Electromedical technologies

Programme Coordinator: Prof. Justin Dauwels

Summary

Electrical engineers have large impact in a diverse range of domains. One of these domains is healthcare. Did you know that the fully implantable pacemaker was invented by an electrical engineer named Earl Bakken? Later he founded Medtronic, currently world's fourth largest medical device company. Nowadays, medical devices such as neural implants, MRI and CT scanners, defibrillators, and prostheses, contain highly sophisticated electronic circuits and execute powerful signal processing and control algorithms. Electrical engineering has played a key role in medicine and healthcare, and is expected to become even more instrumental as medical devices become increasingly complex. The electrical engineers of the future will be in an ideal position to make exciting advances in healthcare treatment, including diagnosis, monitoring, and therapy.

The projects under the theme of “Electromedical technologies” are quite diverse, but are all centered around electrical engineering technologies applied to medicine and biology. Some projects are software oriented, whereas others have a focus on hardware development. Potential topics include (but are not limited to) design of biomedical circuits and systems, smart biomedical signal processing algorithms, neuromorphic circuits, analysis of MRI, CT, PET images, brain-computer interfaces, design of microfluidic devices, lab-on-a-chip, wearable medical systems, smart space for healthcare services, functional imaging, and point-of-care clinical screening and medical diagnostics. In other words, you can easily find a role to play to suit your interest in the projects!