Guest Editorial
Everyday Applications of Neural Networks

NEURAL-NETWORK technology has reached a degree of maturity as evidenced by an ever-increasing number of applications. Our experience, however, is that most practitioners of neural networks are familiar with only a handful of cases where neural-network technology has been reduced to practice. The objective of this special issue is presentation of some specific cases of ongoing everyday use of neural networks. Specifically excluded are neural-network applications still in the exploratory stage. While publication of extraordinary exploratory applications papers is within the scope of the IEEE TRANSACTIONS ON NEURAL NETWORKS, this special issue deals only with neural networks used on a regular basis. At minimum, the system must be at the beta test stage.

Of the 53 papers received for the special issue, the 14 herein were chosen. In some important cases, papers solicited for submission were unfortunately withheld because developers or licensees wished to not disclose proprietary technology. Nevertheless, the spectrum of the everyday neural-network applications reported herein is a veritable smorgasbord of variety. Applications are reported in telecommunications, control of steel plants, plasma etching, pattern recognition of cataloged parts, credit card fraud detection, space robot tuning, electric utility load forecasting, railway maintenance, power system security assessment, scanning electron microscope image characterization, cold mill prediction, economic forecasting and, not least, assessment of wine bottle cork quality. This sampling of applications in everyday use is in no way complete. It gives, however, a taste of the impact of neural technology in society. Indeed, impact is the metric by which all technology is ultimately measured.

THARAM DILLON, *Guest Editor*
LaTrobe University
Bundoora, Victoria, Australia

PAYMAN ARABSHAHI, *Guest Editor*
Jet Propulsion Laboratory
Pasadena, CA 91125

ROBERT J. MARKS, II, *Guest Editor*
University of Washington
Seattle, WA 98195

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Tharam Dillon (M'74–SM'87) received the Bachelor of Engineering degree with honors in 1967 and the Ph.D. degree in 1974 from Monash University, Melbourne, Australia.

He was appointed to the inaugural Chair of Computer Science at La Trobe University in Melbourne, Australia, in 1985. He is currently Professor of Computer Science and Computer Engineering at La Trobe University in Melbourne, Australia, and Director of the Applied Computing Research Institute. He has published over 320 papers in international and national journals and conferences and written three books and edited four other books, including *Neural Networks Applications in Power Systems* (Leicester, CRL Publishing, 1996), *Engineering Intelligent Hybrid Multi-Agent Systems* (Boston, MA: Kluwer, 1997), *Automated Knowledge Acquisition* (Sydney, Australia: Prentice-Hall, 1994), and *Object-Oriented Conceptual Modeling* (Sydney, Australia: Prentice-Hall, 1993). His major areas of research include hybrid systems that combine neural, fuzzy and symbolic paradigms, automated knowledge acquisition area related to decision trees, theoretical issues, and neural network-based methods for extracting symbolic knowledge, as well as software engineering and database and knowledge-based systems. He has also worked with industry and commerce in developing systems for banking and finance, power systems, telecommunications, and health care systems.

Dr. Dillon is a Fellow of the Institution of Engineers (Australia), and of the Safety and Reliability Society (U.K.). He is Editor-in-Chief of the *International Journal of Computer Systems Science and Engineering* and the *International Journal of Engineering Intelligent Systems*, as well as Co-Editor of the *Journal of Electric Power and Energy Systems*. He has served on the program committee of many international conferences, at times as chairperson. He is a member of several international technical committees and working groups and is the convener of the International CIGRE Task Force 38-06-02 on Expert Systems for Monitoring and Alarm Processing in Control Centres. He is also a member of the IFIP Working Group 2.6 on Knowledge and Data Semantics.

Payman Arabshahi (S'93–M'95) received the B.S.E. degree in electrical and computer engineering from the University of Alabama, Huntsville, in 1988, and the M.S. and Ph.D. degrees, both in electrical engineering, from the University of Washington, Seattle, in 1990 and 1994, respectively.

Previously he served on faculties of the University of Washington and the University of Alabama in Huntsville. He is currently a research scientist at the communications systems research section of NASA/Caltech's Jet Propulsion Laboratory. His teaching and research interests are in intelligent systems, digital signal processing, and digital communications.

Dr. Arabshahi is Editor-in-Chief of the IEEE Neural Networks Council's Homepage on the World Wide Web.

Robert J. Marks II (S'71–M'72–SM'83–F'94) received the B.S. and M.S. degrees in 1972 and 1973, respectively, from the Rose-Hulman Institute of Technology, and the Ph.D. degree in electrical engineering in 1977 from Texas Tech University, Lubbock.

He is the Graduate Coordinator and a Professor in the Department of Electrical Engineering at the University of Washington, Seattle. Eight of his papers have been reproduced in volumes of collections of outstanding papers. He is the author of the book *Introduction to Shannon Sampling and Interpolation Theory* (New York: Springer-Verlag, 1991).

Dr. Marks was awarded the IEEE Outstanding Branch Councilor award in 1982 and, in 1984, was presented with an IEEE Centennial Medal. He was named a Distinguished Young Alumnus of Rose-Hulman Institute of Technology in 1992 and, in 1993, was inducted into the Texas Tech Electrical Engineering Academy. In 1992, he was given the honorary title of Charter President of the IEEE Neural Networks Council. He was named an IEEE Distinguished Lecturer in 1992. He is a Fellow of the Optical Society of America. He serves as the faculty advisor to the University of Washington's chapter of Campus Crusade for Christ.