The CIS History Committee (2012)

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History of the Neural Networks Council (NNC): 1992

1. Introduction

This year saw the introduction of many new activities for the council. The most significant growth occurred in the area of Fuzzy Sets and Systems. (Coincidently, Lotfi Zadeh, the founder of the field of fuzzy sets, was awarded the Richard W. Hamming IEEE technical field award medal.) The second NNC-sponsored transactions - the *IEEE Transactions on Fuzzy Systems* – began soliciting contributions for a first issue to be published in 1993. Six NNC-sponsored video tutorials on Fuzzy Sets and Systems were created. Three NNC-sponsored books of milestone papers were published by the IEEE Press – two on neural networks, and one about fuzzy models for pattern recognition.

1992 saw the culmination of our agreement to hold a joint conference with the INNS – the IJCNN – on neural networks. Another major historical milestone was the conception and acceptance of the term "Computational Intelligence" by the NNC. These two events are discussed in more detail in Section 8.

There were two Adcom meetings in 1992. The first was held in San Diego on March 8, and the second was held on June 7 in Baltimore.

2A. Sponsor organizations. The IEEE NNC Adcom was composed of its officers plus two members from each of 12 IEEE societies (date indicates year of joining council):

Circuits and Systems	(1989)
Communications	(1989)
Control Systems	(1989)
Engineering in Medicine and Biology	(1989)
Industrial Electronics	(1989)
Industry Applications	(1990)
Information Theory	(1989)
Laser and Electro-Optics	(1989)
Ocean Engineering	(1990)
Robotics and Automation	(1989)
Signal Processing	(1989)
Systems, Man and Cybernetics	(1989)

2B. Administrative Structure : Officers of NNC (elected July 8, 1991, Seattle Adcom)

Russell Eberhart, President
Patrick K. Simpson, Vice President

Roy Nutter, Treasurer
Toshio Fukuda, Secretary

2C. Standing Committees of the NNC

Awards Committee, Brad Dickinson, Chair
Fellows Committee, Robert W. Newcombe, Chair
Nominating Committee, Robert J. Marks II, Chair
Standards Committee, Walter Karplus, Chair
Publication Committee, Stamatious Kartolopoulos, Chair
Meetings Chair, James C. Bezdek

3. Conferences sponsored or co-sponsored by the IEEE NNC

Name	FUZZ-IEEE (1st IEEE Int'l. Conf. on Fuzzy Systems)
Dates	March 8-12, 1992
Venue	San Diego, CA
Administrators	James C. Bezdek, Conference Chair
	Didier Dubois and Henri Prade, Program co-Chairs
	Lotfi Zadeh, Honorary Chair
Conference record	*Proc. of the 1992 FUZZ-IEEE*

Name	IEEE NNC Genetic Algorithm Neural Network Forum
Dates	June 6, 1992
Venue	Baltimore, MD
Administrators	Russell Eberhart, Conference Chair
Conference record	*None*

Name	IJCNN
Dates	June 7-10, 1992.Baltimore
Venue	Baltimore, MD
Administrators	Clifford Lau, Conference Chair
	John Shynk, Program Chair
	Bernard Widrow, Honorary Chair
Conference record	*Proc. of the IJCNN*

Name	RNNS/IEEE Symposium on Neuroinformatics
Dates	October 7-10, 1992
Venue	Rostov-on-Don, Russia
Administrators	Witali Dunin-Barkowski, Conference Chair
	Alexander Frolov and Wesley Snyder, Program co-Chairs
	Robert J. Marks II, International Chair
Conference record	*None*

Name	IJCNN
Dates	November 3-6, 1992
Venue	Beijing, China
Administrators	Wu You Shou, Conference General Chair
	Russell Eberhart and S. I Amari, General co-Chairs
	Zhong Yi Xin and Harold Szu, General co-Chairs
Conference record	*Proc. of the IJCNN*

4. Archival NNC Publications

The *IEEE Transactions on Neural Networks* (TNN): Robert J. Marks, EIC
CoNNections: Wesley Snyder, EIC.

5. Other NNC-sponsored Publications.

The IEEE published three books comprised of collections of reprints chosen by their editors as milestone papers in the field.

5A. Neural Networks: Theoretical Foundations & Analysis (1992). ed. Clifford Lau, IEEE Press, Piscataway, NJ.

5B. Artificial Neural Networks: Paradigms, Applications and Hardware Implemenations (1992). eds. E. Sanchez-Sinencio and Clifford Lau, IEEE Press, Piscataway, NJ.

5C. Fuzzy Models for Pattern Recognition: Methods That Search for Structures in Data, eds. James C. Bezdek and Sankar K Pal, IEEE Press, Piscataway, NJ.

6. NNC-sponsored Video Tutorials, produced and distributed by the IEEE Educational Activities Board.

6A. Introduction to Fuzzy Set Theory and Fuzzy Logic: Basic Concepts and Structures, Enrique Ruspini.

6B. Fuzzy Logic: Advance Concepts and Structures, Lotfi Zadeh.

6C. Information Processing with Fuzzy Logic: Piero Bonissone.

6D. Fuzzy Logic and Neural Networks for Control Systems: Hamid Berenji

6E. Fuzzy Logic and Neural Networks for Pattern Recognition: James C. Bezdek

6F. Fuzzy Logic and Neural Networks for Computer Vision: James Keller

7. Awards and Prizes

7A. NNC Neural Network Pioneer Awards

Shun-Ichi Amari
Walter Freeman
David Willshaw

7B. (The first) TNN Outstanding paper award to Narendra and Parthasarathy [92.1]

8. Significant Related Events

8A. The formal dissolution of the agreement between the IEEE NNC and the INNS to hold a joint conference called the IJCNN was discussed by Russell Eberhart in the May, 1992 issue of CoNNections [92.2]. The central issues that sparked the dissolution of the agreement between the two societies were (i) a perception that decisions about elements of the conference programs were sometimes made unilaterally; and (ii) that the distribution of surplus revenues was not always equitable. This separation of the two main professional societies concerned with neural networks would last only five years. Refer to the 1997 history for an account of the re-establishment of the IJCNN.

