

networks, knowledge encoding capabilities of rough set, the uncertainty handling capability of fuzzy sets and the robustness and parallelism of genetic algorithms.

A multi-dimensional pattern classification system using fuzzy relational calculus for rheumatological diseases is under development. Another study aims to emulate some natural phenomena in modeling efficient genetic algorithms. It also plans to develop new methods for improving the performance of genetic algorithms in handling more complex, multi-model and highly epistatic problems and detection of robust solutions.

The task of building a knowledge-based expert system for recognizing atmospheric patterns and making reliable predictions of atmospheric dynamics has been taken up. The development of methodologies for self-organizing fuzzy logic controllers with special emphasis on neuro-fuzzy techniques, genetic algorithms and stability analysis is also being considered. Moreover, a real time intelligent decision making system for achieving some goals of range safety is under development.

A multivalued recognition system, which minimizes uncertainty in decision making by providing output in four states, has been successfully implemented in identifying ill-defined man-made objects such as airports, seaports, roadmaps, beaches etc. from IRS image data. Dempster-Shafer theory of evidence has been used to integrate feature-wise rank information to design classifiers. An intelligent decision making system for obstacle avoidance by a mobile robot has been developed. The task of incorporating audio and visual capability is in progress.

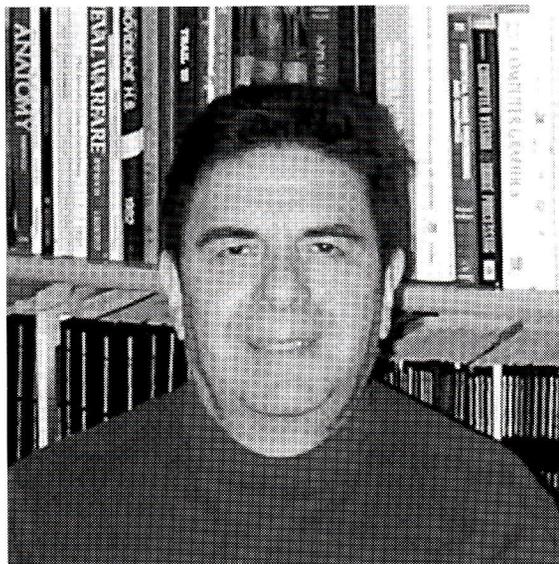
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KING-SUN FU PRIZE

THE KING-SUN FU PRIZE FOR THE YEAR 2000 WILL BE awarded to Professor Theodosios Pavlidis of the State University of New York in Stony Brook, NY, U.S.A. The Prize will be presented to Professor Pavlidis at the 15th ICPR in Barcelona, Spain.

Professor Pavlidis is a 1957 Diplomate of the National Technical University in Athens, Greece. He received M.S. and Ph.D. degrees from the University of California in Berkeley, CA in 1962 and 1964. From 1964 to 1980 he was on the faculty of Princeton University; from 1980 to 1986 he was a Member of the Technical Staff of Bell Laboratories; and since 1986 he has been on the faculty of SUNY at Stony Brook, as a Leading Professor from 1986 to 1995, and as a Distinguished Professor since 1995.

Professor Pavlidis pioneered a distinct strain of "structural" pattern recognition methodology, still influential after nearly 30 years, which emphasizes the judicious choice of data structure (often a special type of graph) to represent the problem instance, permitting the reduction of many naturally occurring problems to tractable graph- and string-matching optimization problems. These frequently cited methods have enabled mathematical approaches to image analysis that helped succeeding researchers put their work on rigorous foundations. For example, his innovations in image segmentation include the use of functional approximation, piecewise linear and piecewise-planar methods, the split-and-merge method, and line- and region-adjacency graph analysis.



His numerous contributions to interactive and automatic picture editing techniques include scan conversion of conics, font-scaling techniques, and image beautification methods used widely within Bell Laboratories.

His seminal contributions to document processing include accurate vectorization of document images, architectures for "omnifont" optical character recognition systems, and the direct extraction of features from gray scale. His many contributions to OCR at AT&T, SUNY Stony Brook, and Symbol Technologies have provided that field with technical leadership in addressing the many limitations of commercial systems.

He has also contributed fundamentally to improvements in bar coding, including a robust 2-D bar coding method (PDF417) that can carry far more information than previously used methods and which opens bar coding to a much wider realm of possible applications. PDF417 is now used in driver's licenses and vehicle registration cards in many states (including New York) and has been adopted or considered for adoption in many countries (including China).

Azriel Rosenfeld
Chairman K S Fu Prize Committee