ISTANBUL TECHNICAL UNIVERSITY
FACULTY OF ELECTRICAL AND ELECTRONIC ENGINEERING
Cordially invites you to the 80th Anniversary Celebration
On
October 24, 2014 (Friday)
14:00-16:00
(İdris Yamanturk Conference Hall,1304 Maslak-İstanbul)

EIGEN SUBSPACES: FROM EIGENFACES TO EIGENPORTFOLIOS IN FINANCE

Ali N. Akansu
New Jersey Institute of Technology
Department of Electrical and Computer Engineering
Newark, NJ USA

Observation, measurement and interpretation of covariance (co-movements) of multivariate random processes have been of great interest and importance in various applications. Eigen analysis of covariance matrix, also known as principal component analysis (PCA) and Karhunen-Loeve transform (KLT), has been one of the most popular mathematical methods employed successfully in many disciplines spanning from visual signal processing to finance. We will highlight the mathematical concepts underlying this powerful analytical tool. Then, we will focus on use of the Eigen subspace method for facial emotion analysis and also the generation of Eigen portfolios for financial investments. We will conclude our talk with remarks on the merit of subspace methods spanning from block transform to wavelet transform.

Ali N. Akansu received his B.S. degree from the Technical University of Istanbul, Turkey, M.S. and PhD degrees from the Polytechnic University, Brooklyn, New York, all in Electrical Engineering. He has been with the Department of Electrical & Computer Engineering at the New Jersey Institute of Technology where he is Professor of Electrical & Computer Engineering. He was a Founding Director of the New Jersey Center for Multimedia Research and NSF Industry-University Cooperative Research Center for Digital Video. Dr. Akansu was the Vice President for Research and Development of IDT Corporation [NYSE:IDT]. He was the founding President and CEO of PixWave, Inc., and Senior VP for Technology Development of TV.TV (IDT Entertainment subsidiaries). He has sat on the boards of several companies and an investment fund. He visited David Sarnoff Research Center, IBM T.J. Watson Research Center, GEC-Marconi Electronic Systems Corp., and Courant Institute of Mathematical Sciences at the New York University. Dr. Akansu has published numerous articles and several books on his research work. His current research and professional interests include theory of signals and transforms, financial engineering & electronic trading, and high performance DSP (FPGA & GPU computing). Dr. Akansu is a Fellow of the IEEE.