Editorial: Booming of Neural Networks and Learning Systems

I. Status and Numbers

As YOU open this January issue of the IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS (TNNLS), I hope everyone enjoyed a great holiday season and is excited for the new year of 2019. I am very delighted and honored to report several key metrics of IEEE TNNLS to the community.

- The latest impact factor of TNNLS is 7.982, according to the Journal Citation Reports. This marks a historical high impact factor for our journal.
- The number of new submissions in the past year reached the mark of 1500, which is another historical high in terms of manuscript submissions.
- TNNLS is consistently highly ranked across a number of metrics: in terms of impact factor, TNNLS is ranked no. 2 in computer science (hardware & architecture), no. 2 in computer science (theory & methods), and no. 8 in electrical and electronic engineering. In terms of article influence score, a metric which determines the average influence of a journal's articles over the first five years after publication, TNNLS is ranked no. 9 in electrical and electronic engineering.

All of these numbers indicate a successful, healthy, and continuous growth of the journal. I would like to express my sincere gratitude to our authors who choose TNNLS as their home journal to submit their best research results, to our reviewers for a timely and comprehensive review of each paper, to our associate editors for their dedicated service in handling each submission, and to the IEEE Computational Intelligence Society for the tremendous leadership and support. Thank you all!

II. Highlight of New Features

TNNLS is always taking proactive steps for innovation in the publication process. Over the past three years, TNNLS has adopted several new features that could be very important for the community.

Code Ocean: TNNLS implemented the Code Ocean feature in 2018, a cloud-based computational reproducibility platform that enables users to upload, run, and publish code, all without having to install anything on their computer. This is a great tool to verify reproducibility and reuse of the code, therefore increasing the credibility, visibility, and transparency of the research.

DataPort: TNNLS was one of the first 24 IEEE journals to participate in the IEEE DataPort Trial initiative, which provides a great tool for our authors to publish, store, and share the data associated with their paper. This feature allows our authors to enjoy more exposure to the data-based research, provide easy access to the data benchmarks, ensure long-term storage and accessibility, facilitate the participation of data challenges and competitions, and many more.

Graphical Abstract: The Graphical Abstract feature allows the authors to submit a graphical abstract (optional) along with their manuscript during the submission procedure. This provides a visual summary of the key research results of a paper by means of an image, animation, movie, or audio clip, which can improve the visibility and publicity of the research.

In addition to these features that our authors can easily experience at the front end, we also implemented several important features at the back end to further improve the management and operation of the journal. For instance, we made the Special Issue paper submission process much more clear and streamlined. When an author submits a paper to a Special Issue with TNNLS, they will clearly see all of the ongoing Special Issues under the "Paper Type" function box in the system, in which they can easily select the particular Special Issue to which they would like to submit. All of these features not only provided improved user experience for our authors when making a submittal to TNNLS, but also makes our authors' research significantly more visible to the community.

III. New Associate Editors

With the continuous growth of our journal, it is important to maintain a highly qualified and experienced editorial board to ensure the high standard of TNNLS. Please join me in welcoming the following new associate editors, whose terms officially start on 1 January 2019.

Akira Hirose, The University of Tokyo, Japan

Alessio Micheli, University of Pisa, Italy

Artur S. d'Avila Garcez, University of London, U.K.

Choon Ki Ahn, Korea University, South Korea

Gang Pan, Zhejiang University, China

Hamid Reza Karimi, Politecnico di Milano, Italy

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Jianbing Shen, Beijing Institute of Technology, China

