hands on vision
Seeing in 3D, immersing oneself in another world—great, but to what end? How does one go beyond the "wow" effect to enhance content? To this day, virtual reality research has mainly focused on the technical performance of headsets, especially for professional use or gaming.

The explorations led by the EPFL+ECAL Lab show a much wider potential. The findings are surprising and go against preconceptions. Functional prototypes and real-world explorations of use reveal several key factors of use and offer new insights into the way users perceive and interact with virtual reality.

Several installations are now in full use, confirming their durability and offering detailed knowledge about the ability to convey information and emotion. This work provides a solid foundation for creating the future of virtual reality. These new applications highlight the essential contribution of design to innovation, both for the creation of content and that of the helmet as an object.

Nicolas Henchoz
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Virtual Reality: a Physical Object
Augmented reality, virtual reality, machine learning and big data – scientists are widening the scope of technological fields. The designers’ job is to give technology meaning so as to respond to societal challenges, with the dual mission of creating concrete projects and knowledge about their impact. The task is to go beyond transient performance to generate innovation that has a lasting influence on our economic, social and cultural future.

The EPFL-ECAL Lab, the design research centre of the Ecole polytechnique fédérale de Lausanne, created in collaboration with the ECAL/University of Art and Design Lausanne, responds to this challenge: digital technology goes across generations, heritage comes back to life, artificial intelligence inspires new confidence. The EPFL-ECAL Lab’s work has given rise to over 30 exhibitions, from the American Institute of Architecture to the Musée des Arts décoratifs in Paris, to prestigious publications such as SIGGRAPH and Leonardo/MIT Press, as well as patents with industrial partners.

This new vision of design research is complemented with an innovative educational programme in Design Research for Digital Innovation, which allows candidates to embody this new role of design in contemporary innovation.
To cut a long story short, virtual reality boils down to a headset that you put on your head – i.e., mainly a techy object. Can one go beyond this identity which limits its adoption to a restricted audience?

The Chronogram project, in collaboration with the Vacheron Constantin Manufacture, aimed to take advantage of this technology to revive one of the greatest heritages in the history of watchmaking. The luxury context was an ideal case study to question the perception of the headset and define how to reach a wide audience. The observations identified three barriers to adoption: identity, freedom, and protection.

Driven by Nicolas Le Moigne, three headset prototypes address these challenges. They integrate the virtual universe created by Marius Aeberli. Real-life assessments in Europe and the United States show, in particular, that the headset design directly influences content credibility.
Identity

Bertille Laguet explores the visual and tactile identity of the headset. The world of luxury serves to question the codes of technological consumer objects. The design confronts the virtual device with leather and craftsmanship. It addresses the user’s gestures to add elegance to the experience.

Protection

In public exhibitions, museums and events, users often feel observed and vulnerable. Dimitri Bähler drew inspiration from the fencing mask to imagine a reassuring device. The texture is reminiscent of the protective mesh. The mirror visor holds the public at arm’s length, as it does not know whether or not the wearer is aware of its presence.
Liberty

Inspired by the panoramic binoculars for tourist sites, the headset designed by the collective Marlo & Isaure, with Nicolas Le Moigne, does not require any fastening. It transposes the principle of traditional instruments in the world of luxury by playing on the relationship between the virtual and real worlds.
Research has resulted in a new design of the virtual reality headset, based on the principles of freedom and identity to extend its use to social and public purposes.

Designed by Béatrice Durandard, the strapless headset is handheld with sound-integrating devices. The materiality relies on leather to strengthen tactile perception. The controls, integrated in the handles, reproduce the codes of traditional devices. This work in industrial design, associated with experimentation in interaction design, has already led to several operational achievements. Their impact assessed with users in real-life contexts reveals an unprecedented potential for virtual reality.
Roger Tallon: Archives in Motion

Opening the way behind the scenes at the Musée des Arts décoratifs in Paris, this project unveils the collection of sketches, images and texts deposited by French designer Roger Tallon. In the virtual world created by Elise Migraine, visitors immerse themselves in the heart of the archive. Individual movements highlight its diversity and richness, while interaction unveils iconic or unexpected projects.

The installation is currently operational at the Paris Museum. Observations show that it reinforces the understanding of Roger Tallon’s work. The device is no longer a technology, but rather a way for everyone to access a world that is usually inaccessible. It naturally fits into the cultural and museum space.
Scene-o-scope

Virtual Reality Becomes a Social Device

Together with the Nina vehicle, this project is part of an installation that brings back to life the history of the Montreux Jazz Festival, whose archives are now listed in the UNESCO Memory of the World Register. Scene-o-scope presents the cultural and human context which forged this unique festival: its lively atmosphere and contributions by artists such as Andy Warhol or Keith Haring or the genesis of the song Smoke on the Water.

Thanks to the content created by Allison Crank, the project has established interaction principles for virtual reality at public events. The headset is designed as an object that is exchanged between users. The results show that virtual reality can contribute to social dynamics in the real world.
“Hands on Vision” is presented in the framework of the exhibition “Sound & Vision” developed in collaboration with ECAL during the Milan International Furniture Fair 2019.