

HEALTH AND ENVIRONMENT TECHNOLOGIES, MEDICAL DEVICES

According to the World Health Organization, medical device (MD) means any instrument, apparatus, machine, implant, reagent for in vitro use, software, material or other similar article, intended to be used for human beings including (i) diagnosis, prevention, monitoring, treatment or alleviation of disease or handicap and (ii) study, replacement or modification of an anatomic structure /function or of a physiological process or state.

The research in MD is also driven by the worldwide context of health that considers not only medical aspects but also societal ones including demographic explosion, environment, food and water quality and population ageing. Thereby, medical devices appear as crucial technological bricks to ensure the quality of life of any human on the planet in the next future. The domain of MD is fueled by a broad range of technological innovations from chemistry and ma-

terials to biology, from microfluidics to electronics, optics and photonics and from measurements to data processing and Artificial Intelligence. Moreover, these technological approaches have to be declined here in strong coherence with the doctors and patients needs, medical staff usages and reglementary processes.

The aforementioned diversity of knowledges needed to cover the overall MD fields of research places CEA Tech as major actor for the development and the deployment of these technologies owing to the multiplicity of competences available, its culture in transversal research approaches and its capacity to manage researches from technological concept to clinical demonstrators. Furthermore, some of the developed technologies can be applied in the more general context of health for environment monitoring or food and water quality.

WHY A PHD RELATED TO HEALTH & ENVIRONMENT TECHNOLOGIES, MEDICAL DEVICES AT CEA TECH?

CEA Tech offers unique position in the French and European MedTech research owing to its interdisciplinary skills and ability to work in transversal programs.

PhD students will find at CEA Tech medical device technology, chemistry, biology and clinical platforms dedicated to the development of medical devices up to their application in preclinical and/or clinical testing (Clinatec). Moreover, away from these specific tools dedicated to the design of MDs, CEA Tech offers one of the most important technological platform for silicon micro

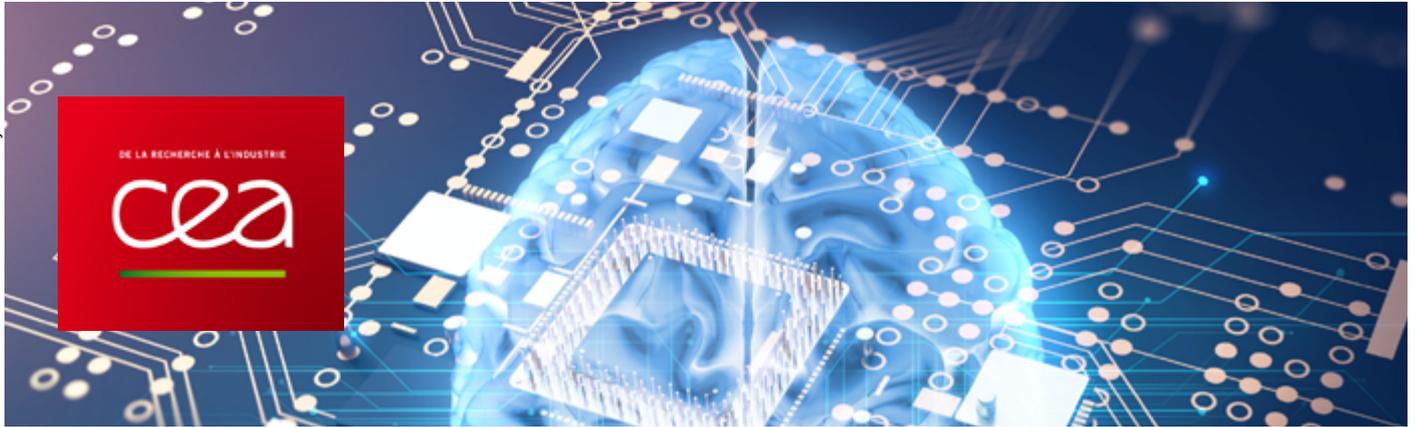
and nanosystem design in Europe. Thereby, CEA Tech has the ability to implement, owing to these tools, new emerging technologies at the heart of advanced medical devices. Away from these technology skills, PhD students will find at CEA-Tech research teams also involved in strong relationships with recognized French and European medical and biology teams. This positioning is of the first importance to place CEA Tech developments in the usage and needs issued from the medical community.



CEA-Leti Institute in Grenoble Alpes



35 ongoing PhD projects



CEATECH SCIENTIFIC AND TECHNOLOGICAL CHALLENGES

CEA Tech tackles the three key and ongoing transitions of the 21st century: numeric, energy and medical ones. For each, CEA Tech research teams innovates within a vibrant network of academic and industrial partnerships, to develop the technologies of the future.

CEA Tech, one of the four CEA research divisions, relies on three large research Institutes, two in Grenoble, Leti and Liten and one in Saclay, List, and a network of technology transfer facilities in Bordeaux,

Nantes, Toulouse, Metz, Cadarache and Lille. Close to 500 young researchers, prepare their PhD in CEA Tech Labs, with a major contribution to the research teams. They share the successes of the CEA, embodied in leading publications, patents, technology transfers to industry, business and start up creation. For years, Reuters ranks CEA as one of the top three most innovative research organizations in the world (1st, 2nd or 3rd).

WHY A PHD AT CEA TECH?

Regardless of the field of research you are looking for, willing to explore prospective ideas or to further advanced technologie, you will likely find among CEA Tech doctoral positions the one that meets your expectations.

Then you can join either Leti (1800 p.) and focus on micro and nanotechnologies, embedded electronics, communications, components for the Internet of Things (IOT), cybersecurity, medical devices and healthcare outpatients (at Clinattec) - or Liten (950 p.) to face the challenges of non-CO2 emitting energies (solar, batteries, hy-

drogen, biomass or smart grids) - or List (750 p.) to innovate in terms of data intelligence, cybersecurity and IOT software, manufacturing (4.0 industries), radiotherapy, health data processing - or a research team located in one of the technology transfer facilities (Bordeaux, Nantes, Toulouse, Metz, Cadarache and Lille).

Whatever the topic you select, whatever the career path you envision, joining CEA Tech for your PhD has a deep meaning. On the one hand, you will be dealing with one major societal challenge, deeply rooted in science

and technology. On the other hand, your PhD will be at the heart of highly innovative ecosystems, each offering unique opportunities in research and career paths.

Indeed, CEA Tech offers a highly efficient mix of digital and hardware skills, world-class facilities such as state-of-the-art 300 mm clean rooms, and integration facilities for hydrogen and battery technologies, and many others. CEA Tech's teams form active partnerships with other research organizations and universities, as well as active cooperation with more than 500 industrial partners in France, Europe, North America and Asia.

We will do our best to accompany your success.



CEA-List Institute in Paris Saclay or CEA-Leti Institute in Grenoble Alpes or CEA-Liten Institute in Grenoble Alpes



500 ongoing PhD projects