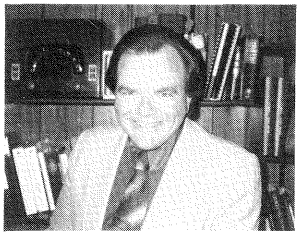
*Newsletter of the IEEE Neural Networks Council*

# C nnections

VOLUME 1 NUMBER 2 OCTOBER 1991

## *Presidents Corner:* The IEEE Neural Networks Council and IEEE Transnationalism

*Robert J. Marks II*
*President IEEE Neural Networks Council*



The IEEE is a transnational organization with local sections in such provocative places as Moscow, Beijing, Singapore, Teheran and San Francisco. Many of the thirtysomething IEEE Societies have local chapters in these and other sections. The IEEE Neural Networks Council, alas, cannot have such local chapters - yet. We will when we warrant Society status within IEEE.

Regional neural network societies, not directly affiliated with IEEE, have recently been sprouting like spring tulips in rich humus. The Council is busily working with some of these organizations. When our status within IEEE allows chapter reproductive rights, this cooperative work will continue. The reasons are twofold. First and foremost, the community will be best served via cooperation. Secondly, the Council, strongly inclined towards engineering, asks what the neuron can do for us. Cognitive psychologists, neurophysiologists and other members of these regional organizations, ask the converse. Information cross fertilization and infrastructure integrity require cooperative interaction with our sister disciplines.

Here's a (partial?) list of current regional neural network professional organizations:

- ***Australian Neural Networks Association***
- ***Chinese Neural Networks Committee***
- ***European Neural Networks Society***
- ***International Neural Networks Society (United States)***
- ***Japanese Neural Networks Society***
- ***Russian Neural Networks Society***

Each of these Societies is less than four years old. *The Australian Neural Networks Association was formed in August.*

Here is a nutshell summary of our current joint activities with these regional societies. In October, 1992, we will be cosponsoring, in Russia, the *1992 RNNS/IEEE Symposium on Neuroinformatics and Neurocomputing* with the *Russian Neural Networks Society.* In another joint effort with the RNNS, the Council is pursuing the publication of the second edition of a neural network volume, this time in English, by the President of the RNNS, Dr. Witali Dunin-Barkowski. (This will be one of a number of books sponsored by the Council to be published by the IEEE Press). The November 1992 IJCNN in Beijing is co -sponsored by the *Chinese Neural Networks Committee.* The *Japanese Neural Networks Society* is a cosponsor of the Nagoya IJCNN in October 1993. The Council has been in cooperation with European conferences sponsored by the precursor of the *European Neural Networks Society.* All IJCNN's, through 1993, are co-sponsored by the INNS.

With an eye to additional cooperation, the *IEEE Neural Networks Council* sponsored the first *Presidents Dinner* at the Seattle IJCNN. Representatives of the neural networks societies of the world were in attendance.

- *CNNC: Prof. Youshaw Wu, (Tsinghua University, Beijing) President; Dr. Zong Sha (Chinese Institute of Electronics, Beijing); and Prof Yi-Xin Zhong (University of Posts & Telecon, Beijing).*
- *ENNS: Prof. John Taylor (King's College, London), Vice President and Rolf Eckmiller (University of Dusseldorf), Vice President.*
- *INNS: Dr. Harold H. Szu (Naval Research Lab, Washington D.C.), Treasurer.*
- *JNNS: Dr. Kunihiko Fukushima (Osaka University, Japan), President.*
- *RNNS: Dr. Witali Dunin-Barkowski (Rostov State University, Russia), President.*

The *IEEE Neural Networks Council* was represented by Dr. Russell C. Eberhart

*(continued on Page 2)*


Prof. Youshou Wu and Prof. Zong Sha (Chinese Neural Networks Committee) and Mr. Irv Engelson (IEEE Staff Director. for Technical Activities

### *IEEE Neural Networks Council Constituent Societies*

Circuits and Systems Society
Communications Society
Control Systems Society
Engin. in Medicine & Biology Soc.
Industrial Electronics Society
Industry Applications Society
Information Theory Society
Lasers and Electro-Optics Society
Oceanic Engineering Society
Robotics and Automation Society
Signal Processing Society
Systems, Man & Cybernetics Soc.



***Publications:*** Toshio Fukuda
Nagoya Univ
***Awards:*** Bradley Dickinson
Princeton University
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# 1991 IEEE Pioneer Awards

***Professors Stephen Grossberg, Teuvo Kohonen,*** and ***Bernard Widrow*** are the recipients of the *1991 IEEE Neural Networks Council Pioneer Awards*. The awards were presented at the Opening Session of the 1991 International Joint Conference on Neural Networks in Seattle, Washington on July 8, 1991.

