



# FLANNIG<sup>®</sup>

FUZZY LOGIC AND NEURAL NETWORK INTEREST GROUP

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## Don't Miss the First FLANNIG<sup>®</sup> Invitational Roundtable

On Thursday, Oct. 14th, FLANNIG will host a roundtable discussion titled "Applying Fuzzy Logic", featuring a panel of fuzzy logic practitioners from companies within Washington. Dr. Bob Marks, professor of Electrical Engineering at the University of Washington, will moderate the discussion.

The discussion will start with a statement from each panel member addressing his or her experiences in applying fuzzy logic, followed by an open question and answer session. Bring your questions! The discussion will start at 7 pm at the Puget Power Auditorium in Bellevue (NE 4th St. and 106th Ave.), and will last about an hour.

If you are a fuzzy logic practitioner and have a process or a product which you would like to share (i.e. advertize for free), you are invited to serve as a panel member. If you are interested, please call Colin Wiel at 237-7705(W) or 329-6863 (H).

—Colin Wiel, Chairman

## Fuzzy Entertainment: A Brief Review of Two Books

*FUZZY LOGIC: THE DISCOVERY OF A REVOLUTIONARY COMPUTER TECHNOLOGY - AND HOW IT IS CHANGING OUR WORLD*

By Daniel McNeil and Paul Freiberger, Published by Simon and Schuster in 1993, \$22.00.

*FUZZY THINKING: THE NEW SCIENCE OF FUZZY LOGIC, A MIND-BENDING MEDITATION WITH THE FOREMOST FUZZY PHILOSOPHER-SCIENTIST*

By Bart Kosko, Published by Hyperion in 1993, \$24.95.

Fuzzy logic as a subject of entertainment without itself being the joke? Yes it's true!

Both books are entertaining and educational. Who should read these books? Everybody. For those familiar with fuzzy logic, the books offer a history of fuzzy

with Dr. Zadeh's trials and tribulations from the beginnings of defining fuzzy logic almost 30 years ago. It continues to describe its final acceptance, by the Japanese in industrial practice.

Although the authors leave no doubt of their support of fuzzy logic, they are not afraid to quote and describe the opposition of fuzzy logic. This helps the book to be an excellent walk through the history of philosophers' and logicians' thinking, especially when dealing with paradoxes, uncertain quantities and the limiting foundations of the classical logic, the Law of Contradiction and the Law of Excluded Middle.

The book reads like fiction at times, yet in addition to the history and introduction to theory, it is also a comprehensive overview of many successful applications of fuzzy logic. It demonstrates the applications especially well in control of systems both simple and complex. The authors also dare to look into the future, including the experts predictions of thinking machines and even fuzzy sex dolls!

In addition to Lotfi Zadeh, I walked away from the book with two other heroes. One of them was George Klir, a complex system and information theorist. His debate with pure probabilist Peter Cheeseman at Cambridge was an almost outright victory for fuzzy logic. He suggests to those that extol the superiority of probability to heed a verse from the *Tao Te Ching*: "Knowing ignorance is strength. Ignoring knowledge is sickness."

The other hero is the effervescent Bart Kosko, introduced in the book as the "American Samurai". The extensive coverage in this book is an excellent introduction to his own book: *Fuzzy Thinking*. How did Kosko become involved with fuzzy logic? Don't ask, just read it and let yourself be taken in by his life story.

What is Kosko? By his current profession, I'd say he's a professor of Electrical Engineering at USC, concentrating on neural networks and fuzzy logic. Actually, he's

## Our Next Speaker

Tuesday, September 14

*Tyler Folsom*

Tyler Folsom of the University of Washington will present a lecture on Reverse Engineering the Human Brain Visual System.

Tuesday, September 14, 1993

7:00 Social Time

7:30 Presentation

Puget Power Auditorium  
10608 NE 4th St., Bellevue

Computer systems for image understanding almost always rely on television technology. Images are represented by an array of pixels. This representation makes it difficult to maintain pattern recognition under changing illumination and viewing perspectives. In the mammalian visual system, an array of pixels is captured by the photodetectors, but these are transformed into local contrast differences before the retina transmits the information to the brain. The primary visual cortex makes another signal transformation which can be modeled as a two dimensional oriented wavelet transform. This talk will give an overview of signal processing in biological visual systems and discuss the advantages and disadvantages of wavelet transforms.

Mr. Folsom is a senior engineer at Quest Integrated, Inc. where he works with software for industrial inspection and machine control. He is also a doctoral candidate at the University of Washington in the Electrical Engineering Department. His research interests focus on neural networks, both artificial and biological. The goal of his current research is to use the signal processing approach of the primate brain to achieve more capable machine vision. He received a B.S. degree in mathematics from Villanova Univer-