Jose de Jesus Rubio, Instituto Politecnico Nacional, Mexico

Lei Zhang, Sichuan University, China

Lingjia Liu, Virginia Tech, USA

Lorenzo Livi, University of Manitoba, Canada

Nian Zhang, University of the District of Columbia, USA

Nishchal K. Verma, Indian Institute of Technology Kanpur, India

Pedro Antonio Gutiérrez, University of Córdoba, Spain

Qi Tian, The University of Texas at San Antonio, USA

Qinglai Wei, Chinese Academy of Sciences, China

Seiichi Ozawa, Kobe University, Japan

Stuart H. Rubin, Space and Naval Warfare Systems Center, USA

Wei-Neng Chen, South China University of Technology, China

Xi Li, Zhejiang University, China

Xiaofeng Liao, Chongqing University, China

Youmin Zhang, Concordia University, Canada

Zhen Ni, South Dakota State University, USA

All of these new associate editors are established authorities in their respective fields and have been carefully selected on the basis of their areas of expertise, diversity, and our needs on the subject areas of the journal. A more detailed introduction of these associate editors is listed at the end of this editorial. With more than 1500 new submissions every year, our associate editors, together with our reviewers, are always working very hard to ensure a timely, fair, comprehensive, and high-quality review process for each and every submission.

In closing, I would like to once again thank our authors, reviewers, volunteers, and readers for their service and support of this journal. I wish you all a very happy, healthy, and prosperous new year, and I look forward to working closely with all of you to take TNNLS to the next level of prominence and success!

Haibo He, *Editor-in-Chief*
IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS
Robert Haas Endowed Chair Professor
Department of Electrical, Computer, and Biomedical Engineering
The University of Rhode Island
Kingston, RI 02881 USA

Akira Hirose (F'13) received the Ph.D. degree in electronic engineering from The University of Tokyo, Tokyo, Japan, in 1991.

He is currently a Professor with the Department of Electrical Engineering and Information Systems, The University of Tokyo. His current research interests include wireless electronics and neural networks.

Dr. Hirose is a Senior Member of the IEICE and a member of the Japanese Neural Network Society (JNNS) and the Asia–Pacific Neural Network Society (APNNS). He served as the President of JNNS from 2013 to 2015, the Vice President of the IEICE Electronics Society from 2013 to 2015, the Founding President of the APNNS in 2016, the Editor-in-Chief of the *IEICE Transactions on Electronics* from 2011 to 2012, and an Associate Editor of journals such as the IEEE TRANSACTIONS ON NEURAL NETWORKS from 2009 to 2011 and IEEE GEOSCIENCE AND REMOTE SENSING NEWSLETTER from 2009 to 2012. He also served as the General Chair of the Asia–Pacific Conference on Synthetic Aperture Radar 2013 Tsukuba and the International Conference on Neural Information Processing 2016 Kyoto. He currently serves as the Chair of Complex-Valued Neural Network Task Force in the IEEE Computational Intelligence Society Neural Network Technical Committee and the General Chair of the IEEE International Geoscience and Remote Sensing Symposium 2019 Yokohama.

Alessio Micheli (S'00–M'04) received the Laurea and Ph.D. degrees in computer science from the University of Pisa, Pisa, Italy, in 1998 and 2003, respectively.

He is currently an Associate Professor with the Department of Computer Science, University of Pisa, where he is the Coordinator of the Computational Intelligence & Machine Learning Group. He is the National Coordinator of the "Italian Working Group on Machine Learning and Data Mining" of the Italian Association for the Artificial Intelligence. His current research interests include machine learning, neural networks, deep learning, sequence and structured domains learning, recurrent and recursive neural networks, reservoir computing models, kernel-based learning for structured data, and applications. In these research areas, he has authored over 150 articles in international refereed journals and conferences.

Dr. Micheli is the Co-Chair of the IEEE Computational Intelligence Society Task Force on Reservoir Computing. He joined the program committees of several conferences and workshops in machine learning and artificial intelligence and he currently serves as an Associate Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS.

Artur S. d'Avila Garcez (M'13) received the M.Eng. degree in computing engineering from the Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil, the M.Sc. degree in computing systems from COPPE-UFRJ, Rio de Janeiro, and the Ph.D. degree in computer science from Imperial College London, London, U.K.

He is currently a Professor of computer science with the City, University of London, London, a fellow of the British Computer Society (FBCS), London, the Director of the Research Centre for Machine Learning, and the Chair of the Data Science Institute, City, University of London. He is a leading authority on neural-symbolic computing, the study of the interplay between neural-network learning and symbolic reasoning, and its application in gaming, finance, and visual intelligence, including knowledge extraction from neural networks. He has co-authored two books: *Neural-Symbolic Cognitive Reasoning* (Springer, 2009) and *Neural-Symbolic Learning Systems* (Springer, 2002), and more than 150 peer-reviewed publications in the areas of artificial intelligence, machine learning, and neural computation.