The IEEE Neural Networks Council Pioneer Awards have been established to recognize and honor the vision of those people whose efforts resulted in significant contributions to the early concepts and developments in the neural networks field. 1991 marks the first year for this award, which is to presented annually to outstanding individuals for contributions made at least fifteen years earlier.

The three individuals receiving Pioneer Awards in 1991 have not only made pioneering technical contributions, but are also currently active in research and technical leadership in the neural networks field. The following brief biographies provide an overview of the distinguished careers of the awardees and a description of the pioneering contributions that the Pioneer Awards recognize.

***Stephen Grossberg*** is awarded the 1991 IEEE Neural Networks Council Pioneer Award for his work on dynamic models of learning and memory. Dr. Grossberg is Wang Professor of Cognitive and Neural Systems at Boston University. He received the B.A., M.S., and Ph.D. degrees from Dartmouth College (1961), Stanford University (1964), and Rockefeller University (1967), respectively. He was a faculty member in Applied Mathematics at MIT from 1967 to 1975; in 1975 he joined Boston University as Professor of Mathematics, Psychology, and Biomedical Engineering, and he is founder and director of the university's Center for Adaptive Systems. Prof. Grossberg's pioneering contributions to the field of neural networks include the specification and analysis of nonlinear cooperative and competitive feedback networks, competitive learning, and adaptive pattern classification. This work has made contributions to the understanding of a wide variety of neural and cognitive phenomena.

***Teuvo Kohonen*** is awarded the 1991 IEEE Neural Networks Council Pioneer Award for his work on associative memory. Dr. Kohonen is currently Professor of Technical Physics at the Helsinki University of Technology where he is affiliated with the Laboratory of Computer and Information Science. He received the M.Sc. and D.Eng. degrees from the Helsinki University of Technology in 1957 and 1962, respectively, and he has been on the faculty since 1963. Prof. Kohonen is a Senior Member of IEEE, and a member of the Finnish Academy of Sciences and of the Finnish Academy of Engineering Sciences. Prof. Kohonen is being honored for his pioneering work on distributed associative memory models based on a correlation matrix, optimal associative recall and recursive adaptive learning processes, and models for perceptual processes in neural networks based on the virtual image principle.

***Bernard Widrow*** is awarded the 1991 IEEE Neural Networks Council Pioneer Award for his work on adaptive networks. Dr. Widrow is Professor of Electrical Engineering at Stanford University where he has been on the faculty since 1959. He received the S.B., S.M., and Sc.D. degrees from MIT in 1951, 1953, and 1956, respectively. Named a Fellow of IEEE in 1976, he was awarded the 1986 IEEE Alexander Graham Bell Medal for exceptional contributions to the advancement of telecommunications. He was named Fellow of the AAAS in 1980. Prof. Widrow's pioneering work includes the development of the Adaline (Adaptive Linear Neuron), the Madaline (Many Adaline) network, the LMS training algorithm (often called the Widrow-Hoff delta rule), and studies of applications in such diverse fields as electrocardiogram analysis and adaptive control.

## IJCNN'93: *Nagoya, Japan*

The IEEE Neural Networks Council and the International Neural NEtworks Society will sponsor the 1993 International Joint Conference on Neural Networks October 25-29, at the Nagoya Congress Center, Japan.
Submit proposals for tutorial speakers and topics to Prof. Toshio Fukuda, Dept of Mechanical Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-01, JAPAN. Phone: 81 52 781 5111, ext. 4478; FAX: 81 52 781 9243.
email: d43131a@nucc.cc.nagoya-u.ac.jp.

## Herbert E. Rauch Honored as 'Founding Editor'

**Dr. Herbert E. Rauch (Lockheed, Palo Alto)**, has been named the *Founding Editor* of the *IEEE Transactions on Neural Networks*. Dr. Rauch was instrumental in the initialization of the Transactions and served with distinction as its first Editor-in-Chief. Crafting an archival publication from scratch is a monumental task. Doing so with invariable excellence is an extraordinary achievement. The field of neural networks in general, and the *Neural Networks Council* in particular, is indebted to Dr. Rauch for his exceptional contribution.

The *Founding Editor* title was bestowed on Dr. Rauch by acclamation at the *Neural Networks Council*'s AdCom meeting in January this year. A certificate was presented at the Seattle IJCNN in July by the Council's Awards Chair, Dr. Bradley Dickinson (Princeton).

