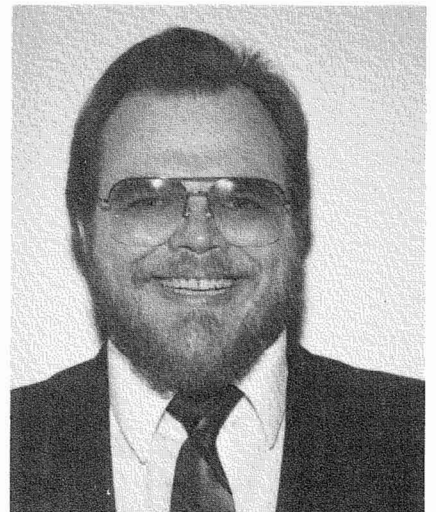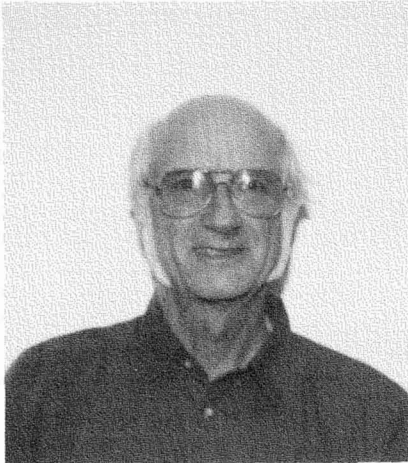*Fiber Optics*

DC Current Mode Logic

CAS Technical Committee On Neural Systems And Applications

Robert Marks

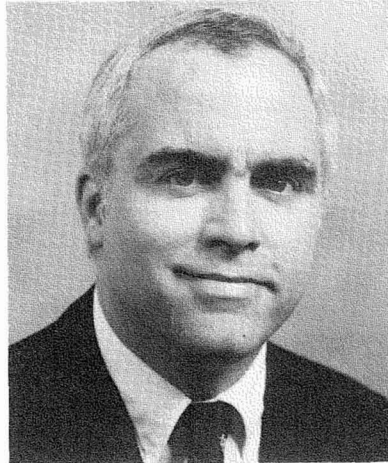Artificial neural networks (ANNs) were studied assiduously by electrical engineers in the 1960s. Recognition that certain popular algorithms of the time had severe application limitations reduced funding and corresponding active research in the area. Interest in ANNs has blossomed again in the 1980s due to new algorithmic insight and modern circuit technology. Three new ANN journals have been launched

Robert W. Newcomb

Andrew Penz

in the last year with an equal number of newly initiated well attended annual ANN conferences.

In response to the increasing interest in ANNs, The *IEEE Circuits and Systems Society* approved formation of a new Technical Committee on *Neural Systems and Applications* in August of 1987. The first Chairman of the Committee is Professor Robert J. Marks II, at the University of Washington in Seattle. Professor Robert W. Newcomb from the University of Maryland serves as Chairman-Elect and Dr. P. Andrew Penz of Texas Instruments, Dallas, is the current secretary-treasurer.

The first CAS activity in recent times occured at a single special session on ANNs at ISCAS '87 in Philadelphia sponsored by Marks and Professor Les E. Atlas, also from the University of Washington. At ISCAS '88 in Helsinki, Newcomb organized a well attended workshop on ANNs. The conference also contained three special sessions on various aspects of ANNs. In addition, the Committee plans to sponsor three special sessions at ISCAS '89 in Portland:

- *Analog Circuitry for Neural Networks* organized by Dr. D. J. Dentino at Rockwell International, Anaheim.

- *"Neural Networks Based on Digital Systems"* organized by Professor Les Atlas at the University of Washington, Seattle and Professor Dan Hammerstrom of the Oregon Graduate Research Center.

- *Optronic Architectures for Neural Networks* organized by Dr. R. Aaron Falk at Boeing Aerospace in Seattle.

Motivated by the interest of the Committee expressed at Helsinki, Falk has also agreed to organize a workshop on the same topic at ISCAS '89.

Newcomb and Nevine El-Lentry, also from the University of Maryland, are currently editing a special issue of *IEEE Trans. CAS* on neural networks which will appear in May of '89. Measured by the number of papers submitted, the response to the special issue has been enthusiastic. A three part overview of ANN implementation for *Circuits & Devices Magazine* is presently in the planning stage. The three currently planned topics are analog, digital and optical implementation.

Interest in ANNs is sprouting in a number of IEEE societies. The *Neural Systems & Applications* Technical Committee provides the interface to the newly formed *IEEE Neural Networks Committee* (NNC) whose sponsoring membership presently consists of 10 IEEE Societies. Marks and Newcomb represent the CAS society. Marks was also recently elected Secretary of the NNC. The current major activity of the NNC is sponsorship and coordination of the annual *IEEE Conference of Neural Networks* that is the first and largest of the ANN conferences. The third installment of the conference will take place in Washington D.C., June 18-23, 1989.

The next meeting of the *CAS Technical Committee on Neural Systems & Applications* will take place at ISCAS '89. As with any CAS Technical Committee, membership in CAS is the only requirement for committee membership. If you are interested in more information, write: Robert J. Marks II, ISDL, Dept. of Electrical Engineering, University of Washington, FT-10, Seattle, WA 98195.