



the intelligence Connection

President's Corner: *The Focus of the Council*

Robert J. Marks II



The majority of papers submitted to the 1991 Seattle IJCNN deal with applications. This, I believe, is further evidence that the field of artificial neural networks has matured significantly in the last few years. The interest and activity in neural networks is at a higher level than ever before. The charter of the *IEEE Neural Networks Council* is to continue the

nurturing of this maturation through technical conferences and publications.

Around the maturing of the field of artificial neural networks have sprouted other new and exciting biologically motivated computational paradigms, including genetic algorithms and evolutionary programming. Training methods not constrained to neural network architectures are attracting much attention. The more mature field of fuzzy systems is emerging as a singularly significant field of technology.

The *Neural Networks Council* is dedicated to involvement in these and other emerging technologies in the field of intelligent systems. As you can see elsewhere in this newsletter, we will be sponsoring in February 1992 the

first ever *IEEE International Conference on Fuzzy Systems*. This is the first IEEE conference of international scope ever dedicated solely to the topic of fuzzy systems. The Council's *Transactions on Neural Networks* will also soon have a special issue devoted to the topic.

The newly introduced Neural Network Council Forum series of smaller scale meetings allows flexibility to explore other evolving areas in the field of intelligent systems. (Watch for the announcement of Forum meetings in Council publications.) As is the case with artificial neural networks, the Council will play a major role in the evolution and maturing of these new and exciting related technologies.

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.

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IEEE Neural Network Council Forums

In order to deepen investigation, encourage cross disciplinary exchange and broaden the scope of the technology of artificial neural networks, the IEEE Neural Networks Council (NNC) has established IEEE NNC Forums.

NNC Forums are selected from proposals submitted to the NNC. The forums can either be small generic regional meetings or in-depth meetings wherein a specific application or aspect of neural networks is addressed (e.g. IEEE Neural Network Council Forum on Gaming). Sponsorship of three or four Forums each year is anticipated. NNC Forums should be small in scope. Participation, however, must be open to all IEEE members.

The responsibility of Chairing and otherwise managing the NNC Forum is the responsibility of the Proposer. The technical orientation and content of the Forum will be designated by the Proposer.

NNC Support

- Forums will publicized in the *IEEE Transactions on Neural Networks*, which currently has over 8000 subscribers.

- Proceedings from selected Forums will be published by the IEEE NNC.
- Accepted proposals are eligible for nominal monetary advances from the NNC for financing the Forum.

Standard IEEE Conference planning and information packets are available from the NNC Meetings Chair:

Roy S. Nutter, Jr. Chair
West Virginia University
P.O. Box 6101
Morgantown, WV
26506 (304) 293-6375, Ext.23
rsn@a.coe.wvu.wvnet.edu

Format for Proposals

The following items should be included in a proposal to host an NNC Forum:

1. A brief summary of the objectives of the Forum not to exceed one page.
2. An explanation of how the objectives are to be met. This explanation should also not exceed one page.
3. A budget submitted on an IEEE budget form. Budgets should be conservative and include reimbursement of the NNC advance to the Forum.

4. Names and one page cv's of the Conference Organizing Committee members, including the Forum's General Chair and Finance Chair.
5. A statement of the manner in which the Forum is to be managed.
6. A letter of endorsement from an NNC AdCom member or, in the case of a proposal from an NNC AdCom member, from the President of an NNC member Society.

Awards Selection Criteria

Seven Copies of Forum Proposals are to be submitted to the NNC Meetings Chair by June 1, 1991. The meetings committee will review the proposals and announce the awards by August 1, 1991.

Proposals will be selected by the following criteria:

- The technical and/or regional contribution of the proposed Forum to the field of neural networks.
- The professional quality of the proposed Forum.
- The credentials of the Organizing Committee.