## 1991 IEEE Transactions on Neural Networks Outstanding Paper Award

***Professor Kumpati S. Narendra and Mr. Kannan Parthasarathy*** have been selected to receive the 1991 IEEE Transactions on Neural Networks Outstanding Paper Award for their paper entitled *Identification and Control of Dynamical Systems Using Neural Networks* which appeared in Vol. 1, No. 1, of the *Transactions*, in March 1990. This award, which is sponsored by the IEEE Neural Networks Council, was presented at the Opening Session of the 1991 International Joint Conference on Neural Networks in Seattle, Washington on July 8, 1991.

The authors of the paper are affiliated with the Department of Electrical Engineering at Yale University. Prof. Narendra is Director of the Center for Systems Science at Yale, where he has been a faculty member since 1965. He is a Fellow of the IEEE. Mr. Parthasarathy is a doctoral candidate in electrical engineering.

## *President's Corner (Cont.)*

(Johns Hopkins University Applied Physics Lab), President-Elect and me. Although there was no set agenda save cuisine enjoyment, the conversation was exuberantly jubilant, replete with toasts to cooperation and harmony. The most important outcome of the event, I believe, was eyeball-to-eyeball dialogue among the participants, most of whom had not previously met. 'Coming together is a beginning; keeping together is progress; working together is success'. We have begun. Progress will be made when the second *President's Dinner* is held at the Singapore IJCNN.

All of the regional neural network organizations and other professional organizations devoted to intelligent systems, will be invited to participate in the *World Congress on Intelligent Systems* to be first held in July 1994 in Washington D.C. In the spirit of self organization, the major meetings of the *IEEE Neural Networks Council* will here be clustered in the same location at the same time, including *The International Conference on Neural Networks* and *FUZZ-IEEE*. Although initiating the Congress sooner would be best for all, the 1994 date is necessitated by the lead time requirements for conference facilities.
The world of intelligent systems is becoming more involved. Like qualifying for paying windfall profits tax, this is a good problem to have. Indeed, when the going gets easier, chances are we're going downhill.

## From the Managing Editor's Desk: *Glasnost & Neural Nets*

***Rosalyn Snyder***

It is one thing to read about the momentous events in the USSR in the newspaper. It is quite another to have a distinguished Russian scientist in my kitchen who is too distraught to express a preference for coffee or tea, and who is trying simultaneously to read the account of events in his homeland in the *Winston-Salem Journal,* phone his family in Moscow (only to get a recording that "No Calls Are Permitted"), listen to breaking news on National Public Radio, and explain to the Snyders who all these people *are*.

In July at the IJCNN in Seattle, Wes Snyder (the editor of this publication) agreed to be co-program chair of the ***1992 RNNS/ IEEE Symposium on Neuroinformatics and Neurocomputing***. When we learned that Dr. Witali Dunin-Barkowski, general chair of the symposium and the president of the Russian Neural Networks society, was returning to the U.S. in August, we invited him to come to Winston-Salem to present a seminar and work out details of the symposium. We looked forward to an interesting experience, but we had no idea just *how* interesting it would be.

**IEEE NNC Meetings Chair Roy Nutter, Russian Neural Networks Society President Witali Dunin-Warkowski and IEEE NNC President Bob Marks at the Seattle IJCNN.**

We met the plane on Sunday, August 18. After a pleasant evening we all went to bed, blissfully ignorant of the arrest of Gorbachev and other late-breaking news. The arrival of the morning paper triggered the kitchen chaos scene. After the news Wes and our guest went to tour Bowman Gray Medical School and the Computer Science Department at Wake Forest University. Witali showed interest in everything and tried to maintain his previously buoyant enthusiasm. It must have been hard to concentrate on such things. Changes were taking place that would impact his career, but his life and the lives of him and his family, and he was thousands of miles away and unable to take part.

On Tuesday, while Wes drove our older son to Raleigh to begin his freshman year at the university, Witali and I time-shared my computers. I worked on a newsletter, and he alternately pored over the news accounts in the *New York Times* and prepared slides for his seminar, getting technical help on the MacIntosh from Robert, our ten year old. Robert also initiated our new friend into the mysteries of Nintendo (so much for cultural exchange). By Tuesday night, the news from the USSR suddenly began to appear brighter and Wednesday it was clear the coup had failed. Planning for the Symposium was energetically renewed and on Thursday morning, Witali left, , carrying a newly purchased fax machine, perhaps the symbol of the second Russian Revolution. and returned to his home and institute to take his place in the changes going on in his country.

