

UNIVERSITY OF WASHINGTON

EE NEWS

Published by the Department of Electrical Engineering
and the I.E.E.E. Student Branch

Volume II, Number 4
December, 1987

FROM THE
EDITOR...



Merry Christmas everyone!
Enjoy the holidays!

- The Editor

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Faculty Profile: Professor Robert J. Marks II

by Brenna Chow

After leaving his office, I had in my bag a complimentary copy of "Addended Chortles", a cartoon booklet, and a cassette tape entitled "Theatre of the Ears: Much Ado About Shakespeare," a radioplay whose plot revolves around a physicist resurrecting "The Bard" (William Shakespeare). Side B of the cassette contained thirty minutes of original songs written and produced by the same man in his home recording studio. This gentleman also worked his way through college as a disc jockey and talk show host on a 50,000 watt FM radio station. Wait! This doesn't sound like the profile of a logical and reserved EE professor!

On the contrary, cartooning, songwriting, and audio playwriting are just some of the hobbies of Professor Robert J. Marks II, a member of the Electrical Engineering department's faculty since 1977. However, while his hobbies may seem a bit whimsical, his research is pursued with a steady earnestness.

His current research projects deal with neural networks, optical processing and detection theory. Artificial neural networks are computers whose architectures are modelled after the human brain. They consist of connected nodes or elementary processors which are assigned a state or number depending on what its neighbors are doing. Neural networks can solve problems such as the classic "Traveling Salesman Problem" in which the computer is given the task of finding the shortest path which will allow the salesman to visit each of cities within his or her territory. They are also used as associative memories. For example, humans can easily recognize the Mona Lisa by seeing only her smile. The computer's associative memory, like a human's, doesn't need the entire painting to

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recognize the Mona Lisa. The best thing about neural networks though is that, rather than being rule based, performance is based on example training data.

Together, Professors Marks and Les E. Atlas are working to train neural networks in submarine detection and speech recognition. Professor Marks is specifically interested in implementing a neural network on an optical computer. By using optical processing, which substitutes photons in place of electrons, increased speed and highly parallel architectures can be realized.

His work in optical computing has received support from the Strategic Defense Initiative via the Office of Naval Research. His work in neural networks, in a joint project with Prof. Atlas, has been funded by the Boeing High Technology Center and the Washington Technology Center. Presently, he's commanding a troop of six Ph.D. students.

On a more administrative level, Professor Marks has been involved with the MITE/MESA program which encourages minority students to excel in math and engineering. He believes that equal opportunity should be practice and enforced. He has strong doubts, however, about the effectiveness of affirmative action.

His research and administrative accomplishments have earned Professor Marks awards such as the IEEE Centennial Medal and Certificate and the IEEE Outstanding Branch Counselor/Advisor Award. He is also Chairman of the Technical Society on Neural Systems and Applications in the Circuits and Systems Society as well as the co-Founder and current President of the Puget Sound Section of the Optical

Society of America.

Though born in Sutton, West Virginia, Prof. Marks was raised in Cleveland, Ohio. About his hometown Marks commented, "People make jokes about Cleveland...and the jokes are justified!" After receiving his BS and MS in EE from Rose-Hulman Institute of Technology in Terre Haute, Indiana, Professor Marks went to work for the US Navy. He received his Ph.D. in EE from Texas Tech University in Lubbock, Texas and promptly accepted his position at the UW. The collegiality and camaraderie among the EE faculty members impressed Professor Marks and convinced him to come here. Professor Jim Ritcey, one of Professor Marks' colleagues, said that not only was Marks pleasant to work with but that he was most impressed by Marks' ingenuity—his ability to come up with novel ideas in a broad array of areas.

Though he has a busy career, Professor Marks maintains a jovial Kris Kringle face and sense of humor by balancing the time he spends at work with the time he spends with his family. As a Christian, Prof. Marks considers his faith in Christ to be the most important part of his life. He participates in a weekly Bible study with other Christian EE students and faculty.

Along with research and family, Professor Marks still finds time for his own pleasures whether it's sketching cartoons during faculty meetings or putting together a trivia book on the old radio and T.V. Gunsmoke series. Hmm...if his book is ever published, maybe we'll see Professor Marks autographing books on the Ave in between graduate student appointments!

Don't Forget!

The next EE News deadline is January 4, 1988!