Optical Signal & Image Processing

Tuesday, Wednesday, August 23-24, 1977
Proceedings Volume 118

The world of optical computing has always intrigued all researchers in data processing. The high speed and parallel processing advantages of an optical processor make it an attractive information processing system. This seminar should serve as a state-of-the-art review of recent advances in a multitude of optical image and signal processing areas and as a source of background literature on the potential accomplishments and application areas of optical computing. The emphasis in this 1977 IOCC is on processing with an attempt to show the variety of different processing schemes and application areas in which optical computing can and has made significant new advances.


Mon. Aug. 22 Registration .................................... 7:30 am/10 pm
Tues. Aug. 23 Registration .................................. 7:30 am/8 pm

SESSION 1 ............................................ Tues. Aug. 23 ............................................ 8:45 am
OPTICAL IMAGE PROCESSING. Chairman, John A. Neff, Bolling AFB.
[118-01] Air Force Research in Optical Processing, John A. Neff, Bolling AFB; David L. Flannery, Wright Patterson AFB.
[118-04] Compact Real Time Matched-Filter Optical Processor, J. R. Fienup, W. S. Colburn, ERIM.
[118-05] Enhancement of Short Range Microwave Images Produced by Backward Propagation, G. Tricoles, E. L. Rope, O. C. Yue, General Dynamics.

SESSION 2 ............................................ Tues. Aug. 23 ............................................ 1:30 pm
OPTICAL IMAGE PROCESSING. Chairman, Terry R. Steyer, Office of Research and Development.
[118-12] Noncoherent Optical Processing with Two Pupil Hybrid Systems, William T. Rhodes, Georgia Institute of Technology.

Wed. Aug. 24 Registration .................................... 8 am/10 pm

SESSION 3 ............................................ Wed. Aug. 24 ............................................ 8:45 am
OPTICAL SIGNAL PROCESSING. Chairman, Joel Trimble, Tibor Horvath, Office of Naval Research.
[118-18] Optimal Focal Plane Processing for Scattered Optical Fields, Robert Gagliardi, Victor Vlnroter, USC.

SESSION 4 ............................................ Wed. Aug. 24 ............................................ 1:30 pm
OPTICAL SIGNAL PROCESSING. Chairman, Bernard W. Vatz, Director, Ballistic Missile Defense Advanced Technology Center.
[118-20] Optical Wideband Ambiguity Function Generator, Bruce Horwitz, Francis Corbett, Itel Corporation.

Sangria Reception (Cash Bar) ............................................ 5:30 pm
Banquet and Dance ............................................ 7 pm/midnight

Applications of Digital Image Processing

Thursday, Friday, August 25-26, 1977
Proceedings Volume 119

Although man perceives visual information in analog form, the same visual information can and often does exist in a discretized form at an intermediate stage and is thus available for machine processing. This conference addresses digital procedures for these discretized images which yield a final "improved" visual (analog) representation. Here, the improvement primarily refers to a structural change in the image that has a positive effect on its eventual perception. A wide variety of applications consistent with the indicated general philosophy will be presented. Because of the joint organization with the Optical Computing Conference, papers which address the relative merit of digital vs. optical techniques will also be presented.


Wed. Aug. 24 Registration .................................... 8 am/10 pm
Thursday, Aug. 25 Registration ............................. 7:30 am/6 pm

SESSION 1 ............................................ Thurs. Aug. 25 ............................................ 8:45 am
SPACE, SURVEILLANCE, & GUIDANCE. Chairman, F. C. Billingsley, NASA Headquarters.
[119-01] Viking Image Processing, W. B. Green, Jet Propulsion Laboratory.
[119-02] Imaging Radar, S. W. McCandless, Jr., NASA Headquarters.
Applications of Digital Image Processing (cont.)

[119-03] Astronomy Applications, Paul H. Richter, California State University/Northridge.
[119-05] Robot Vision and Stereo, Donald S. Williams, Jet Propulsion Laboratory.
[119-06] An Interactive Lake Survey Program, J. D. Addington et al, JPL.

SESSION 2 ........... Thurs. Aug. 25 ........... 1:30 pm
IMAGE COMPRESSION. Chairman, Andrew G. Tescher, The Aerospace Corporation.
[119-10] Pictorial Halftone Encoding, James Stoffle, Xerox Research Center.
[119-12] Classification Consistency of Bandwidth Compressed MSS Images Using Bayes Supervised Classifier, A. Habibi et al, TRW.
[119-16] Bandwidth Compression of Synthetic Aperture Radar Imagery by Quantization of Raw Radar Data, R. G. Liptis et al, JPL.
[119-21] Variable Rate DPCM through Fixed Rate Channel, A. G. Tescher et al, Aerospace.
Fri. Aug. 26 Registration. 8 am/3 pm

SESSION 3 ............ Fri. Aug. 26 ............ 8:45 am
HARDWARE & IMPLEMENTATION. Chairman, J. R. Partons, Aerospace.

[119-22] Device Technology and Image Processing, H. M. Federhen, ARPA/TTTO.

SESSION 4 ............ Fri. Aug. 26 ............ 1:30 pm
THEORY AND TECHNIQUES. Chairman, Ali Habibi, TRW.
[119-33] Digital vs. Optical Techniques in SAR Data Processing, D. Autherman, ERIM.
[119-34] Image Restorations Constrained with a Multiply Exposed Picture, J. R. Breedlove et al, Los Alamos Scientific Laboratory.
Adjournment ............ 4:30 pm

*The SPIE 21st Annual Technical Symposium will be comprised of 16 in-depth seminars on:

Monday, Aug. 22/77
The Business Side of the Optical Industry I.
Tuesday and Wednesday, Aug. 23-24/77
Optical Polarimetry—Instrumentation and Applications • Laser Spectroscopy • Optics Applied to Solar Energy Conversion • Advances in Replicated and Plastic Optics • Solid State Imaging Devices • Data Extraction and Classification from Film • Optical Signal and Image Processing (Comprising the IIOC-77).
Thursday and Friday, Aug. 25-26/77
Applications of Digital Image Processing (Comprising the IIOC-77) • Three Dimensional Imaging • Optics in Adverse Environments • Advances in Laser Engineering • Optical Storage Materials and Methods • Modern Utilization of Infrared Technology III • Advances in Laser Technology for the Atmospheric Sciences • Clever Optics.

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