

NIMA Kick-off Meeting Press Release

6 October 2020

New Research on Non-invasive Interfaces for Movement Augmentation

The European Project *NIMA* on Non-invasive Interface for Movement Augmentation was launched on October 1-2, 2020

On October 1st and 2nd, the kick-off meeting of the EU-funded project *NIMA* – “Non-invasive Interface for Movement Augmentation” took place online. The H2020 project is an action to create Future and Emerging Technologies (FET) that go beyond what is known, and where visionary thinking can open up promising avenues towards powerful new technologies.

The overall aim is to design, build and test interfaces that allow persons to control artificial limbs in coordination with their natural limbs. Such systems would have multiple applications in many different areas, for instance laproscopic surgeons could become able to perform surgical procedures with three hands allowing them to carry out tasks that require a skilled synchronisation of the manipulation of three surgical instruments that currently cannot be realised with minimally invasive access.

An interdisciplinary team of leading experts in neuroscience, neurotechnology, human-machine interfaces, robotics, and ethics, collaborates to accomplish the following objectives: 1) Pushing the borders of technology by creating non-invasive interfaces with multimodal sensory feedback that will allow effortless control of multiple limbs or objects, as well as a wearable supernumerary robotic limb. 2) Understanding the cognitive and neural mechanisms underlying movement augmentation, how it can be functionally embodied and how this can be facilitated by multimodal feedback, by combining neuromodulation, computational modelling and behavioural experiments. 3) Applying movement augmentation to extend human capacities and preparing the ground for exploitation, using three relevant testbeds: i) manipulation with a wearable supernumerary robotic arm and the two hands, ii) assistance in surgical manipulation to extend surgeon capabilities and autonomy, iii) 3-hands computer interface. 4) Evaluating the ethical and safety aspects of movement augmentation.

NIMA has a duration of 36 months. The EU funding is € 3'076'488.75. The project consortium consists of the following five partners from different European countries:

Albert-Ludwigs-Universität Freiburg (Germany), Imperial College of Science, Technology and Medicine (United Kingdom), Università Campus Bio-Medico di Roma (Italy), Sorbonne Université (France), Fundación Tecnalia Research & Innovation (Spain).

For further information see the project's website nima-project.eu.

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Trimanual assembling using a supernumerary robotic arm as will be developed by ISIR Sorbonne within the NIMA project.