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Automatic
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The Department of Automatic Control & Systems Engineering
is pleased to announce the following seminar:

Multi-Modal Image Processing with Applications to Art Investigation and Beyond

Dr Miguel Rodrigues

*Department of Electronic and Electrical Engineering
University College London
UK*

Wednesday, 3 May 2017 at 14:00
LT02, Sir Henry Stephenson Building

Abstract

Emerging problems across various domains – ranging from medical & biomedical sciences, engineering sciences, environmental studies and the arts & humanities – involve the analysis of multiple image modalities obtained by capturing a physical process or object using diverse sensing modalities.

This talk introduces a new approach to multi-modal image representation, analysis and processing that leverages the fact that high-dimensional multi-modal images often exhibit low-dimensional structure and correlations. In particular, inspired by the role that sparse representations have played in image processing in the previous years, the foundations of the algorithms are novel image models based on coupled dictionary representations, which, by capturing both structure and relations between diverse image types, offer the means to develop new multi-modal image processing tools with significantly better performance than the state-of-the-art.

The efficacy of the tools is illustrated in a number of applications, covering the art-investigation domain and beyond.

Biography

Miguel Rodrigues is currently a Reader in information theory and processing with the Department of Electronic and Electrical Engineering, University College London, U.K. He was with the University of Porto, Portugal, rising through the ranks from Assistant to Associate Professor, where he was also the Head of the Information Theory and Communications Research Group, Instituto de Telecomunicações Porto.

He received the Licenciatura degree in electrical and computer engineering from the University of Porto, Portugal, and the Ph.D. degree in electronic and electrical engineering from the University College London, U.K. He has also held post-doctoral positions and visiting appointments with various institutions worldwide including University College London, Cambridge University, Princeton University, and Duke University from 2003 to 2016.

His research interests are in the general areas of information theory and processing with a current focus on sensing, analysis and processing of high dimensional data. His work, which has led to nearly 200 papers in the leading international journals and conferences in the field, has also been honoured with the Prestigious IEEE Communications and Information Theory Societies Joint Paper Award 2011.

Dr. Rodrigues was a recipient of fellowships from the Portuguese Foundation for Science and Technology and the Foundation Calouste Gulbenkian. He has served as a Co-Chair of the Technical Program Committee of the IEEE Information Theory Workshop 2016 and also as a Co-Organizer of the Workshop on Sensing and Analysis of High-Dimensional Data 2014 and 2015. He currently serves as an Associate Editor of the IEEE Communications Letters.

*Light refreshments will be served following the seminar in the foyer of
the Sir Henry Stephenson Building*