The Factory of the Future represents the next industrial revolution. It will be as disruptive as the introduction of the steam engine in the 18th century which allowed mechanized production, the advent of mass production at the end of the 18th century thanks to electric power, and the development of automated production in the middle of the 20th century by means of machine control and first industrial robots. Now, at the turn of the 21st century, a new paradigm shift is underway.

By combining distributed sensors and IoT, Big Data, cloud computing, robotics and control technologies, this fourth industrial revolution will deeply change the way we produce goods. Factories in the future will be connected and sophisticated. They will be more energetically and environmentally efficient, more agile and human centered, more productive and more competitive.

CEA Tech ambitions to be at the forefront of this revolution. Therefore, it develops world class research and developments at the heart of this transformation, focusing especially on flexible digital factory technologies (IoT, data mining, cybersecurity, digital twin, predictive maintenance, …), advanced control solutions (non destructive testing, on-the fly control) and physical and cognitive assistance to the factory operators (collaborative robotics, exoskeletons, virtual and augmented reality, …).

This research aims at giving France and Europe competitive advantages allowing them to maintain their rank and influence, for the benefits of the European citizens and the society at large.

CEA Tech has been working for years on these subjects and has for example gained a recognized position on human robot cooperation. Today, these activities take advantage from the recent progresses of Artificial Intelligence technologies.

This world class research benefits from a rich environment. PhD candidates can for example access state of the art robotics and exoskeleton prototypes within SMART Platform in Saclay. They will find rich software environments for real time physically realistic simulation of the factory (digital twin) and for user assistance through augmented reality. Front end non destructive control hardware and software solutions are also available at the Saclay GERIM platform.

PhD candidates will also benefit from the project-based culture of CEA Tech’s scientists, engineers and technicians who develop complete solutions, from the initial concept down to working demonstrators. Indeed, they will have a privileged access to end-user and technological providers from spin-offs to large groups like Haption, RB3D, Isybot, Diota, M2M…

CEA Tech orients in particular its research and developments in innovative robotics, cobotics and exoskeletons hardware and software solutions, state of the art solutions for virtual, augmented and mixed realities, front edge developments in multimodal interfaces and tangible devices, and cutting edge sensors and algorithms for non-destructive control.

**WHY A PHD RELATED TO FACTORY OF THE FUTURE INCLUDING ROBOTICS AND NON DESTRUCTIVE TESTING AT CEA TECH?**

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

25 ongoing PhD projects