## 1992 NNC Officers

The Administrative Committee of the *IEEE Neural Networks Council* elected officers for 1992 at the Seattle IJCNN in July. The 1992 officers, who comprise the Council's Executive Committee, are

**President:**
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## NNC Standards Committee

The Neural Networks Council has initiated an activity to begin work on guidelines and standards for artificial neural networks. To that end, a Standards Committee has been formed with Walter J. Karplus as chair and Mary Lou Padgett as vice-chair. A Standards Coordinating Committee was appointed and held its first meeting last July in Seattle. This was followed by an open meeting for attendees of IJCNN-91, also in Seattle.
Three provisional Working Groups have been formed:

- **Glossary and Symbols:** Mary Lou Padgett (chair) Auburn University 1165 Owens Road Auburn, AL 36830 (205) 821-2472 email: mpadgett@eng.auburn.edu.
  *Purpose:* establish equivalencies and assist communication among the widely divergent neural networks community members.
- **Paradigms:** Prof. E. (Litza) Tzanakou (chair) Dept. of Biomedical Engineering P.O., Box 909 Rutgers Univer-sity Piscataway, NJ 08855-0909 (908) 932-2037
  email: etzanako@elbereth.rutgers.edu.
  *Purpose:* establish elementary building blocks for the construction and identification of neural network paradigms.
- **Performance Evaluation Methodology:** Robert Shelton (chair) PT4 NASA/JSC Houston, TX 77058 (713) 483-8110
  shelton@gothamcity.jsc.nasa.gov.
  *Purpose:* establish guidelines for comparative performance evaluation of neural networks.

It is expected to formalize these working groups in February, 1992 and also to form an additional Working Group to deal with Hardware and Software Interfaces.

Anyone interested in participating, regardless of society affiliation, is invited to contact the above individuals, or to get in touch with:
Prof. Walter J. Karplus, Computer Science Department, University of California, Los Angeles, CA 90024, 213) 825-2929
email: karplus@cs.ucla.edu

**January 92 Newsletter Deadline: December 1**

## Calendar

- ***October 21-23. SIM-TEC 91: Simulation Technology International.*** Orlando Florida. Sponsors: Society for Computer Simulation. Contact: Mary Lou Padgett, 200 Broun Hall, EE Dept., Auburn Univ AL 36849-5201. Phone 205-844-1855; (205)844-1809
- ***November 3-7. Active Materials and Adaptive Structures.*** Alexandria VA. *Sponsors:* ADPA, AIAA, ASME, SPIE, and others. Contact: Dr. Peter Dean, Lockheed Aeronautical Systems Co., Dept. 70-13, Bldg Unit 50, Plant 2, PO Box 551, Burbank CA 91520, tel 805-295-4755 or Prof. Craig Rogers, Dept. of Mechanical Engineering, VPI, Blacksburg VA 24061. Tel 703 231-7194, *e-mail* rogers@vtvm1.cc.vt.edu.
- ***November 8-9. Fuzzy and Neural Systems, and Vehicle Applications '91.*** Tokyo, Japan. Org: IEEE/IES Intelligent Vehicle Subcommittee. Contact: Ichiro Masaki, Computer Science Dept., General Motors Res. Labs., 30500 Warren MI 48090-9055. USA. FAX 313 986 9356. Ph. 313 985 1466.
- ***Nov 10-13. ANNIE '91: Artificial Neural Networks in Engineering.*** St. Louis MO. Org: Intelligent System Center, Univ. Missouri-Rolla. Contact: Dr. Cihan Dagli, 223 Engineering Management, University of Missouri-Rolla, Rolla MO 65401. Ph.: 314-341-4374. FAX: 314 341 6567.
- ***December 2-5 NIPS'91: Neural Information Processing Systemes -Natural and Synthetic.*** Denver CO. Contact: NIPS*91 Registration. Siemens Research Center. 755 College Road Est, Princeton NJ 08540.
- ***February 3-5 '92. ACNN92: 3rd Australian Conference on Neural Networks.*** Canberra AU. Sponsor: The Australian National University. Contact: Mrs. Agatha Shotam, Secretariat ACNN'91, Sydney University. Electrical Engineering, NSW2006 Australia. Ph. 61-2 692 4214; FAX 61-2 660 1228. email: acnn92@ee.su.oz.au
- ***February 10-12, '92 Workshop on Neural Networks: Academic/Industrial/NASA/Defense.*** Sponsor: Auburn Univ. Space Power Institue, Center for Commercial Dev. of Space Power and Advanced Electronics, and NASA. Contact: Mary Lou Padgett, 200 Broun Hall, EE Dept., Auburn Univ AL 36849-5201. Phone 205-844-1855; (205)844-1809.