(Continued on next page)

IEEE Neural Networks Advisory Council

Circuits and Systems Society:

Robert W. Newcomb, University of Maryland
Edgar Sanchez-Sinocio, Texas A&M University

Communications Society:

Stamatios Kartalopoulos, AT&T Bell Laboratories
Kesh Bakhru, Cubic Corporation

Control Systems Society:

Bradley Dickinson, Princeton University
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Division 10 Director:

H. Vincent Poor, Princeton University

IJCNN Oversight Committee:

Roy S. Nutter, Jr., West Virginia University

student connections

Karen Haines and Paolo Gaudiano

As the field of neural networks continues to grow, both the number and size of the various branches in this field grow as well. Older societies are developing sections that explore the theory and applications of neural networks. Since the IEEE's First International Conference on Neural Networks at San Diego, California in June of 1987, numerous conferences and publications on neural networks have emerged. Perhaps this is the reason that standards in the field have been slow to develop.

A more important result of this diverse growth in the field of neural networks is the lack of academic programs dedicated specifically to neural network research. Current academic environments expose students to neural networks in the context of specific well-established fields such as engineering or psychology. This makes it difficult for students to approach neural network models that are formulated around "jargon" other than their own.

The student's perspective on these problems was one reason for the development of the International Student Society for Neural Networks (*ISSNNet*). Beginning

NNC Forums (continued)

Other Requirements

- An NNC Forum must adhere to IEEE meeting regulations and guidelines.
- All accounts will include the NNC Treasurer as signatory and are subject to IEEE audit. Financial shortages and surpluses will be disbursed according to IEEE policy.

The name of both the meeting and the proceedings will begin with the phrase "IEEE NNC Forum"

with a handful of students who realized that it was important to establish a common point of contact among students and between students and other organizations. ISSNNet has since taken on the tasks of

- establishing a new link for information exchange;
- providing a centralized source of information about academic programs available at universities all over the world;
- providing information about companies currently involved in neural network research and applications;
- establishing an important liaison between existing neural network societies and students.

Another reason for the creation of ISSNNet was to increase the level of assistance for students who want to attend neural network conferences. In the years since the first conferences, the average student registration fee has been increasing, while the benefits provided with the student registration have generally declined. There have been two recent developments in our commitment to this issue. The first is the development of the *IEEE Neural Network Council Volunteer Agreement*. The purpose of this document is to

- provide guidelines to be used in the conference organization of volunteers for IEEE Neural Network Council (NNC) meetings;
- define the responsibilities, benefits, and budget for the organization selected to coordinate the volunteers for the IEEE NNC conferences;
- define the responsibilities and benefits for individuals working as volunteers for conferences sponsored by the IEEE NNC.

Although written by the founders of ISSNNet, this document allows *any neural network student organization* to coordinate the volunteers for the IEEE NNC conferences and ensures that the organization selected to coordinate the volunteers gets adequate reward for their work.

In addition, a fund to provide student sponsorships for IJCNN-91-Seattle and IJCNN-91-Singapore has been established by ISSNNet in collaboration with the IEEE Neural Networks Council. Monies from this fund will pay the registration fee for students who are presenting articles orally or during a poster session at these conferences. While the original deadline for applications was April 15, 1991, applications submitted after that date will be considered if sufficient funds are available. For more information about the sponsorships and applications, or for information about other activities of ISSNNet contact:

IJCNN-91 Sponsorships
c/o ISSNNet, Inc.
P.O. Box 557,
New Town Branch
Boston, MA 02258, USA
or send electronic mail to
issnnet@park.bu.edu.

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South American IEEE Colloquium

Evangelia Tzanakou
Rutgers University

The 1990 IEEE Colloquium took place in South America in early September. For two weeks, 41 delegates travelled to five cities in Brazil, Argentina, Uruguay, and Chile as representatives of fourteen different Societies and Councils of the IEEE.

As delegates of the IEEE Engineering in Medicine and Biology Society (EMBS), we arrived early to participate in a Symposium on Biomedical Engineering in Brazil. It was a very interesting experience to see people who did not even speak the same language communicate ideas and ask and answer questions of scientific importance. Neural Nets was one of the areas of expertise represented in the Colloquium.

