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Delving into self-consciousness at EPFL

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5-7 minutes

What if the key to conveying complex scientific concepts like self-consciousness was to bring art and science together? From 25 February to 1 March, EPFL ArtLab will play host to the Immersive Lab, which offers visitors an interactive, multisensory experience.

Are those your hands you see on that panoramic screen? Maybe, maybe not. The Immersive Lab provides a unique interactive experience that combines images and sounds and brings visitors face to face with their self-consciousness.

The Immersive Lab, which was developed by Daniel Bisig and Jan Schacher, two researchers at the Institute for Computer Music and Sound Technology (ICST) at the Zurich University of the Arts, explores the potential offered by interactive and immersive media. The Lab was initially a platform for artistic creation and experimentation. Then in 2019, the artists expanded the lab's scope by joining forces with researchers at EPFL and the University of Geneva as part of a Swiss National Science Foundation (SNSF) Agora project aimed at fostering dialogue between researchers and the broader society.

Conveying a subjective feeling

Researchers from EPFL's Laboratory of Cognitive Neuroscience run by Olaf Blanke have created an installation called *Multiple Bodies, Super Egos and Virtual Identities*. This work is like a magic mirror, enabling visitors to experience the unusual sensations provoked by bodily illusions. "When we're looking in the mirror, our reflection moves with us. That's how our brain maps out our self-representation," says Blanke, who holds the Bertarelli Foundation Chair in Cognitive Neuroscience. But time and size are distorted in this multi-user installation, which only complicates our perception of ourselves. "When I move one way, what appears to be my reflection moves another and with a time lag. It's really unsettling," adds Blanke.

This work draws on the research being conducted within Blanke's lab, where researchers are developing neuro-scientific models of self-consciousness to gain insight into the brain mechanisms underlying bodily representation and perception. "We can't convey all the aspects of our research in a text or image. You have to actually experience it to fully grasp what it's about," says Bruno Herbelin, one of the researchers in the lab. "The aim is to give visitors a strange perception of themselves for just a few seconds."

A constructive dialogue

The Immersive Lab takes a cross-disciplinary approach that not only draws on several scientific fields but incorporates art as well. This helps the general public understand these complex concepts in a more tangible way.

For Bisig, this provides greater insight into the cognitive processes involved in understanding artwork and how those processes can be exploited to get someone to behave in a certain way. “This type of know-how is not standard fare in the art world, where the focus is more on personal experience,” says Bisig. He thinks researchers get something out of the Lab as well: “Our work is not based on any strict rules, so there's more space for unconventional ideas that can go beyond the science and provide researchers with new ways of thinking.”

So it’s mutually beneficial. And it’s not the first time that Olaf Blanke and his colleagues have welcomed artists into their lab. The artwork reflects not just the medical applications of their research but the ethical and societal implications as well, which can help to open up the dialogue with the public.

“What makes it really interesting is that the installation is a real combination of art and science,” says Bisig enthusiastically. “Neither side had to give up their ideas!”

Experimenting with the possible

The Laboratory of Cognitive Neuroscience has been a pioneer in using digital media, such as virtual reality, to develop new diagnostic tools and therapies for patients with cognitive, psychiatric or physical disorders. “Our observations usually involve people who are well aware that they’re taking part in a scientific experiment,” says Herbelin. “In a freer context like the Immersive Lab, we might be able to observe more spontaneous behavior that better reflects the real world.” An art installation could therefore play the same role as an open laboratory and make it possible to study a more heterogeneous group of people.

New technologies, like immersive shows, offer an opportunity to further explore scientific communication. For Anne-Gaëlle Lardeau, who runs ArtLab, “The idea behind a lot of museum installations is no longer to deliver a specific message but rather to create emotion, encouraging visitors to want to learn more.”

The exhibition, which is free of charge, will run from 25 February to 1 March 2020. It can be viewed freely or through a guided tour.

The works on display are: *Connect* (by Simon Schaerlaeken and Donald Glowinski), *Multiple Bodies, Super Egos & Virtual Selves* (by Simon Schaerlaeken, Bruno Herbelin, Oliver Kannape, Jan Schacher and Daniel Bisig), *Coexistence* (by Nadine Cocina and Romana Sprenger), *Seen* (by Célia Bétourné and Louis Cortes), and *Les Mains Négatives* (by Anne Dubos and Jan Schacher).

On 27 February, members of the project team and experts in media arts, cognitive science and museum studies will take part in a panel discussion on the advantages and challenges of using digital technology for artistic, research and outreach purposes. More information is available here.