Dr. Garcez is the President of the Neural-Symbolic Learning and Reasoning Association, the Founding Chair of the workshop series on neural-symbolic learning and reasoning, a member of the editorial boards of various journals, and a Program Committee Member for all the major international conferences in machine learning and artificial intelligence. His research has received funding from the Nuffield Foundation, the European Union, IBM Research, CNPq and CAPES Brazil, the Daiwa Foundation, the Royal Society, Innovate UK, and ESRC and EPSRC, U.K.

Choon Ki Ahn (M'06–SM'12) received the Ph.D. degree from Seoul National University, Seoul, South Korea, in 2006.

He is currently a Crimson Professor of Excellence with the College of Engineering and a Full Professor with the School of Electrical Engineering, Korea University, Seoul. His current research interests include intelligent control and estimation with applications to robots, drones, and vehicles.

Dr. Ahn was ranked #1 in electrical/electronic engineering among Korean young professors, in 2016. He received the Presidential Young Scientist Award of Korea, in 2017. He serves on the Editorial Board for *IEEE Systems, Man, and Cybernetics Magazine*, the IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS: SYSTEMS, the IEEE SYSTEMS JOURNAL, the IEEE/CAA JOURNAL OF AUTOMATICA SINICA, the IEEE ACCESS, the *IET Circuits, Devices & Systems*, *Nonlinear Dynamics*, *Aerospace Science and Technology*, *Multidimensional Systems and Signal Processing*, the *International Journal of Systems Science*, *Artificial Intelligence Review*, *Knowledge and Information Systems*, *Neurocomputing*, *Neural Computing and Applications*, the *International Journal of Fuzzy Systems*, and the *International Journal of Machine Learning and Cybernetics*.

Gang Pan (M'05) received the B.Eng. and Ph.D. degrees from Zhejiang University, Hangzhou, China, in 1998 and 2004, respectively.

From 2007 to 2008, he was a Visiting Scholar with the University of California at Los Angeles, Los Angeles, CA, USA. He is currently a Professor with the Department of Computer Science and the Deputy Director of the State Key Laboratory of CAD&CG, Zhejiang University. He has authored over 100 refereed papers, and holds 35 patents. His current research interests include artificial intelligence, brain-inspired computing, brain–machine interfaces, pervasive computing, and computer vision.

Dr. Pan received three best paper awards and three nominations from premier international conferences. He was a recipient of the IEEE TCSC Award for Excellence (Middle Career Researcher), the CCF-IEEE CS Young Computer Scientist Award, and the National Science and Technology Progress Award. He serves as an Associate Editor for the IEEE SYSTEMS JOURNAL, PERVASIVE AND MOBILE COMPUTING, and the *ACM Proceedings of Interactive, Mobile, Wearable and Ubiquitous Technologies*.

Hamid Reza Karimi (M'06–SM'09) received the B.Sc. degree (Hons.) in electrical power systems from the Sharif University of Technology, Tehran, Iran, in 1998, and the M.Sc. and Ph.D. (Hons.) degrees in control systems engineering from the University of Tehran, Tehran, in 2001 and 2005, respectively.

From 2009 to 2016, he was a Full Professor of mechatronics and control systems with the University of Agder, Kristiansand, Norway. Since 2016, he has been a Professor of applied mechanics with the Department of Mechanical Engineering, Politecnico di Milano, Milan, Italy. His current research interests include control systems and intelligent mechatronics with applications to automotive control systems and wind energy.

Dr. Karimi is a member of the Agder Academy of Science and Letters, the IEEE Technical Committee on Systems with Uncertainty, the Committee on Industrial Cyber-Physical Systems, the IFAC Technical Committee on Mechatronic Systems, the Committee on Robust Control, and the Committee on Automotive Control. He was awarded as the 2016 and 2017 Web of Science Highly Cited Researcher in Engineering. He is currently the Editor-in-Chief of the *Journal of Cyber-Physical Systems, Taylor & Francis*, the *Journal of Machines*, and the *Journal of Designs* and an Editorial Board Member for several IEEE TRANSACTIONS, such as TIE, TCAS-I, TMECH, SMCA.