## Calls for Papers

- ***International Conference on Intelligent Control and Instrumentation (SICICI '92)*** Singapore. February 18-21 1992. *Sponsor:* IEEE Singap ore Section Control Chapter. *Submissions:* Professor C. C. Hang, Technical Programme Chairman, SICICI '92. IEEE Singapore Section, 200 Jalan Sultan *11-03 Textile Centre, Singapore 0719. email: fenghcc@nus3090.bitnet
- ***Intelligent Vehicles '91.*** July1-2, '92. Detroit. IEEE/IES Intelligent Vehicle Subcommittee. *Submissions:* Send one page abstracts by December 1 1991 to Ichiro Masaki, Computer Science Dept., General Motors Res. Labs., 30500 Warren MI 48090-9055. USA. FAX 313 986 9356. Ph. 313 985 1466.
- ***1992 IEEE International Symposium on Intelligent Control*** August 11-13, 1992. Glasgow, Scotland. U.K. *Sponsor:* IEEE Control Systems Society *Theme*: "Learning in Control" ***Submissions***: Five copies of papers should be sent by ***February 15*** to: Thomas C. Henderson, Department of Computer Science, 3190 Merrill Engineering Building, The University of Utah, Salt Lake City, Utah 84112 USA Phone: (801) 581-3601 Fax: (801) 581- 5843, E-mail: tch@cs.utah.edu
- ***ICCT 92: International Confcrence on Communication Technology*** Sept. 16-18, 1992 Beijing, China TCCT'92. *Sponsor*: Chinese Institute Of Electronics (CTE), China Institute Of Communication (CC) and Tsinghua University. ***Submissions***: Four copies of a 400 word summary in English of the paper must be received before ***January 15, 1992.***The author's name, return address, telephone and/ or fax number must be included. Send to: Prof. Chongxi Feng, Dept. of Electronic Engineering, Tsinghua University Beijing 100084, China FAX: (861) 2564176
- ***31st IEEE Conference on Decision and Control,*** December 16-18, 1992, Westin LA Paloma Resort/Hotel, Tucson, AZ. *Deadline:* March 1, 1992. *Contact:* Professor T. Basar, Coordinated Science Lab, Univ. of Illinois, 1101 West Springfield Ave., Urbana, IL 61801, (217) 333-3607, (217) 244-1764 (FAX), email: tbasar@-markov.csl.uiuc.edu.

Advance Notice and Call for Papers

### The Fifth IEEE Symposium on Computer-Based Medical Systems

June 14-17, 1992
The Washington Duke Inn
Duke University, Durham, North Carolina

### *Sponsors*

***Engineering in Medicine and Biology Society, The Computer Society, The Eastern North Carolina Section of the IEEE***

**The Symposium**

The Symposium is intended for engineers and computer scientists in academia and industry who are designing and developing Computer-Based Medical Systems (CBMS). Biomedical engineers, computer scientists, medical residents, physicians, and students who are working on medical projects that involve computers are encouraged to submit papers describing their work.

### *Submission of papers*

Contributions in the forms of papers, poster sessions, software demonstrations, and tutorials are invited. Paper summaries should be limited to two pages (typed, double- spaced) and should include the title, names of the authors, and the address and telephone number of the corresponding author. Send four copies of your contributions to: **Pete Santago, Department of Radiology, Bowman Gray School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1022 (telephone 919-748-4260; FAX 919-748- 2870; e-mail cbrns@mrips.bgsnLwfu.edu)**

### *Student Paper Contest*

The Becton Dickinson Research Center is sponsoring student paper contest. Winners will receive a certificate and monetary prize as follows: First Prize: $500; Second Prize $300; Third Prize $150

To be eligible, the student must be the first author of a contributed paper and must present the paper at CBMS'92.

### *The Program*

Papers covering the following related areas are requested: Device Reliability and Safety: fault-tolerance, device testing, validation and software safety, Image Processing and Analysis: registration , compression, enhancement, restoration, reconstruction, hardware, Signal Processing; algorithms, hardware, real-time processing, monitoring, EEG, Information Systems: RIS, HIS, PACS, networks, databases, Neural Networks and Expert Systems: theory, implementations, pattern recognition, applications, Prosthetic Devices: environmental control, word processing, devices for the hearing and vision impaired, standards, Cardiovascular Technologies: monitoring, imaging, bioimpedance measurements, microcomputer applications, cardiopulmonary resuscitation, Clinical Assessment and Risk Evaluation: real-time signal processing, database system.

