

The Electrical and Computer Engineering Program presents

Image processing and pattern recognition for some problems in geosciences

Professor Maria Petrou

Chair of Signal Processing, Electrical and Electronic Engineering, Imperial College London

Sunday, 27 March 2011, 12–1 p.m.

Lecture Hall 144

light lunch will be served

The talk will present some applications of image processing and pattern recognition to various problems encountered in geosciences. It will present work on buried pipeline mapping using remote sensing data captured by satellites orbiting the Earth, for pipelines that transport oil and gas under pressure. It will also present methodology for 3D volume seismic data analysis and data mining using texture descriptors, for identifying regions of interest to oil exploration. Finally, it will present work done for predicting the danger of landslides by combining remote sensing satellite data, as well as meteorological and geological data, using expert knowledge and a GIS.



Professor Maria Petrou holds the Chair of Signal Processing at the Electrical and Electronic Engineering Department of Imperial College London, and she is the Director of the Informatics and Telematics Institute of the Centre of Research and Technology Hellas (<http://www.iti.gr>). She obtained her BSc in Physics from the Aristotle University of Thessaloniki, Greece, and her Diploma in Applied Mathematics (Part III), her PhD in Astronomy and her DSc in Engineering all from the University of Cambridge, UK.

She holds several patents on pipeline inspection and on telemedicine. She is the author or co-author of more than 350 scientific papers, in a variety of fields, ranging from Astronomy to Psychiatry and industrial inspection. She has published two books on Image processing, "Image processing, the fundamentals" (first edition 1999, 2nd edition 2010) and "Image Processing, dealing with Texture" (2006), both published by John Wiley. She has also co-edited the book "Next Generation Artificial Vision Systems, Reverse Engineering the Human Visual System".

In collaboration with Aquamed Research & Education (www.aquamed-edu.net), a small start-up research centre in Doha, Prof. Petrou is a co-principal investigator on a recently awarded NPRP grant for the study of dense crowd and pedestrian dynamics at the Muslim Hajj pilgrimage using novel image processing and tracking algorithms; as well as high-performance agent-based micro-simulations.

FOR MORE INFORMATION:

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