Jianbing Shen (M'11–SM'12) received the Ph.D. degree from the Department of Computer Science, Zhejiang University, Hangzhou, China, in 2007.

He was a Visiting Professor with the Department of Information Technology and Electrical Engineering, ETH Zurich, Zürich, Switzerland, in 2014, and also with the Department of Computer Science, University of California at Los Angeles, Los Angeles, CA, USA, in 2016. He is currently a Full Professor with the School of Computer Science, Beijing Institute of Technology, Beijing, China. He has authored more than 100 top journal and conference papers—six papers are selected as the ESI Hightly Cited or ESI Hot Papers. His current research interests include deep learning for video analysis, computer vision for autonomous driving, deep reinforcement learning, and machine learning for intelligent systems.

Dr. Shen has obtained many flagship honors including the Fok Ying Tung Education Foundation from the Ministry of Education, the Program for Beijing Excellent Youth Talents from the Beijing Municipal Education Commission, and the Program for New Century Excellent Talents from the Ministry of Education. He also serves as an Associate Editor for *Neurocomputing* and several other journals.

Jose de Jesus Rubio (M'18) received the B.Sc. degree in electronics and communications from Instituto Politécnico Nacional, Mexico City, Mexico, and the M.Sc. and Ph.D. degrees in automatic control, with a specialty of stable learning in neural networks, from CINVESTAV, Instituto Politécnico Nacional, in 2004 and 2007, respectively.

He has been a Professor with the Seccion de Estudios de Posgrado e Investigacion, ESIME Azcapotzalco, Instituto Politécnico Nacional, since 2008. He has authored over 120 international journal papers. His current research interests include deep learning, supervised learning, self-organizing learning, stable learning, radial basis function, big data learning, control and optimization, neuro-fuzzy systems, and biomedical applications using neural network.

Dr. Rubio serves on the Editorial Board for the *Neural Computing and Applications*, *Frontiers in Neurorobotics*, the *Journal of Intelligent & Fuzzy Systems*, *Mathematical Problems in Engineering*, the IEEE LATIN AMERICA TRANSACTIONS, *Evolving Systems*, and the *International Journal of Business Intelligence and Data Mining*. He was the Guest Editor of *Computational Intelligence and Neuroscience* from 2015 to 2016. He serves on the Editorial Board on the program committees of several computational intelligence conferences.

Lei Zhang (SM'17) received the B.S. and M.S. degrees in mathematics and the Ph.D. degree in computer science from the University of Electronic Science and Technology of China, Chengdu, China, in 2002, 2005, and 2008, respectively.

She was a Post-Doctoral Research Fellow with the Department of Computer Science and Engineering, Chinese University of Hong Kong, Hong Kong, from 2008 to 2009. She is currently a Full Professor with Sichuan University, Chengdu. She has authored over 60 papers in journals and conferences. Her current research interests include the theory and applications of neural networks based on neocortex computing and big data analysis using neural networks.

Dr. Zhang is currently serving as an Associate Editor for the IEEE TRANSACTIONS ON COGNITIVE AND DEVELOPMENTAL SYSTEMS. She serves as the Chair of the Chengdu Chapter of the IEEE Computational Intelligence Society.

Lingjia Liu (M'08–SM'15) received the B.S. degree in electronic engineering from Shanghai Jiao Tong University, Shanghai, China, and the Ph.D. degree in electrical and computer engineering from Texas A&M University, College Station, TX, USA.

