New Approaches to Denoising Magnetic Resonance Images with Nonlocal Means Filters

Friday 13, 9:00-10:00

Sala de Teleenseñanza (Pabellón A, EITE)

This talk focuses on denoising magnetic resonance (MR) images. In fact, Magnetic Resonance Imaging (MRI) is a medical imaging technique commonly used in radiology to visualize internal structures of the human body for clinical diagnostics, threat planning or monitoring the evolution of a disease after medical treatment. However, MRI data is corrupted with noise caused by several factors (movements of patients, limitations due to reconstruction algorithms, etc.). To ease the interpretation of the MRI data, the signal-to-noise ratio (SNR) should be the highest possible (ideally infinite) and showing the least artefacts. Hence, MRI denoising is required. The state-of of the art of some most relevant works in MRI denoising area will be addressed and also future perspectives by means of Nonlocal filters using the Kolmogorov-Smirnov (KS) distance and efficient techniques to better estimate patches similarity.

The talk is of interest for researches in Image Processing, Signal Processing and Biomedical applications, among other areas of interest.

Bilel Kanoun was born in Sfax, Tunisia, on December, the 8th 1992. He received his telecommunications Engineering degree from Ecole Superieure de Communications de Tunis (Sup'Com), Tunis, Tunisia in 2016. He was a visiting student with Department Lab STIC, in Ecole Nationale Superieure de Sciences Techniques Avancees (ENSTA) Bretagne, Brest, France, for his engineering graduation project in March 2016. He is currently a Ph.D student on Information and Communication Technologies in the Universita degli Studi di Napoli Parthenope, Naples, Italy. From August to November 2019, he is at present, a visiting Ph.D student at the Department of Electronic Engineering and Automatic (DIEA), in the Universidad de Las Palmas de Gran Canaria (ULPGC), Las Palmas, Spain, supervised by Prof. Luis Gomez Deniz where he worked on Synthetic Aperture Radar (SAR) despeckling and Medical Resonance Imaging (MRI) denoising projects. His main research interests include image processing, radar systems, SAR imagery, and MRI denoising. Bilel Kanoun has published papers in Remote Sensing and in many International conferences (EUSAR, IGARSS).

Language: English

Organized by: CTIM (Centro de Tecnologías de la Imagen), www.ctim.es