CREAL

MEDIA KIT

CREAL (to pronounce see-real), founded in 2017 and based in the EPFL Innovation Park in Switzerland, envisions Augmented Reality (AR) to be the next major communication platform within this decade. This is why the startup is developing the natural display for AR to be fully accepted and used as an everyday tool from cooking to neurosurgery. By developing the light-field display technology, CREAL will enable AR glasses manufacturers to provide their clients with perfectly natural virtual images including genuine depth for comfortable and fully immersive experiences.

CREAL's light-field display technology bringing AR within arm's reach

Let's make a simple vision test. Close one eye, and look with the other one at your finger in front of you. You will notice that you see it sharp, since you focus on it. What you may never have noticed is that everything around, except from your finger, is blurred. If you now look beyond your finger and focus on another object further, that object will come into focus and your finger will now become blurred. This simple test shows how our three-dimensional perception works with optical depth.

Until today, most AR and VR devices are ignoring this natural focusing function of our eyes. They project the virtual images at approximately 1.4m from the user, on a flat display (just like any screen), meaning we can see the virtual image sharp only when our eye focuses at the distance of the display. However, if the user wants to look at a virtual object at a different distance that the one of the display -next to your finger for example-, there will be a focal rivalry happening: the virtual object will be blurred next to your finger in focus. This leads to very uncomfortable side effects for the users, such as eye strain and nausea.

So how can this focusing function, which is so natural to us, be replicated using technology?

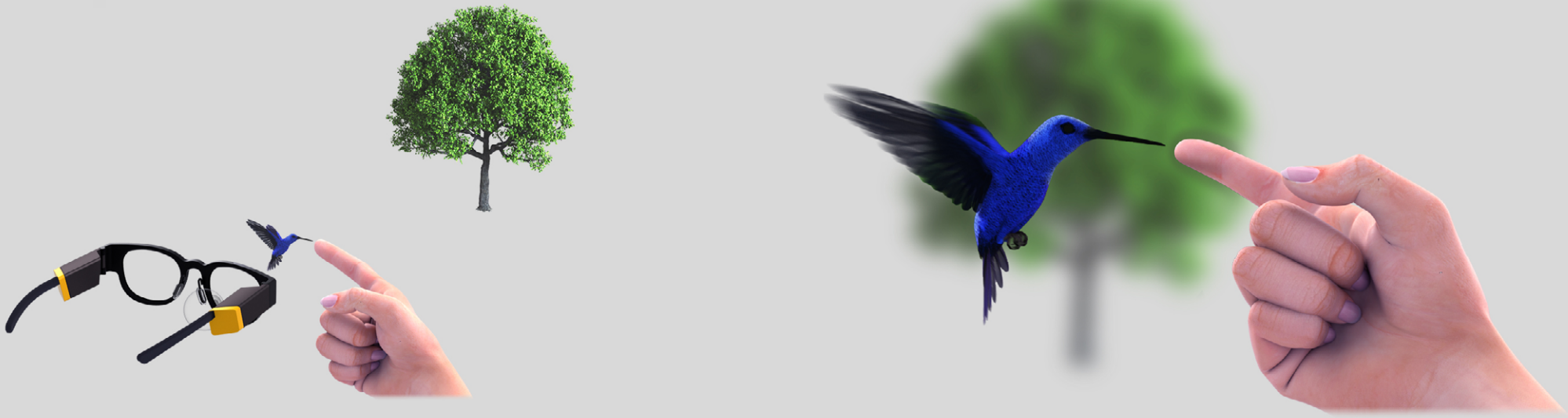
While many technologies are developing tweaks to bring depth in virtual images, such as moving the display closer or further based on eye-tracking, or stacking multiple displays at different distances, CREAL developed a technology that is fixing the issue at its core. Our goal is to recreate the light just like it exists in the real world, and therefore simulate the way in which light rays reach our eyes after reflecting off objects in our environment. To do so, we have developed a near-eye light-field display technology that simulates precisely the three-dimensional perception that we experience in the real world. The true 3D perception is achieved by implementing light-field projectors in the temples of a pair of glasses, which project the light-field components on the holographic lenses, and so, bounce them back to the eye. Each light-field component (approximately 6000 per seconds) enters the eye through slightly different perspectives which, brought together, reconstruct the full virtual scene right in front of the user's eyes. This way, the virtual scene is built with genuine depth and is always in focus, just like the world around us. It is now up to the user to decide where to focus.

