

PROCEEDINGS
INTERNATIONAL CONFERENCE
ON
CYBERNETICS AND SOCIETY

September 19-21, 1977

Sponsored by:

IEEE Systems, Man and Cybernetics Society

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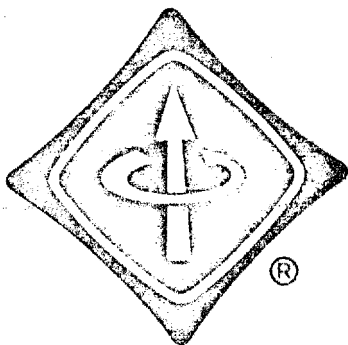
College of American Pathologists

Human Factors Society

IEEE Computer Society

IEEE Engineering in Medicine and Biology Society

Mayflower Hotel, Washington, D.C.



A NOTE FROM THE CHAIRMAN

With this conference we celebrate the 20th anniversary of the founding of this Society, even though our current name has been with us only for the past seven years. Our worldwide membership of about 5000 members represent many disciplines all brought together by the unifying thread of the "systems" approach to problem solving.

In this regard, we are indeed pleased to present John Warfield with our Outstanding Contribution Award. John spent the past several years grappling with a methodology for coping with complexity. His concepts associated with Interpretive Structural Modeling have been tested and proven as demonstrated by the session organized by Raymond Fitz on this subject.

I feel it necessary to note that we have departed slightly from the conventional in this conference and have introduced two sessions which, to some of our readers, may appear controversial.

The first is the session, *Scientific Studies of Acupuncture*. Acupuncture, as you know, originated thousands of years ago in the orient and only recently received serious attention by Western medical scientists. Did you know that acupuncture flourished in the U.S. from 1820 to 1850? According to a researcher at the National Library of Medicine, acupuncture had been introduced to the U.S. from Europe and a substantial number of articles appeared on this subject in the U.S. medical literature of the period; however, interest waned as he found only six articles for the period 1850-1900. Today, the situation has changed. Western medicine now agrees there is something to acupuncture. Its analgesic properties are recognized but not understood. Bruce Pomeranz of the University of Toronto, whose article appears here, recently received international attention on his discovery of a possible mechanism that describes why acupuncture works. Stephen Kim, trained in both Eastern and Western medicine, is a trained acupuncturist. He departs from traditional methods by making use of an electronic device for locating acupuncture points. His paper reports striking success over the traditional methods. The session is rounded out by recent research by other investigators: Lee, Clifford and Mau. Clearly, acupuncture has now become a valid research subject for bio cyberneticists.

Our second unconventional area is *Research in Psychoenergetics*, organized by Hal Puthoff of SRI. The presentation of this session is the outgrowth of the spectacular luncheon talk by Hal and Russ Targ at last year's conference for which they received our Franklyn V. Taylor Best Presentation Award. Recognizing that their professional integrity was at stake, they have gone to great lengths to assure impeccability of their work; nevertheless, a reviewer of their original paper which appeared in the *IEEE Proceedings* last year stated, "This is the sort of thing I would not believe in even if it were true." Notwithstanding such emotional reactions, psychic phenomena are a reality, and Hal Puthoff's session of first-rate carefully selected papers is worthy of your consideration.

Finally, among the unusual presentations, I commend your reading Bill Gevarter's excellent summary, "A Wiring Diagram of the Human Brain as a Model for Artificial Intelligence."

William H. von Alven
Chairman

Acupuncture: Its Effect on Cerebral Evoked Potentials in Cat, H. M. Liu, *National Tsing Hua University* 498

T8P-II PERCEPTION AND NEURAL MODELING

Andrew U. Meyer, Chairman, *New Jersey Institute of Technology*

On a State Variable Approach to Neural Modeling and Identification, A. K. Majumdar, *Indian Statistical Institute*, Calcutta, and A. H. Nevis, *University of Florida*, Gainesville 501

A Theory of Motion After-Effect, Chun Chiang, *Academia Sinica*, Taipei, Taiwan 506

On the Response Characteristics of Artificial Neural Networks, A. K. Majumder and J. Das, *Indian Statistical Institute*, Calcutta 741

T11B RESEARCH IN PSYCHOENERGETICS

Harold E. Puthoff, Chairman, *Stanford Research Institute*, Menlo Park, California

The Einstein-Paradox, O. Costa de Beauregard, *Institute Henri Poincare*, Paris, France 508

Multiple Subject and Long Distant Precognitive Remote Viewing of Geographical Locations, J. P. Bisaha and B. J. Dunne, *Mundelein College*, Chicago, Illinois 512

Response Sensitivity of Human Subjects to ELF Electromagnetic Fields: Critical Considerations for Two ELF Models of Paranormal Behaviors, M. A. Persinger, *Laurentian University*, Sudbury, Ontario 517

State of the Art in Remote Viewing Studies at SRI, E. C. May, H. Puthoff and R. Targ, *Stanford Research Institute*, Menlo Park, California 519

Some Comments on the Subjective Nature of Psychic Research, the Subject, Experimenter Relationship and the Psychic Type of Personality, I. Swann, *Stanford Research Institute*, Menlo Park, California 530

Evidence for Direct Interaction Between the Human Mind and External Quantum Processes, Helmut Schmidt, *Mind Science Foundation*, San Antonio, Texas 535

T12A HEALTH CARE SYSTEMS
Douglas R. Hansman, Chairman, *Cardio-Dynamics Laboratories, Inc.*, Los Angeles, California

Diagnosis, Treatment and Outcomes at Different Patient States, E. A. Patrick, MD and R. Uthrusamy, *Purdue University*, Lafayette, Indiana *

Health Care System Planning and Evaluation, Robert F. Powers, Dwane E. Anderson, Blair A. Rowley, James M. Cameron and Thomas A. Nicholas, MD. M. M. Ayoub, *Texas Tech University*, Lubbock 746

Health Care System Planning: A State Model Simulation, L. C. Agarwal and P. S. Satsangi, *Indian School of Technology*, New Delhi 540

Use of Semantic Networks As Representation of Patient Records, Anne-Louise Guichard Radimsky, *University of California*, Davis 545

Automatic Diagnosis via simulation of Physician's Intuition, H. J. Jeffrey, *Vandebilt University*, Nashville, Tennessee and J. D. Johannes, *University of Alabama*, Huntsville 550

W13P COMPUTER-ASSISTED MEDICAL DIAGNOSIS

Chairman—To Be Announced

Computer Applications in Nuclear Medicine, M. L. Gelfand, MD, Eugene Sanger, MD, Edward Silberstein, MD, *Department of Nuclear Medicine*, University of Cincinnati *

High-Speed Pattern Recognition of ECG Arrhythmias, Douglas Hansmann, Joseph Shepard, *Cardio-Dynamics Laboratory, Inc.*, Los Angeles 554

Up-Date on Pattern Recognition Applied to Early Diagnosis of Heart Attacks, Sam Uthrusamy and Edward A. Patrick, MD, *Purdue University* 751

Computerized Diagnosis in Ophthalmology, Karl J. Fritz, MD and Carol S. Fritz, Ph.D, *University of Chicago* *

W18A ARTIFICIAL ORGANS

Dov Jaron, Chairman, *University of Rhode Island*

In-Series Cardiac Assistance: Recent Experimental and Theoretical Observations, D. Jaron and W. J. Ohley, *University of Rhode Island*, Kingston 558

*Not available at time of publication.