In each city, several presentations were made in all fields and discussions followed the question and answer periods, usually during a luncheon or dinner (usually starting at around 10 pm). The local delegates were very hospitable and the organizing committee had done a marvelous job.

In some cities delegates were asked to give presentations to student assemblies in the local universities. In each of the five cities visited, the format of the technical program differed considerably, with some areas more strongly represented than others. It was typical to intermix the local speakers with the IEEE delegates, for concurrent sessions on different technical areas. Each delegate was assigned to chair a session, be a recorder (of questions and answers) at another session, keep a record of the number of participants, and so on. In addition to the technical program, there were meetings with Chapter leaders and visits to local industries, institutes and universi-



ties.

Some days (or parts of days) were spent in entertainment (Tango shows and such), visits to the Iguacu Waterfalls and the Itaipu Hydroelectric Plant, and shopping (where some of us got mugged). Although we got soaking wet and flew in a terrible lightning storm and eventually most of us had colds or some other difficulty, all in all it was an extremely valuable experience. The exchange of cultural differences and the few words of Portuguese or Spanish we learned proved invaluable. The warmth of the people and their hospitality and openness are some of the things that will stay with us for a long time.

First Chinese National Conference on Neural Networks

Dr. Russell C. Eberhart (on far right in photo), Vice President of the IEEE Neural Networks Council, delivered the keynote address at the First Chinese National Conference on Neural Networks, held in Beijing, China, December 9-14, 1990. The conference was attended by over 400 people from throughout China. Shown next to Dr. Eberhart is Professor Zong Sha, Secretary General of the Beijing Section of the IEEE, and Chairman of the Chinese Neural Networks Committee.

While in China, Dr. Eberhart negotiated a memorandum of understanding between the Chinese Neural Networks Committee and the IEEE NNC. The memorandum opens the door for joint technical activities between these groups such as conferences and symposia.

The 1992 Fall International Joint Conference on Neural Networks is scheduled for Beijing in early November.

Newsletter Editorial Policies

We publish news items, letters, and reports on work in progress. Normally, technical contributions will not be reviewed. However the editor reserves the right to solicit technical reviews and to reject any contribution which is inappropriate for this newsletter.

Announcements for noncommercial scholarly conferences, workshops, etc. will be published gratis in our Calendar as space is available, with priority given to events sponsored by the Neural Networks Council.

For-profit short courses and seminars may be advertised at our standard classified or display rates. For more information about advertising in the newsletter, please contact the Editor.

