

## **Monday February 25th – Main ideas**

1. Physicist Prof. Roberto Cingolani encouraged that we do not fear that which we do not know when it comes to robotic technologies, but instead foster continual learning on these technologies, and impose a reasonable framework of rules within which to operate them.
2. This afternoon, Prof. Hiroshi Ishiguro educated the Assembly on the groundbreaking potentials of human-robot interactions, including the use of the Geminoid (a teleoperated android of an existing person) in medicine, sociology, and space exploration.
3. Co-operation or competition? Prof. Aude Billard reminded the PAV that human decisions will always be the ones to determine the impact of 21st century robotics on the workforce. An important public policy issue will be identifying the right trade-off between benefits and harms brought by robots to the workforce.

**Student Impression: Georgi, an intern for the Pontifical Academy for Life**, appreciated Father Vincenzo Paglia's remark that humans are called to be masters of technology at the service of life and not vice versa. For this reason, it is important to talk about the future of roboethics now and confront the challenges posed by co-existing with robots and artificial intelligence.

**(ANSA) - ROMA, 25 FEB - To create robots similar to humans, starting with the somatic traits, to support humans and to replace them in complex and dangerous activities, even up to "arriving at a symbiotic man-machine society, as is already happening in Japan". This is the future vision of the creator of the humanoid robot Geminoid, Hiroshi Ishiguro, of the University of Osaka.**

**The visionary scholar talked about the future of robotics in Rome at the Sapienza University**, participating in the round table "We, Robots", organized by the Roman university together with the Pontifical Academy for Life for its 25th General Assembly on the topic of "Roboethics: Humans, Machines, and Health".

Students spoke with Ishiguro on the state-of-the-art robotic research and the relationship between man and machine. The expert describes his twin Geminoid robot as "a new species, of which we must not be afraid". For Ishiguro, "man is in fact both animal and technology", and this can be "one of the engines of human evolution", he clarified.

According to the scholar, acceptable robots must resemble humans as much as possible. For this reason, Ishiguro and his group have used materials such as silicone and real hair in their automated androids.

The name Geminoid itself derives from the Latin "geminus", which means twin: Ishiguro's robotic double is, in fact, equipped with facial muscles remotely controlled by computer, which enables the reproduction of the scientist's facial expressions, making it difficult to distinguish between the two.

For Ishiguro, "androids are useful for studying human-robot interactions; they are not only automatically able to carry out our work, but they reflect our real alter egos, able to get in touch with us and help us to better understand our very nature", he specified.

To the students' questions about the future of these technologies and how to direct their development, Ishiguro replied that "there is no reason to see machines as a threat". He concluded, "artificial intelligence is a young science, and it will still take decades before research in this field can lead to machines with our own abilities, for example to reproduce our moods".