

**Scuola Superiore di Studi Avanzati Sapienza (SSAS)
Presentation of the interdisciplinary course 2018-19**

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Homo Faber: Past, Present and Future

Thanks to the outcomes of scientific research, automation has allowed fundamental steps forward in productive activities, with machines and energy sources gradually replacing humans in repetitive, tiring, and dangerous activities.

Due to the rapid technological advances experienced at a global level and the massive transfer of research results into useful products, we are now facing a new revolution in work organization. Within traditional manufacturing sectors, a fourth industrial revolution is being driven by the digital transformation of labour, with the interconnection of intelligent machines, internet and IT tools which enabling the combination of production and information, physical systems and virtual reality, and fostering collaboration between humans and robots.

The consequences of such an evolution extend far beyond the factory floor. Intelligent devices and algorithms are already part of our daily life: though they are now used simply as aiding tools, it will soon become impossible for us to do without them to carry out daily tasks, whether basic or highly-qualified. One example related to our aging societies in developed countries are robots designed to assist the elderly in domestic activities, which may become a necessary commodity.

What kinds of social impact will this new automation wave have? What advantages and possible critical consequences will follow from the further advances of artificial intelligence and robotic technologies? Will employment be endangered or will new jobs be created? Will traditional labour activities disappear or will they change in nature? How will people use their increasing free time? In order to answer to such important questions about our future, we need to analyze in depth the role of labour in human life, as well as take historical and philosophical perspectives into account.

The physical and functional replacement of humans by intelligent automata (or of their body parts by bionic components) also raises the question of the boundaries between the natural and the artificial, between what is real and what an artifact is, as well as of which image of ourselves we wish to project onto the humanoids that will populate our homes. The desired autonomy of such machines requires appropriate methods for the transferral of human knowledge in digital format, understanding learning mechanisms, and exploiting the capacity to manage sensory information, memory and actions. All of these developing skills should be considered together with ethical issues: it will be critical to reflect on the assumption of responsibility in the autonomous decision-making processes of robotic and automatic reasoning systems, including the question of their certification according to the law.

Scientific communities and the media at large have shown great interest in all of these issues. The aim of this interdisciplinary course is to present a number of useful insights and further reflection on the future impact of automation in our lives and on the relation between humankind, machines and work.

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