Calendar

- **May 13-14 IEEE Computer-Based Medical Systems Symposium (CBMS'91).** Baltimore MD Sponsors: IEEE Computer Society, IEEE Engineering in Medicine and Biology Society and IEEE Baltimore Section. Contact: Jeffery C. Lesho, The Applied Physics Lab, MS13-S112, The Johns Hopkins Road, Laurel MD 20723.
- **June 2-3. IEEE Workshop on Directions in Automated "CAD-Based" Vision.** Maui, Hawaii (just prior to CVPR '91) Contact: Steve Graham, Department of Electrical Engineering FT-10, University of Washington, Seattle WA 98195. e-mail: graham@isis.ee.washington.edu or Linda Shapiro, general chairman, (shapiro@cs.washington.edu).
- **June 18-20. International Ocean Technology Conference.** Glasgow, Strathclyde, UK. Contact: Claire Bowie, IOTC Organizing Committee, 9 Royal Crescent, Glasgow G3 7SP, Strathclyde UK, Tel: 041-332-0193.
- **June 23-28. EURISCON 91: The European Robotics and Intelligent Systems Conference.** Corfu, Greece. Contact: Prof. Tzafestas, National Technical University of Athens, Greece, Tel: +30-1-7757504; FAX: +30-1-7784578 or 6532023, or within the U.S. Prof. Kimon P. Valavanis, The Center for Advanced Computer Studies, University of SW Louisiana. Tel: (318) 231-6284; Fax: (318) 231-5791
- **July 8-12 International Joint Conference of Neural Networks.** Seattle WA. Sponsors: International Neural Networks Society and **IEEE Neural Networks Council.** Contact: Sarah Eck, University of Washington Conference Management, IJCNN-91 Seattle. Tel (206)543-0888 or Fax (206)685-9359.
- **July 23-26 First International Forum on Applications of Neural Networks to Power Systems (ANNPS 91)** Seattle, Washington. *Sponsors:* National Science Foundation, University of Washington, IEEE Power Engineering Society, Seattle Section, Puget Sound Power & Light Company. *Contact* Jan Kvamme (kwa-mi) at Engineering Continuing Education, GG-13 University of Washington 4725 30th Ave NE Seattle, WA 98105, USA email: jmk6112@u.washington.edu FAX: (206) 543-2352 Phone: (206) 543-5539.
- **August 1-3. IEEE International Conference on Systems Engineering, Special Session on Reconfigurable and Reusable Real-Time Systems.** Wright State University, Dayton, Ohio. Session Co-Chairs: David B. Stewart, CMU (412)-268-7120 stewart@faraday.ece.cmu.edu and Thomas Wheatley, NIST, (301)-975-3449, wheatley@cme.nist.gov
- **August 15-17 Neural Networks for Ocean Engineering.** Washington, D.C. *Sponsor:* IEEE Ocean Engineering Society in Cooperation with **IEEE Neural Networks Council.** *Contact:* CNNO Meeting Management, 5665 Oberlin Dr., Suite 110, San Diego CA 92121. Phone 619 453-6222. Fax: (619)535-3880.
- **August 13-15 IEEE International Symposium on Intelligent Control** Arlington Virginia *Sponsor:* IEEE Control Systems Society. *Contact:* Prof. Alexander Levis, Dept. of ECE, George Mason Univ., Fairfax VA 22030-4444. Tel 703-764-6282.
- **August 24-30. 12th International Joint Conference on Artificial Intelligence.** Sydney, Australia, *Sponsor:* IJCIA, Inc.; *Cosponsor:* National Committee on Artificial Intelligence and Expert Systems of the Australian Computer Society. *Information:* Prof John Mylopoulos or Prof. Ray Reiter, Dept. of Computer Science, University of Toronto, Toronto Ont. M5S 1A4 CANADA, Fax (+1 416)978-1455 email: ijcai@cs.toronto.edu.
- **September 10-12. 2nd Gov't Neural Network Applications Workshop,** Huntsville ALA, *Sponsor:* U.S. Dept. Defense Tri-service Neural Network Working Group. *Contact:* Program Chairman, US Army Missile Command, Research, Development, & Engineering Ctr., ATTN: AMSMI-RD-WS-PO (Dr. John L. Johnson) Huntsville ALA 35898-5248 FAX 304-293-6689.
- **September 29 - October 2 First IEEE-SP Workshop on Neural Networks for Signal Processing** Spon-

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sored by the IEEE Signal Processing Society in cooperation with the **IEEE Neural Networks Council** Nassau Inn, Princeton, New Jersey, USA. Contact Gary Kuhn, Publicity Chair, at (609) 924-4600.

- **September 30-October 2. ICDAR'91 First International Conference on Document Analysis and Recognition.** Saint-Malo, France. Sponsors: CNRS, IAPR, IGS, INRIA, IEEE Section francaise. Contact: Veronique Segaut or Corinne Sweeney, AFCET-ICDAR91, 156 Boulevard Pereire, 75017 Paris FRANCE, Tel: (33) 142679312 or Fax (33) 142679312.
- **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.

