



University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR

Basic tools for analyzing hyperspectral data

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Aula E4

Abstract: We start with an overall historical description of image processing, leading to hyperspectral data analysis. We will emphasize the difficulties of using hyperspectral data, e.g., the size of the cubes, the linear and non-linear mixture of the endmembers, the presence of spectral noise and spatial clutter. To illustrate the use of such data, we will examine a task to perform: point target detection. We will demonstrate how background characterization is necessary to detect targets when the target signature is known; we will consider anomaly detection algorithms when it is not. We will devise a method to evaluate the performance of different algorithms.

Bio: Stanley R. Rotman was born in Boston, Massachusetts, in 1958. He received the B.S., M.S. and Ph.D. degrees in Electrical Engineering from the Massachusetts Institute of Technology, in 1979, 1980 and 1985, respectively. His present position is full professor at Ben-Gurion University of the Negev, Dept. of Electrical and Computer Engineering, Beer-Sheva, Israel. He is a senior member of IEEE and a fellow of SPIE. For the last decade, Prof. Stanley Rotman has been developing state-of-the art hyperspectral data analysis techniques for military and industrial applications. This includes innovative spectral target detection algorithms for tracking targets in four-dimensional space, new algorithms for sub-pixel target detection in spectral images, and new segmentation techniques for multipixel multispectral target detection in clutter.

Organizers

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