUITS AND SYSTEMS MAGAZINE in July 2009.

Zhang Yi (M'08) received the B.Sc. degree in mathematics from Sichuan Normal University, Chengdu, China, in 1983, the M.S. degree in mathematics from Hebei Normal University, Shijiazhuang, China, in 1986, and the Ph.D. degree in mathematics from the Institute of Mathematics, Chinese Academy of Science, Beijing, China, in 1994.

In 1994, he was promoted to Full Professor at the University of Electronic Science and Technology of China. Currently, he is a Professor and the Dean of the College of Computer Science, Sichuan University, Chengdu, China. He is the founder of Machine Intelligence Laboratory, the College of Computer Science, Sichuan University. He has published more than 100 refereed articles. He is the coauthor of the books: *Convergence Analysis of Recurrent Neural Networks* (Norwell, MA: Kluwer, 2004) and *Neural Networks: Computational Models and Applications* (Heidelberg, Germany: Springer-Verlag, 2007). He holds two patents in China for his data mining system and seal recognition system based on neural network methods. His current research interests include machine intelligence, neural networks, data mining, and machine learning.

Zhigang Zeng (M'07–SM'07) received the B.S. degree in mathematics from Hubei Normal University, Huangshi, China, in 1993, the M.S. degree in ecological mathematics from Hubei University, Wuhan, China, in 1996, and the Ph.D. degree in systems analysis and integration from Huazhong University of Science and Technology, Wuhan, China, in 2003.

From August 2003 to May 2005, he was a Postdoctoral Research Fellow at the Department of Automation, University of Science and Technology of China. In 2005 and 2006, he was a Postdoctoral Research Fellow at the Department of Mechanical and Automation Engineering, Chinese University of Hong Kong, Hong Kong. In 2008 and 2009, he was a Visiting Fellow at the Texas A&M University at Qatar, and the University of Western Sydney, Sydney, N.S.W., Australia. Currently, he is a Professor at the Department of Control Science and Engineering, Huazhong University of Science and Technology. He has published more than 60 refereed articles. His research interests include neural networks, switched systems, computational intelligence, stability analysis of dynamical systems, pattern recognition, and associative memories.

Huaguang Zhang (SM'04) received the Ph.D. degree in thermal power engineering and automation from Southeast University, Nanjing, China, in 1991.

He joined the Department of Automatic Control, Northeastern University, Shenyang, China, in 1992, as a Postdoctoral Fellow. Since 1994, he has been a Full Professor and Head of the Institute of Electric Automation, Northeastern University, China. He has authored and coauthored over 200 journal and conference papers, and coinvented 20 patents. He is a coauthor of *Fuzzy Modeling and Fuzzy Control* (Boston, MA: Birkhauser, 2006), and *Controlling Chaos: Suppression, Synchronization and Chaotification* (New York: Springer-Verlag, 2009). His main research interests include neural networks, fuzzy control, stochastic system control, nonlinear control, and their applications.

Dr. Zhang was awarded the Outstanding Youth Science Foundation Award from the National Natural Science Foundation of China in 2003. He was named the Cheung Kong Scholar by the Education Ministry of China in 2005. He currently also serves as an Associate Editor for the IEEE TRANSACTIONS ON FUZZY SYSTEMS and the IEEE TRANSACTIONS ON SYSTEMS, MAN AND CYBERNETICS—PART B: CYBERNETICS.

Nian Zhang (S'00–M'04) received the B.S. degree in electrical engineering from Wuhan University of Technology, China, in 1996, the M.S. degree in electrical engineering from Huazhong University of Science and Technology, China, in 1999, and the Ph.D. degree in computer engineering from Missouri University of Science and Technology, Rolla, in 2004.

She was an Assistant Professor at the Department of Electrical and Computer Engineering, South Dakota School of Mines and Technology, Rapid City, from 2004 to 2009. Currently, she is an Assistant Professor at the Department of Electrical Engineering, University of the District of Columbia, Washington, DC. Her research interests include neural networks, fuzzy logic, renewable energy, and FPGA design.

Dr. Zhang is a Co-Editor of *Advances in Neural Networks—ISNN2009*. She has served as Publications Chair for the Third International Workshop on Advanced Computational Intelligence (2010), Program Co-Chair of the Sixth International Symposium on Neural Networks (2009), and Publications Co-Chair for 2008 IEEE World Congress on Computational Intelligence.

Liang Zhao (M'09) received the B.S. degree from Wuhan University, China, in 1988 and the M.S. and Ph.D. degrees from Aeronautic Institute of Technology, Brazil, in 1996 and 1998, respectively, all in computer science.

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