Calls for Papers

- **Workshop on Neural Networks in Robotics,** October 23-25, 1991 University of Southern California Sponsor: The Center for Neural Engineering at the University of Southern California. Submissions: 3 copies of extended abstracts of proposed presentations (2 to 4 pages in length) by **May 15, 1990** to Prof. George Bekey, Chairman, Technical Program Committee, c/o Computer Science Department, University of Southern California, Los Angeles, California 90089-0782.
- **IEEE/ACM International Conference on Developing and Managing Expert System Programs** September 30-October 2. Washington DC. Sponsors: IEEE Tech. Com. on Expert Systems and ACM Special Interest group on Business Data Processing. Submissions: Send five copies by May 31 to Dr. Larry Medsker, Dept. of Computer Science and Information Systems, American University, Washington, DC 20016.
- **2nd International IEEE Conference on Microelectronics of Neural Networks.** October 16-18, 1991. Munich. (Second Call) Submissions: Send five copies of a 3000-word abstract (not including figures) plus a cover page indicating title, author's name, affiliation, address and phone number by **May 31** to Dr. Ulrich Ramacher, Siemens AG, Corp. R&D, ZFE ME MS 32, Otto-Hahn-Ring 6, 8000 Munich 83, Germany. Telephone: 49 89 636 41296, Fax: 49 89 636 41442.
- **International Workshop on Intelligent Robots and Systems 91 (IROS'91),** November 3-5, 1991 Osaka, Japan. Prof. Hirokazu Mayeda, Osaka University, Faculty of Engineering Science, Toyonaka, 560 Japan. Phone: 81-6-844-1151(ext 4632); Fax 81-6-857-8664 E-mail: d63314a@ccsun01.center.osaka-u.ac.jp

Call For Papers:

IJCNN '91 Singapore International Joint Conference on Neural Networks

Nov. 18-21, 1991

Sponsors: IEEE Neural Networks Council and International Neural Networks Society

Papers may be submitted for consideration as oral or poster presentations in the following sessions: Associative Memory, Electrical Neurocomputers, Image Processing, Invertebrate Neural Networks, Machine Vision, Neurocognition, Neurodynamics, Optical Neurocomputers, Optimization, Robotic Control, Sensation & Perception, Sensorimotor Control Systems, Supervised Learning, Unsupervised Learning, Neurophysiology, Hybrid Systems (AI, Neural Networks, Mathematical Methods, Applications, Fuzzy Systems)

- **Submissions:** Send 8 copies including one camera-ready original of full papers of no more than 6 pages by **May 31 1991** to one of the following:

USA: Ms. Nomi Feldman
Meeting Management,
5665 Oberlin Dr., Suite 110
San Diego CA 92121
FAX: 619-535-3880

Japan: Prof. Toshio Fukuda
Programme Chairman
Dept. of Mechanical Engineering,
Nagoya University
Furo-cho, Chikusa-ku
Nagoya 464-01, JAPAN
FAX: 81-52-781-9243

All other: Dr. Teck-Seng Low
Communication Intl, Associates PTE
LTD
44/46 Tanjong Pagar Road
Singapore 0208
Tel (65) 226-2838
FAX (65)226-2877, (65)221-8916

FIRST CALL FOR PAPERS

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 IEEE Neural Networks Council is sponsoring a conference dedicated to the use of fuzzy models in scientific applications and engineering systems. Members of the fuzzy systems community are cordially invited to submit papers to this exciting conference. Only accepted papers will be published in the FUZZ-IEEE Proceedings, expected to be available at the conference for distribution to all conference registrants.

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 or call for papers instructions contact:

Nomi Feldman, Conference Coordinator
FUZZ-IEEE SYSTEMS CONFERENCE
5665 Oberlin Drive, Suite 110
San Diego, CA 92121 USA
Tel (619)453-6222, FAX (619)535-3880

IEEE Transactions on Neural Networks Special Issue

The *IEEE Transactions on Neural Networks* will devote a special issue to fuzzy control systems, neurocomputing, hardware, and engineering applications. Interested authors should submit one original and five copies of articles directly to the guest editor:

James Bezdek
Division of Computer Science
University of West Florida
Pensacola FL 32514 USA
Tel (904)474-2784, FAX (904)474-3023
e-mail: jbezdek@uwf.bitnet

Authors of accepted papers will be automatically placed in the appropriate FUZZ-IEEE technical session. Contributions accepted for the special issue will NOT appear in the Conference Proceedings.