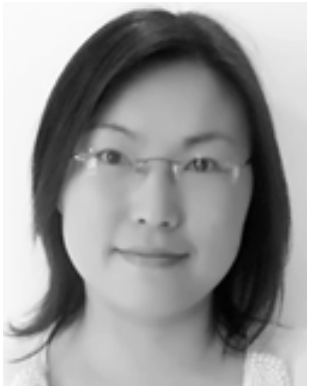
He was an Associate Professor with the Department of Electrical Engineering & Computer Science, The University of Kansas (KU), Lawrence, KS, USA. He was with the Mitsubishi Electric Research Laboratories, Cambridge, MA, USA, and also with the Standards and Mobility Innovation Lab of Samsung Research America, Mountain View, CA, USA, for more than four years, where he received the Global Samsung Best Paper Award in 2008 and 2010. He was leading Samsung's efforts on multiuser multi-in multi-out (MIMO), CoMP, and HetNets in 3GPP LTE/LTE-Advanced standards. He is currently an Associate Professor with the Bradley Department of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA, USA, where he is also the Associate Director of affiliate relations in wireless. His current research interests include emerging technologies for 5G cellular networks including machine learning for wireless networks, massive MIMO, massive machine type communication communications, and millimeter-wave communications.

Dr. Liu received the Air Force Summer Faculty Fellow from 2013 to 2017, the Miller Scholar at KU in 2014, the Miller Professional Development Award for Distinguished Research at KU in 2015, the 2016 IEEE GLOBECOM Best Paper Award, the 2018 IEEE ISQED Best Paper Award, the 2018 IEEE TCGCC Best Conference Paper Award, and the 2018 IEEE TAOS Best Paper Award.

Lorenzo Livi (M'14) received the B.Sc. and M.Sc. degrees from the Department of Computer Science, Sapienza University of Rome, Rome, Italy, in 2007 and 2010, respectively, and the Ph.D. degree from the Department of Information Engineering, Electronics, and Telecommunications, Sapienza University of Rome, in 2014.

He was with the ICT industry during his studies. From 2014 to 2016, he was a Post-Doctoral Fellow with Ryerson University, Toronto, ON, Canada. From 2016 to 2016, he was a Post-Doctoral Fellow with the Politecnico di Milano, Milan, Italy, and also with the Universita' della Svizzera Italiana, Lugano, Switzerland. He is currently an Assistant Professor jointly appointed with the Department of Computer Science and the Department of Mathematics, University of Manitoba, Winnipeg, MB, Canada. He is also a Lecturer (Assistant Professor) of data science with the Department of Computer Science, University of Exeter, Exeter, U.K. His current research interests include machine learning, time-series analysis, and complex dynamical systems, with focused applications in systems biology and computational neuroscience.

Dr. Livi was awarded the prestigious Tier 2 Canada Research Chair in Complex Data in 2018. He is an Associate Editor of *Applied Soft Computing* (Elsevier) and a regular reviewer for several international journals, including the IEEE TRANSACTIONS and Elsevier journals.



Nian Zhang (M'04–SM'10) received the B.S. degree in electrical engineering from the Wuhan University of Technology, Wuhan, China, the M.S. degree in electrical engineering from the Huazhong University of Science and Technology, Wuhan, and the Ph.D. degree in computer engineering from the Missouri University of Science and Technology, Rolla, MO, USA.

She is currently a Tenured Associate Professor with the School of Engineering and Applied Sciences, University of the District of Columbia, Washington, DC, USA. Her current research interests include machine learning, classification, clustering and optimization, time-series prediction, and pattern recognition.

Dr. Zhang is an ONR Senior Summer Faculty Fellow. She was a recipient of the Best Paper Award in FUZZ-IEEE 2003. She serves as an Associate Editor for the IEEE TRANSACTIONS ON CYBERNETICS. She regularly serves as the Program Chair and the Publications Chair of numerous IEEE sponsored/co-sponsored conferences, including ICACI, ICICIP, ICIST, ISNN, SSCI, and WCCI. She also served as the General Chair of the 2016 IEEE Computational Intelligence Society (CIS) Winter School and serves as the Vice Chair of the Adaptive Dynamic Programming and Reinforcement Learning Technical Committee of the IEEE CIS.

Nishchal K. Verma (M'05–SM'13) received the Ph.D. degree in electrical engineering from IIT Delhi, Delhi, India, in 2007.