### *Deadlines and Key Dates*

| | |
|---|---|
| Paper summaries due | Dec. 1, 1991 |
| Notice of acceptance | February 1,1992 |
| Camera ready papers due | March 15, 1992 |
| Symposium session | Junel4-17, 1992 |

# IEEE Distinguished Lecturers Program

The Neural Networks Council and other societies and councils are assisting the IEEE in compiling a list outstanding speakers in various fields. For more information about the program, contact the Program Chair: Don Wunsch (206) 477-5073, (206) 477-1001 FAX, wunsch@atc.boeing.com. The following are the selected participants and their areas of expertise for the IEEE Neural Networks Council Distinguished Lecturer Program:

**•Prof. Jim Bezdek (USA)**
(904)474-2784
(904) 474-3129 FAX
jbezdek@uwf.bitnet
Neural Networks, Pattern Recognition, and Intelligence; Neural Networks and Fuzzy Logic; Fuzzy Logic, Pattern Recognition and Control

**•Prof. John Caulfield (USA)**
(205) 895-6030
(205) 895-6618 FAX
Optical Neural Networks; Massive Neural Networks

**•Prof. Dr.-Ing. Rolf Eckmiller (Germany)**
49 211 311-4540
49 211 311-3085 FAX
eckmille@dd0rud81.bitnet
Neural Networks for Motor Control in Primates and Robots; Neural Networks for Control, Prediction and Forecasting Chaotic Systems; Towards Stable International Cooperation in the Field of New Information Processing Technology

**•Kunihiko Fukushima (Japan)**
81-6-843-0747
81-6-843-9354 FAX
Neocognitron and Selective Attention Model for Visual Pattern Recognition; Visual Pattern Recognition With Neural Networks; Recognition and Segmentation of Characters in Cursive Handwriting With Selective Attention

**•Prof. Stephen Grossberg (USA)**
(617) 353-7857
(617) 353-8100 FAX
Supervised Learning, Recognition and Prediction by Self-Organizing Neural Networks; Neural Networks for Vision and Image Processing; Neural Networks for Adaptive Sensory Motor Control; Neural Networks for Temporal Learning With Application to Speech Recognition

**•Prof. Robert J. Marks II (USA)**
(206) 543-6990
(206) 543-3842 FAX
marks@ee.u.washington.edu
Query-Based Learning Heisenberg's Fuzzy Principle

**•Prof. Andras J. Pellionisz (USA)**
(415)604-4821
pellioni@pioneer.arc.nasa.gov
Geometry of Brain Function, Sensory Motor Transformations by Neural Networks, Tensor Network Theory of the Central Nervous System

**•Dr. Paul J. Werbos (USA)**
(202) 357-9618
(202) 357-9408 FAX
pwerbos@note.nsf.gov
Intelligent Control; Neural Networks for System Identification; Backpropagation, History and Prospects of Neural Networks

**•Prof. Youshou Wu (PR China)**
86-1-2567733-5063
86-1-2564176 FAX
Recent Advances in Neural Network Research in China, The Application of Neural Networks in Chinese Character Recognition

**•Prof. Lotfi Zadeh (USA)**
(510) 642-4959
(510) 642-5775 FAX
zadeh@cs.berkeley.edu
Fuzzy Logic: Principles, Applications and Perspectives; The Calculus of Fuzzy If-Then Rules

## *CALL FOR PAPERS*

## 1992 RNNS/IEEE Symposium on Neuroinformatics and Neurocomputing
## Rostov-on-Don, USSR
### Oct 7 - Oct 10, 1992

Jointly sponsored by the IEEE and the Russian Neural Networks Society, This symposium will emphasize the theoretical aspects of Neural Computation as well as the practical issues involved in implementation of those aspects.
Topics of particular interest are:

- •Natural Neural Systems Informatics
- •Neurocomputers perspectives
- •Learning in Neural Networks
- •Statistical Modeling of Neural Networks
- •Sensory Information Processing and Motor Control
- •Neurocomputer Hardware
- •Neural Information Theory and Coding
- •Optimization Techniques

***Conference Committee***
*Symposium Chair:* Witali Dunin-Barkowski
*International Chair:* Robert Marks II
*Program co-chairs:* Alexander Frolov and Wesley Snyder
*Local Committee Chair:* Anatoly Kovalyov

***Advisory Board:***
Jury Gulyaev, *chair*
Robert Hecht-Nielsen
Robert Marks II
Eduard Manykin
Andrej Mikaelyan

***Program committee:***
A. Amit, S. Amari, J. Bezdek, R. Borisyuk, J. Bower, G. Carpenter, AChernavsky, R. Eckmiller, N. Farhat, T. Fukuda, A. Gorban, A. Gutman, M. Ito, M. Klenin, R. Newcomb, A. Petrov, L.Podladchikova, I. Rybak, P. Simpson, J. Taylor, S. Thomas, A. Vedenov, V. Yachno