DEADLINE DATE FOR ALL SUBMISSIONS: SEPTEMBER 15, 1991

- **5th IEEE Neural Information Processing Systems - Natural and Synthetic.** Dec. 2-5. Denver. Send 6 copies each of a 1000 word summary and a 50-100 word abstract to Stephen J. Hanson, NIPS'91, Siemens Research Center, 755 College Road East, Princeton NJ 08450 by May 17, 1991.
- **NIPS'91 Workshops.** Dec 6-7, Vail CO. Submit proposals for workshops to Dr. Gerald Tesauro, Co-Chair, ATTN NIPS91 Workshops, IBM Research, PO Box 704, Yorktown Heights NY 10598.
- **International Conference on Intelligent Control and Instrumentation (SICICI '92)** Singapore. February 18-21 1992. Sponsor: IEEE Singapore Section Control Chapter. Submissions: Four copies of 800-word abstract by 15 June 1991 to: 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.
- **ECCV2 European Conference on Computer Vision.** May 18-22, 1992. Santa Margherita Ligure Italy. Submissions: Send long (~6000 words) or short (~2000 words) by October 15, 1991 to Prof. Giulio Sandini, DIST Univ. of Genova, via Opera Pia 11 A, 16145 Genova, Italy. Tel: 39 10 353 2279, Fax 39 10 353 2948; email eccv92@dist.unige.it.

IJCNN-91-SEATTLE

Washington State Convention & Trade Center
Seattle, Washington

July 8-12, 1991

THE INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS

The International Neural Network Society (INNS) and the Institute of Electrical and Electronics Engineers (IEEE) invite all interested parties to participate in the largest neural network, hybrid, and fuzzy systems conference in the world.

- **Chair:** David E. Rumelhart, Stanford University Psychology Department
- **Program Co-Chairs:** Demetri Psaltis of Caltech and Larry Jackel of AT&T
- **Plenary Speakers:** Geoffrey Hinton, Univ. of Toronto; Jack Cowan, Univ. of Chicago; & Rodney Brooks, MIT
- **Invited Speakers:** Shun-ichi Amari, Tokyo University; Yaser Abu-Mostafa, Caltech; Tomaso Poggio, MIT; Dana Ballard, University of Rochester; Gerald Tesauro, IBM; Geroge Cybenko, University of Illinois; Stephen M. Omohundro, ICSI; Lawrence R. Rabiner, AT&T; Christoph von der Malsburg, Ruhr Universität Bochum
- **Tutorials (Monday, July 8):** Terrence Sejnowski, The Salk Institute; Richard Lippmann, MIT; James Anderson, Brown University; Thomas Brown, Yale University; Stephen Grossberg, Boston University; Mitsuo Kawato, ATR; Robert Hecht-Nielsen, HNC; Alex Waibel, CMU; Federico Faggin, Synaptics; Françoise Fogelman-Soulie, Mimetics; Bernard Widrow, Stanford; Yaser Abu-Mostafa, Caltech; John Moody, Yale University; and Paul Werbos, NSF.

Capsule Schedule:

- **Monday, July 8:** Tutorials
- **Tuesday, July 9:** Technical Sessions, Exhibitors' Reception, Industry Panel, & Fuzzy Systems Panel
- **Wednesday, July 10:** Technical Sessions, ANS Applications Panel & Special Interests Panel
- **Thursday, July 11:** Technical Sessions, International Government Panel, & Special Interests Panel

For Registration Information contact:

Conference Registration
UW Extension
GH-25
5001 25th Ave. NE
Seattle WA 98195 USA
Phone (206)543-2310
FAX: (206)685-9359

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

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