

Optical Pattern Recognition

Joseph L. Horner, FELLOW SPIE

Rome Laboratory

EROP

Hanscom AFB, Massachusetts 01731-5000

Bahram Javidi, FELLOW SPIE

University of Connecticut

Electrical & Systems Engineering

260 Glenbrook Road

Storrs, Connecticut 06269-3157

This special section of *Optical Engineering* is dedicated to optical pattern recognition, which is one of the most important applications of optics in information technologies. Fourteen papers appear in this special section.

The first paper covers the application of optical pattern recognition to security recognition and verification. The second paper discusses filter fusion for object detection.

Several papers on nonlinear techniques in optical pattern recognition appear in this special section. Four papers discuss binary and ternary correlation filters, followed by three papers that discuss nonlinear joint transform correlators and phase encoding in the input of correlators.

The next two papers describe the application of synthetic discriminant function filters. The following paper discusses binary correlation using pyramidal processing. The remaining two papers cover document analysis and synthetic aperture radar.

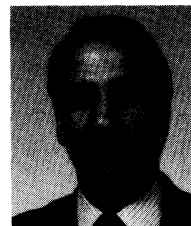
We would like to thank the authors who contributed to this special section and the reviewers for their comments and suggestions.

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Joseph L. Horner received his BS degree from Haverford College and an MS degree from Bryn Mawr College, both in physics. After working for three years in industry, he enrolled at the University of Michigan, receiving his PhD degree in 1968. He received a NRC postdoctoral fellowship to NASA/ERC, Cambridge, Massachusetts, which later became the DOT Transportation Systems Center. He left there in 1976 to become a consultant

to Dr. Edwin Land at Polaroid Corp. In 1978 he joined Rome Laboratory. He holds 25 patents, has recently published his second book on optical signal processing, received the AF Basic Research Award in 1990, was named to the Aviation Week Laurels List in 1991, and received the 1992 "Inventor of the Year Award" from the Inventors's Association of New England. In addition to signal and image processing, Dr. Horner has also done work in holography, which culminated in his invention of a series of holographic optical elements as couplers and demultiplexers for fiber optic systems. He is the co-inventor, with H. John Caulfield, of the phase-only filter. Dr. Horner is a fellow of the Optical Society of America and SPIE.



Bahram Javidi received his BS degree from George Washington University in 1980 and his MS and PhD degrees from Pennsylvania State University in 1982 and 1986, respectively, all in the field of electrical engineering. He is currently an associate professor of electrical engineering at the University of Connecticut. His research interests include optical information processing, pattern recognition, signal processing, and communication

systems. He has more than 60 refereed articles in major optical journals, more than 70 papers in conference proceedings on optics, and holds five U.S. patents. He is a consultant in government and industry. His book *Real-Time Optical Information Processing* was published in 1994 by Academic Press. He is a co-chairman of the Optical Processing and Computing Working Group of SPIE. In 1990 he was named a presidential young investigator by the National Science Foundation, and in 1993 he was named a fellow of SPIE.