He is currently a Professor with the Department of Electrical Engineering, and the Interdisciplinary Program in Cognitive Science, IIT Kanpur, Kanpur, India. He has authored more than 200 research papers, several book chapters, and books. His current research interests include deep learning, big data analysis, computational intelligence, computer vision, soft computing, cyber-physical systems, cognitive science, and prognosis and health management.

Dr. Verma is an IETE Fellow. He was awarded the Devendra Shukla Young Faculty Research Fellowship for 2013–2016 by IIT Kanpur, and the Achiever Award for 2017 by IEI Jodhpur, India. He is an Editor of the *IETE Technical Review Journal*, an Associate Editor of *IEEE Computational Intelligence Magazine* and the *Transactions of the Institute of Measurement and Control*, U.K., and an Editorial Board Member for several journals and conferences.

Pedro Antonio Gutiérrez (M'08–SM'15) received the B.S. degree in computer science from the University of Seville, Seville, Spain, in 2006, and the Ph.D. degree in computer science and artificial intelligence from the University of Granada, Granada, Spain, in 2009.

He is currently an Assistant Professor with the Department of Computer Science and Numerical Analysis, University of Córdoba, Córdoba, Spain. He has authored more than 150 publications in peer-reviewed journals and international conferences' proceedings. His current research interests include supervised learning, evolutionary artificial neural networks, ordinal classification, and the application of these techniques to different real world problems, including precision agriculture, renewable energy, and climatology and biomedicine.

Dr. Gutiérrez has served on the Editorial Board for the journals *Computational Intelligence and Neuroscience and Progress in Artificial Intelligence* and on the organization/program committees of several computational intelligence conferences.

Qi Tian (M'96–SM'03–F'16) received the B.E. degree in electronic engineering from Tsinghua University, Beijing, China, the M.S. degree in electrical and computer engineering from Drexel University, Philadelphia, PA, USA, and the Ph.D. degree in electrical and computer engineering from the University of Illinois at Urbana–Champaign, Champaign, IL, USA.

He is currently a Chief Scientist of computer vision with the Huawei Noah's Ark Lab. He is on faculty leave and a Full Professor with the Department of Computer Science, The University of Texas at San Antonio, San Antonio, TX, USA. He has authored over 450 refereed journal and conference papers. His Google citation is over 12 600 with an h-index 59. He has co-authored best papers including CIKM 2018, ACM ICMR 2015, PCM 2013, MMM 2013, ACM ICIMCS 2012, a Top 10% Paper Award in MMSP 2011, and a Student Contest Paper in ICASSP 2006, and a Best Paper/Student Paper Candidate in ICME 2015 and PCM 2007. His current research interests include computer vision, multimedia information retrieval, and machine learning.

Qinglai Wei (M'11) received the B.S. and Ph.D. degrees from Northeastern University, Shenyang, China, in 2002 and 2009, respectively.

In 2009, he joined the State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences, Beijing, China, where he is currently a Professor. In 2018, he was approved to nominate as the Associate Director of the State Key Laboratory. He has authored three books and over 70 international journal papers. His current research interests include intelligent control, adaptive dynamic programing, learning control, neural network-based control, optimal control, nonlinear systems, and their industrial applications.

Dr. Wei was a recipient of the Outstanding Paper Award of the IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS in 2018, the Andrew P. Sage Best Transactions Paper Award of the IEEE SMC Society in 2018, and the Young Scientist Award of the Chinese Association of Automation in 2017. He is an Associate Editor of the IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS: SYSTEMS, the IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING, the IEEE TRANSACTIONS ON COGNITIVE AND DEVELOPMENTAL SYSTEMS, *TCE*, *INS*, *Neurocomputing*, and *OCAM*, and served on the technical and organization committees of more than 10 international conferences. He has been the Secretary of the IEEE Computational Intelligence Society, Beijing Chapter, since 2015.

Seiichi Ozawa (M'01–SM'11) received the Dr.Eng. degree in computer science from Kobe University, Kobe, Japan.

