

SEMINAR ANNOUNCEMENT

November 21st, 2022 - 15:30 - Room 140/d5

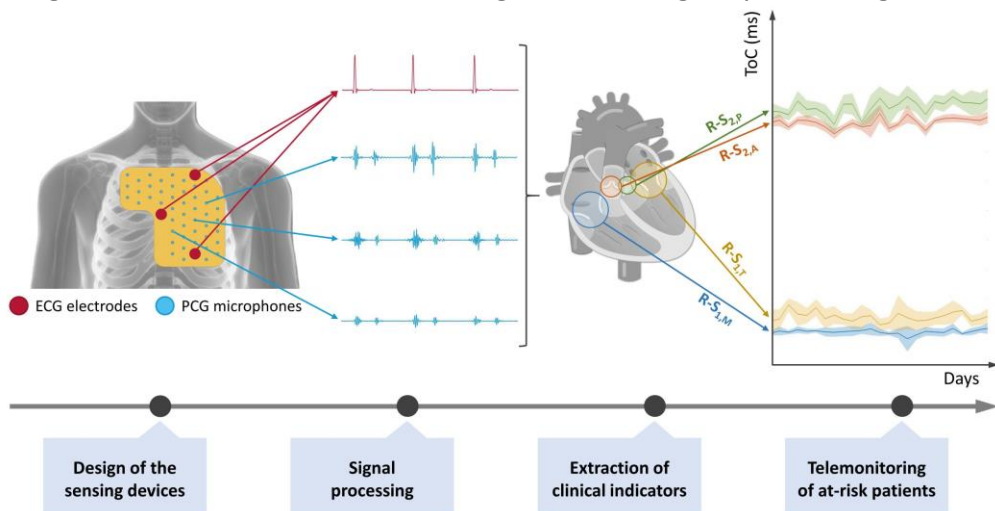
Course of Biomedical Signal and Image Processing

«DESIGN OF A WEARABLE MULTI-SENSOR ARRAY FOR THE HOME PREVENTION OF HEART FAILURE»

by Prof. Marco Knafnitz & Noemi Giordano

CONTENT: Auscultation is a traditional routine screening tool in the clinical practice for cardiovascular diseases. Phonocardiography (PCG) is its digital counterpart and is growing in importance because it provides information about the mechanical behavior of the heart that is complementary to electrocardiography (ECG). In particular, the estimation of the time of closure of the cardiac valves from simultaneous ECG and PCG recordings could provide us in the near future with a noninvasive tool for monitoring the status of patients with chronic heart failure, which is challenging to obtain otherwise.

The talk will explore how the design of a wearable multi-sensor array, based on combined ECG and PCG, can help in the prevention of acute episodes of heart failure. The main technical challenges will be investigated, along with the potentiality of multi-source phonocardiography as a solution. An insight into both the hardware design and the signal processing will be provided.



Marco Knafnitz is a Full Professor at Politecnico di Torino. He has been active since 1985 in the fields of design of biomedical instrumentation and biomedical signal analysis. Specifically, his research interests are mainly focused on the detection and analysis of the myoelectric signal for research and clinical applications.



Noemi Giordano (Speaker) is a PhD student at the Department of Electronics and Telecommunications of Politecnico di Torino, Italy. Her research is mainly focused on the design of devices with application in cardiology, cardiological signal interpretation and telemedicine.