***Plenary Speakers:***
R. Hecht-Nielsen, M. Ito, A. Kalyaev, T. Kohonen

***Conference registration will include lodging and meals, including a set of "fresh air sessions" to be held on a tour boat on the lovely Don river.***

Manuscripts should be typed, double-spaced, using no less than 11 pt type, with a maximum length of 12 pages, and must be received by **Dec. 31, 1991**. Manuscripts not adhering to format restrictions will not be reviewed. Authors will be notified of acceptance by March 1, 1992, and will have 30 days to submit camera-ready copy . Because of anticipated difficulties in communication, poster papers are strongly encouraged, and authors are requested to indicate their preference of poster or oral presentation. Poster submissions will be reviewed to as high or higher standard than oral presentations.
Authors outside the USSR should submit papers to
**Prof. Wesley E. Snyder**
Department of Radiology
Bowman Gray School of Medicine
Winston-Salem, NC 27157-1022 USA
Authors within the USSR should submit papers to
**Prof. Alexandre A. Frolov**
5a Butlerov St.
Institute for Higher Nervous Activity and Neurophysiology
117 485 Moscow USSR



*Call For Papers :*

## Special Issue on Neural Networks for Ocean Engineering

The ***IEEE Journal of Ocean Engineering*** is accepting papers for a special issue on Neural Networks for Ocean Engineering. Neural networks are having a large impact on several aspects of the ocean engineering including passive and active acoustic signal processing, ocean surveillance, adaptive beam forming, underwater acoustic communication, and many more.

The IEEE Ocean Engineering Society, in cooperation with the IEEE Neural Networks Council, has recently sponsored the First Conference on Neural Networks for Ocean Engineering (CNNOE 91). This conference represents the first meeting of its kind. The enormous interest in neural networks generated by this conference has resulted in a special issue of the IEEE Journal of Ocean Engineering.

Journal length papers are being sought for the special issue on Neural Networks for Ocean Engineering. Papers concerning all areas of neural network applications to ocean engineering are requested, including (but not limited to):

- ***Passive and Active Acoustic Signal Processing***
- ***Bioacoustics***
- ***Ocean Surveillance, Monitoring and Modeling***
- ***Underwater Vehicle Control***
- ***Underwater Image Processing***

The submission guidelines are found in past issues of the IEEE Journal of Ocean Engineering. The deadline for paper submission is January 2,1992. All papers should be sent to the Special Issue Guest Editor at:
Patrick K. Simpson Guest Editor, *IEEE Journal of Ocean Engineering*
Special Issue on Neural Networks for Ocean Engineering , Accurate Automation Corp, 1548B Riverside Drive, Chattanooga TN 37406, (615) 622 4642, FAX (615) 622 4625





### Request for Information

FEDERAL BUREAU OF INVESTIGATION, Room 118S0, J. Edgar Hoover FBI Building, 10th and Pennsylvania Avenue, Northwest, Washington, D.C. 20535
REQUEST FOR INFORMATION POC Glenn Armfield (202) 324-3318. Request for Information- To assist the FBI in an internal feasibility study on the automated filing and searching of computerized fingerprint records, the Identification Division of the FBI seeks information concerning individuals and/or organizations who have conducted research and development using neural networks and other pattern recognition techniques, whose interests, expertise and experience may be applicable to one or more of the following four areas: (1) the determination of a fingerprint's basic pattern classification (Arch, Tented Arch, Ulnar Loop, Radial Loop, Whorl, Permanent Scar, or Amputation); (2) the determination of a finer-grained automated fingerprint classification, not necessarily linked to basic pattern classification; (3) the potential use of such a fine-grained automated classification method for fingerprint matching, which is the process of determining whether two fingerprints are from the same individual; (4) the potential use of neural networks for fingerprint matching in general, irrespective of their use as classifiers. Source data for the above processes consists of digital fingerprint images captured at 500 dots per inch, using 256 levels of grey.
The FBI seeks information detailing organizational capabilities, resumes of individual(s) in your organization with specific expertise in this area, a very brief (less than one page) description or citation of a neural network architecture or other pattern recognition methodology, from your repertoire, which you feel is most applicable to fingerprint classification or matching, and a list of papers on closely related topics which have been written by individuals in your organization. The inclusion of one or two key papers would be appreciated.
The information provided in response to this RFI will assist the FBI in its internal feasibility study and will be retained for future library reference. Only information received within 30 working days of the date of this publication will be retained for reference. No telephonic responses will be accepted.