8B. The term "computational intelligence" was defined in a paper written and published in 1992 by Jim Bezdek [92.3]. Bezdek used the term as a means for differentiating between what are now regarded as

classical artificial intelligence (AI) paradigms, and those of a more computational nature (now condsidered, loosely, as the union of Neural Networks, Fuzzy Systems, and Evolutionary Computation). Bezdek's use of the term was not original – there was a journal published in Canada with this name, but its focus was quite different than that suggested by Bezdek. It was Bezdek's suggestion to rename the council, as seen in the following email that he sent to Roy Nutter, Russ Eberhart, Pat Simpson, Bob Marks, and Toshio Fukuda on April 9, 1992:

> Thu Apr 9 12 :33 :11 1992
> To : rsn@ece.wvu.wvnet.edu , rce@rti.rti.org , xm8@sdcc12.UCSD.EDU, marks@b
> lake.u.washington.edu, d43131a@nucc.nagoya- u.ac.jp
> From: jbezdek@trivia.coginst.uwf.edu
> Subject: NEW name of council
> Status: R
> I suggest the COMPUTATIONAL INTELLIGENCE COUNCIL, later to become the COMPUTATIONAL INTELLIGENCE SOCIETY.

This term was accepted by the ExCom, and two months later the name *IEEE World Congress on Intelligent Systems* was changed to The *IEEE World Congress on Computational Intelligence* by the NNC AdCom at their meeting in Baltimore on June 7, 1992. The first WCCI, held in Orlando in 1994, combined the two major conferences of the NNC (NNs, FS), with a new one on evolutionary computation (EC).[1]

The IEEE, however, was not yet ready to make the NNC a society, much less one named the CIS. This took several steps, and did not reach fruition until 2004. The NNC became a society, the NNS, in 2002. The NNS was renamed the CIS in 2004. The term CI, however, took on an immediate life of its own (see references in later years to some amusing articles about what CI does and does not mean to various authors), and is now well recognized throughout the world as – if nothing else – a very useful and descriptive buzzphrase.

8C. The term "FUZZ-IEEE" - a pun on the word fuzzy - was introduced by Jim Bezdek as a descriptive name for the first IEEE International conference held in San Diego.

9. Anecdotes for 1992

Disclaimer. This section contains anecdotal material. Each contribution represents the author's opinions and recollections. The IEEE or the IEEE CIS does not endorse these contributions, nor does either organization certify their factual authenticity.

---   Begin Clifford Lau Anecdote   ---

In the 1992 IJCNN, we saw a major expansion of neural network conference activities. Up until that time the attendance at the neural network meetings was around 400 to 450, attended mostly by the different factions of neural network activities. Attendance at the 1992 IJCNN was 1,500 at the huge Baltimore Convention Center. The conference brought together the various factions, and included keynotes by the major neural

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[1] The scope of the NNC was modified in 1991 to include both FSs and EC. The revised scope, adopted in 1991: "The field of interest of the [Neural Network] Council and its activities and programs shall be the theory, design, application and development of biologically and linguistically motivated computational paradigms involving neural networks, including connectionist systems, genetic algorithms, evolutionary programming, fuzzy systems, and hybrid intelligent systems in which these paradigms are contained."

network pioneers of the time, including Bernie Widrow, Stephen Grossberg, Shun-Ichi Amari, and Teuvo Kohonen. The conference was truly international, with significant participants from Europe and Asia, as well as from the U.S. At the time, research and development products based on neural network technology were beginning to appear in the market, and the 1992 IJCNN we expanded significantly the exhibitions. The 1992 IJCNN was the first neural network conference that made a surplus. Until that time, the meetings had been lean and mean and were financially subsidized by the sponsoring societies. The surplus from the 1992 IJCNN, split between the IEEE-NNC and the INNS, contributed to the financial well being of the NNC and enabled the NNC to expand its activities.

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-- *End Clifford Lau Anecdote* --

10. Glossary, Notation and Acronyms for 1992

CI	Computational Intelligence
CIS	Computational Intelligence Society (of the IEEE)
DARPA	Defense Advanced Research Projects Agency
DLP	Distinguished Lecturer Program
EC	Evolutionary Computation
EIC	Editor in Chief
FLSI	Fuzzy Logic Systems Institute
FUZZ-IEEE	International IEEE Conference on Fuzzy Systems
ICNN	International Conference on Neural Networks
IJCNN	International Joint Conference on Neural Networks
NN	Neural Network
NNC	Neural Networks Council (of the IEEE)
NNCom	Neural Network Committee (of the IEEE)
NNS	Neural Networks Society (of the IEEE)
TAB	Technical Activities Board (of the IEEE)
TFS	IEEE) Transactions on Fuzzy Systems
TNN	(IEEE) Transactions on Neural Networks

11. References for 1992.

[92.1] Narendra, K. S. and Parthasarathy, K. (1990). Identification and control of dynamical systems using neural networks," *IEEE TNN*, 1(1). Page #s?

[92.2] Bezdek, J. C. (1992). On the Relationship between Neural Networks, Pattern Recognition, and Intelligence, *Int. J. Approximate Reasoning*, 6(2), 85-107.

[92.3] Eberhart, R. C. (1992). President's Message: INNS and IEEE: an end to an era, *CoNNECTIONS*, 2(2), 3-4.