He is currently the Deputy Director of the Center for Mathematical and Data Sciences and a Full Professor with the Department of Electrical and Electronic Engineering, Graduate School of Engineering, Kobe University. He has authored more than 150 journal and conference papers, and book chapters/monographs. His current research interests include deep learning, machine learning, pattern recognition, incremental learning, big data analytics, cybersecurity, text mining, computer vision, and privacy preserving data mining.

Dr. Ozawa is a member of the Neural Networks TC and Smart World TC of IEEE CI Society. He is currently an Associate Editor of the IEEE TRANSACTIONS ON CYBERNETICS and two international journals. He is the Pro Tempore Vice-President of the Public Relations of International Neural Network Society, the Vice-President for finance of the Asia–Pacific Neural Network Society, and the Board of Governor of the Japan Neural Network Society.

Stuart H. Rubin (M'87–SM'00–F'19) received the B.S. degree *(magna cum laude)* from The University of Rhode Island, Kingston, RI, USA, in 1975, the M.S.I.S.E. degree in industrial and systems engineering from Ohio University, Athens, OH, USA, in 1977, the M.S. degree in computer science from Rutgers University, Piscataway, NJ, USA, in 1980, and the Ph.D. degree from Lehigh University, Bethlehem, PA, USA, in 1988.

He was an Electronic Engineer with the Electronics Research and Development Command (ERADCOM), U.S. Army Research Labs, Ft. Monmouth, NJ, USA, from 1980 to 1983. He worked on projects involving the application of artificial intelligence technology to the Very High-Speed Integrated Circuits Program, for which he was awarded the U.S. Government Certificate of Merit in 1987. In 1993, he was an ONT Post-Doctoral Fellow with the Naval Command, Control, and Ocean Surveillance Center, San Diego, CA, USA. He held a post-doctoral position with the Massachusetts Institute of Technology, Cambridge, MA, USA, in 1999. He is currently a Senior Scientist with the Space and Naval Warfare Systems Center, San Diego, CA, USA. He has authored or co-authored 321 refereed publications. He holds 36 professional U.S. patents.

Dr. Rubin is a fellow of the Society for Information Reuse and Integration, the National Academy of Inventors, and the American Association for the Advancement of Science. He was a recipient of the Navy Award of Merit for Group Achievement in 2002.

Wei-Neng Chen (M'12–SM'17) received the bachelor's and Ph.D. degrees from Sun Yat-sen University, Guangzhou, China, in 2006 and 2012, respectively.

Since 2016, he has been a Full Professor with the School of Computer Science and Engineering, South China University of Technology, Guangzhou, where he was also appointed as the Associate Dean in 2018. He has co-authored over 100 international journal and conference papers, including more than 30 papers published in the IEEE TRANSACTIONS journals. His current research interests include computational intelligence, swarm intelligence, data-driven learning and optimization, network science, and their applications.

Dr. Chen is a Committee Member of the IEEE CIS Emerging Topics Task Force. He was a recipient of the IEEE Computational Intelligence Society (CIS) Outstanding Dissertation Award in 2016, the National Science Fund for Excellent Young Scholars in 2016, and the National Natural Science Foundation of China–Royal Society Newton Fund Scholars in 2015. He is currently the Vice-Chair of the IEEE Guangzhou Section. He serves as an Associate Editor for *Complex & Intelligent Systems*.

Xi Li (M'11) received the B.Eng. degree from Beihang University, Beijing, China, and the Ph.D. degree from the National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, Beijing, China.

In 2009, he joined CNRS, Télécom ParisTech, Paris, France, as a Post-Doctoral Research Fellow. From 2010 to 2014, he was a Senior Research Fellow with ACVT, The University of Adelaide, Adelaide, SA, Australia. He is currently a Full Professor with the College of Computer Science, Zhejiang University, Hangzhou, China. He has authored approximately 130 top conference and leading journal papers, many technologies from which are already transferred to the industry. His current research interests include computer vision and machine learning with applications to smart city management and E-commerce.