# BALTIMORE

## International Joint Conference on Neural Networks

**Baltimore, Maryland** **June 7-11,1992**

**Sponsors: Institute of Electrical and Electronics Engineers (IEEE) and International Neural Networks Society (INNS)**

**General Chair: Clifford Lau**
**Honorary Chair: Bernard Widrow**
**Program Chair: John Shynk**

Papers for oral and poster presentations are solicited. Topics include:• Applications • Artificially Intelligent Neural Networks • Associative Memory • Electronic Neurocomputers • Fuzzy Neural Networks • Image Processing • Invertebrate Neural Networks • Machine Vision • Neurocognition • Neuro-Dynamics • Optical Neurocomputers • Optimization • Pattern Recognition • Robotics and Control • Sensation and Perception • Sensorimotor Control Systems • Speech Processing • Supervised Learning • Unsupervised Learning

Conference includes Tutorials, Exhibits and Plenary Sessions. Deadline is January 15,1992. Six copies of thc paper must be submitted, six page maximum, including figures Papers must be camera-ready on 81/2 x I I white paper, one-column format in Times or similar font style. 10 points or larger with one inch margins on all four sides. Title, author name(s) and affiliation(s) must be on top of the first page followed by abstract. Papers will be printed as submitted. A covering letter must show: 1. Title of paper 2. Name, address and telephone number of corresponding author 3. Your choice of technical session.
Send paprers to: Ms. Nomi Feldman, IJCNN '92 5665 Oberlin Drive, Suite #110 San Diego, CA 92121
Telephone (619) 453222 FAX (619) 535-3880

***Call for Papers***

## Workshop on Genetic Algorithms and Neural Networks

In conjunction with IJCNN-92, a one-day workshop is scheduled on combinations of genetic algorithms (GAs) and neural networks (NNs). These paradigms are both inspired by information processing schemes used by Nature, but they typically have vastly different time constants. Recently, researchers have begun experimenting with combining them into adaptive/ learning systems with new capabilities. The time is right for a workshop to bring together researchers to share concepts and experience.

Relevant topics include, but are no limited to: Using GAs to train NNs Using GAs to design NN topologies and parameters Using GAs to analyze NN performance Artificial life applications and the evolution of learning Comparative studies Applications (especially encouraged).

Three copies of original papers (10 pages, 12 point type) should be submitted by **February 1, 1992** to: Dr. Darrell Whitley Program Chair, COGANN Department of Computer Science, Colorado State University, Fort Collins, CO 80524 USA, whitley@cs.colostate.edu .

Papers will be rejected if they exceed the page limit or if they fail to describe work combining both these technologies.

**Workshop date: 6 June 1992, IJCNN-92, Baltimore, MD**
**Sponsor: IEEE Neural Networks Council in cooperation with The International Society for Genetic Algorithms.**

## *IEEE INTERNATIONAL CONFERENCE ON* FUZZY SYSTEMS

**March 8-12, 1992**
**San Diego, California**

*Sponsored by the IEEE Neural Networks Council in cooperation with the IEEE Lasers and Electro-Optics, Communications, and Industrial Electronics Societies and IFSA, NAFIPS, and SOFT*

Conference Chairs: Lotfi Zadeh and James Bezdek

The program will include technical sessions on: Basic Concepts and Tools, Artificial Intelligence, Fuzzy Neurocomputing, Control Systems, Decision Analysis and Optimization, Fuzzy Hardware, and Engineering Applications. For further conference information contact: Nomi Feldman, Conference Coordinator FUZZ-IEEE SYSTEMS CONFERENCE 5665 Oberlin Drive, Suite 110 San Diego, CA 92121 USA (619) 453222 FAX (619) 535-3880

### Tutorials:

1A: Engineering: ***Basic Concepts of Fuzzy Control***
Dr. Hamid Berenji
1B: Concepts and Tools: ***Basic Concepts of Fuzzy Sets and Fuzzy Logic***
Dr. Enrique H. Ruspini
2A: Engineering:*Applications of Fuzzy Logic to Industrial Systems*
Professor Michio Sugeno
2B: Concepts and Tools: *Fuzzy Information Systems*
Dr. Piero P. Bonissone
2C: Concepts and Tools: *Fuzzy Hardware and Development Tools*
Dr. Masaki Togai
Mr. Erik Horstkotte
Mr. Doug Leo
NOTE: Sessions 1A and 2A, and Sections 1B, 2B, 3B will be held in parallel.

IEEE NEURAL NETWORKS COUNCIL NEWSLETTER
Dr. Wesley E. Snyder, Editor
The Bowman Gray School of Medicine
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