Decoding the human body through biosignals

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Abstract. Digital signal processing aims at extracting information from digital signals by means of general or special purpose algorithms. Beyond cleaning the signal of interest from the interfering noise, biomedical digital signal processing can be also exploited to derive other signals from a given one, to detect patterns, to delineate waveforms, to enable the interpretation of a given phenomenon by human or artificial intelligence. In this talk, I will present a part of my journey in biomedical signal processing by reporting different case studies and the deployed techniques to deal with them. The trait d'union will be the tentative of decoding the human body, to provide biofeedback, control prostheses, or improve diagnosis and therapy. I will touch fetal electrocardiography, invasive cardiac electrophysiology for ventricular tachycardia ablation procedures, hand neuroprostheses, and digital biomarkers.