By recreating the light itself, CREAL enables the virtual objects to naturally fuse into reality from the user arm's reach distance to infinity. Light-field technology provides AR experiences that are natural and comfortable to the human eyes.

CREAL's light-field technology explainer

Current Augmented Reality displays

CREAL's light-field display



Alex Kvasov
CTO

8+ years in product development and technology commercialization in a start-up environment (ActLight, Technis).

Tomas Sluka
CEO

15+ years in high-profile research at CERN and EPFL. Early-stage technology commercialization. Highly cited author, invited speaker.

Tomas Kubes
Business Developer

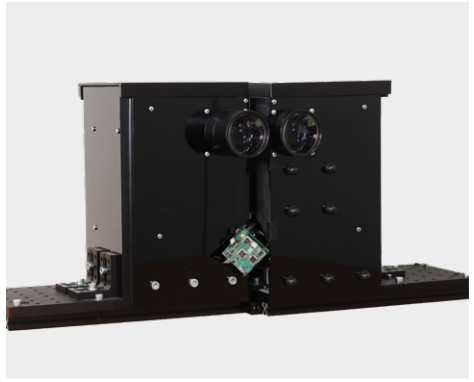
Combining business and technical mind, managed IT resources at CERN, co-founded FinTech startup and worked as a business consultant.

CREAL team

With dedicated engineers from Intel's smart glasses project as well as Magic Leap, CERN and EPFL, CREAL's expertise covers every aspect of the required technology, from optic and mechanic to electronic and software.

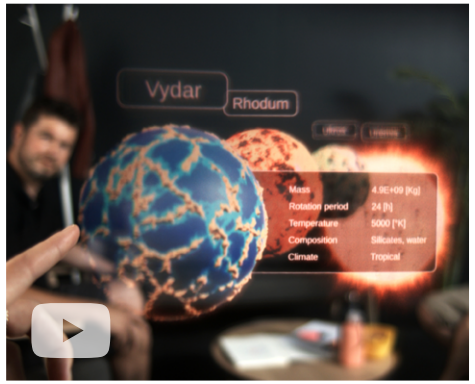
2018

2019

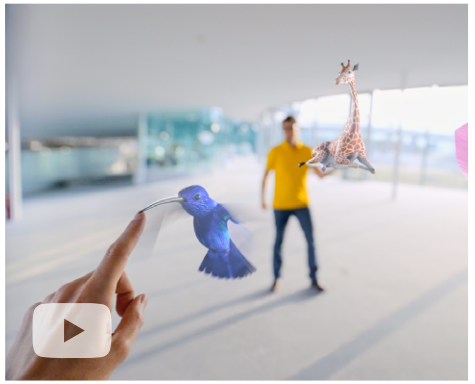


2020

2021



Early 2023



TheMysticle
This Amazing Technology makes VR & AR Look 100% REAL!

12.03.2022

Bilan
Ces startups suisses qui bâtissent des mondes parallèles

05.01.2022

EPFL News
Achieving razor-sharp vision in the metaverse

19.11.2021

The Ghost Howls
EXCLUSIVE: Hands-on CREAL lightfield XR headsets

23.10.2021

Top 100 Swiss Startups
Discover the most promising Swiss Startups

21.09.2021

More articles

CREAL.com | contact@creal.com | EPFL Innovation Park, Lausanne, Switzerland