Dr. Li was a recipient of two best international conference paper awards (including ACCV 2010 and DICTA 2012), the ICIP 2015 Top 10% Conference Paper Award, the ACML 2017 Best Student Paper Award, two china natural science and technology awards (including first-class and second-class prizes), and the Chinese Patent Excellence Award. He was invited as plenary speaker of many well-known conferences (i.e., RACV 2016, ICSW 2017, ICDS 2017, and IEEE FMT 2018). He devoted his efforts to enabling many academic roles in conference organization (e.g., ICPR 2018 AC and ICCV 2019 AC) and journal editorial service (e.g., Associate Editor of *Neurocomputing* and *Neural Processing Letters*).

Xiaofeng Liao (M'10–SM'12) received the B.S. and M.S. degrees in mathematics from Sichuan University, Chengdu, China, in 1986 and 1992, respectively, and the Ph.D. degree in circuits and systems from the University of Electronic Science and Technology of China, Chengdu, in 1997.

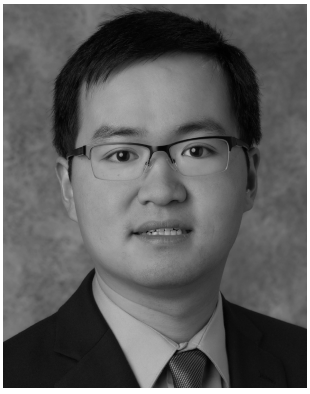
From 1999 to 2012, he was with Chongqing University (CQU), Chongqing, China. From 2012 to 2018, he was with Southwest University, Chongqing. He is currently a Professor and also the Dean of the College of Computer Science, CQU. From 1997 to 1998, he was a Research Associate with The Chinese University of Hong Kong, Hong Kong. From 1999 to 2000, he was a Research Associate with the City University of Hong Kong, Hong Kong. He has authored four books and over 400 international journal and conference papers. He holds four patents. His current research interests include neural networks, nonlinear dynamical systems, bifurcation and chaos, information security, and cryptography.

Dr. Liao was awarded the Yangtze River Scholar from the Ministry of Education of China, Beijing, China. He currently serves as an Associate Editor for the IEEE TRANSACTIONS ON CYBERNETICS.

Youmin Zhang (M'97–SM'07) received B.S., M.S., and Ph.D. degrees from Northwestern Polytechnical University, Xi'an, China.

He is currently a Professor with the Department of Mechanical, Industrial & Aerospace Engineering, Concordia University, Montreal, QC, Canada. He has authored four books, over 500 journal and conference papers, and book chapters. His current research interests include neural networks and learning systems with applications to fault detection and diagnosis, fault-tolerant control, fault-tolerant cooperative control of single and multiple unmanned aerial/space/ground/surface vehicles, smart grids, and applications of unmanned systems to forest fires, power lines, environment, natural resources and disasters monitoring, detection, and protection by combining with remote sensing techniques.

Dr. Zhang is a fellow of CSME, a Senior Member of AIAA, and a member of the Technical Committee for several scientific societies. He is an Editorial Board Member, the Editor-in-Chief, the Editor-at-Large, an Editor, and an Associate Editor of several international journals. He has served as the General Chair, the Program Chair, and an IPC Member of several international conferences.



Zhen Ni (M'15) received the B.S. degree in control science and engineering from the Huazhong University of Science and Technology, Wuhan, China, in 2010, and the Ph.D. degree in electrical, computer and biomedical engineering from the University of Rhode Island, Kingston, RI, USA, in 2015.

He is currently an Assistant Professor with the Department of Electrical Engineering and Computer Science, South Dakota State University, Brookings, SD, USA. His current research interests include computational intelligence, reinforcement learning, and cyber-physical systems.

Dr. Ni was a recipient of the URI Excellence in Doctoral Research Award in 2016 and the Chinese Government Award for Outstanding Students Abroad in 2014. He has been actively involved in numerous conference organization committees in the society, including the General Co-Chair of the IEEE Computational Intelligence Society Winter School, Washington, DC, USA, in 2016. He has been an Associate Editor of *IEEE Computational Intelligence Magazine* since 2018. He was a Guest Editor of *IET Cyber-Physical Systems: Theory & Applications* from 2017 to 2018.