



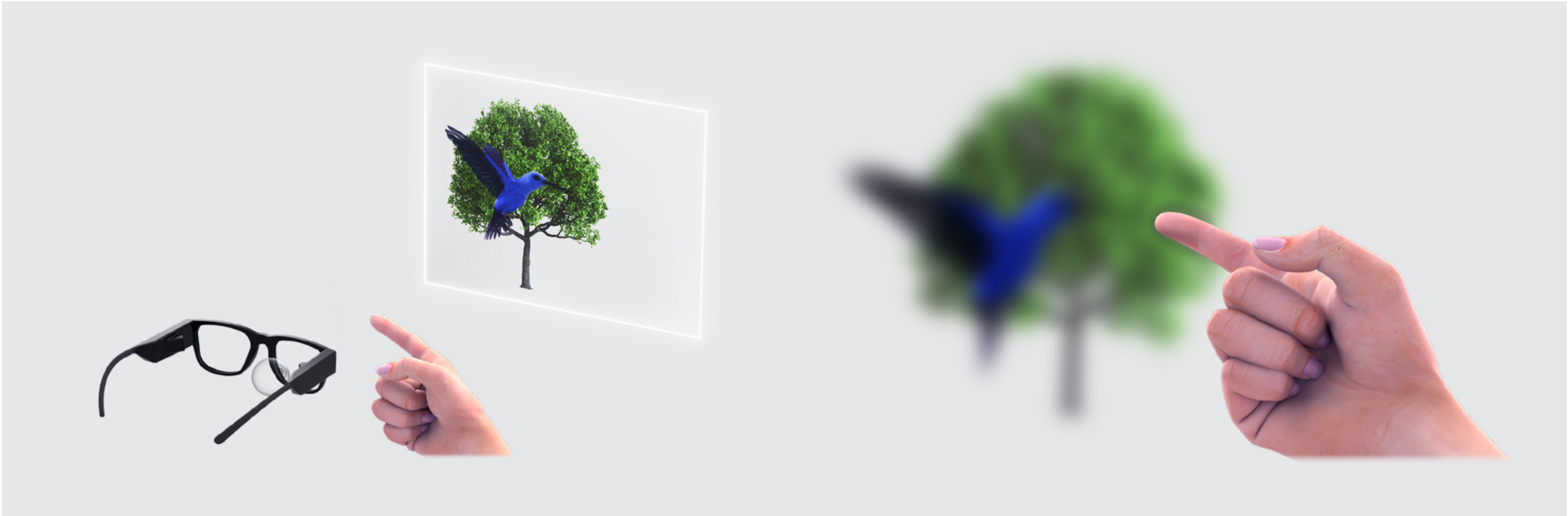
THE DISPLAY
THAT CARES FOR
YOUR VISION



CREAL's unique light field display projects a digital image supporting the natural behavior of the human eye. The image has correct optical depth, enabling a natural and healthy visual experience with no trade-off on image quality, computational requirement and system architecture.



Currently, VR/AR glasses provide **unnatural**,
unpleasant and **unhealthy** visual experience.



Today, most AR glasses display flat images
at a **fixed focal distance** ...

... preventing our eyes to focus correctly
on objects at another distance.



CREAL's light field technology displays digital images at **any focal distance** ...

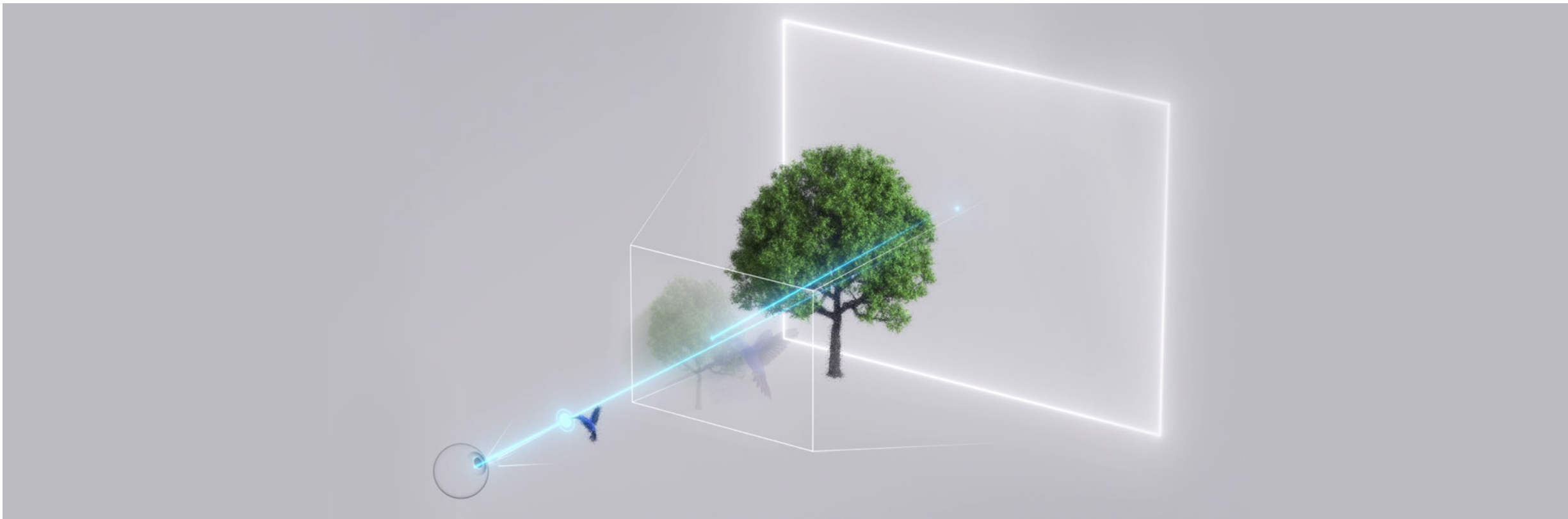
... providing a natural experience with a genuine image depth.



- Visual conflict within arm's reach
- Eye-strain and nausea in <20 min
- Potential source of vision damage



- Life-like visual representation
- Extended use without conflicts
- Natural for human vision

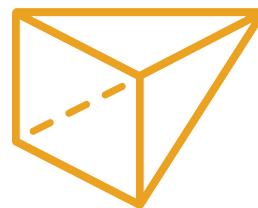


By recreating the light rays just like they exist in the real world, CREAL eliminates visual discomfort, **allowing full consumer acceptance of AR in the near future.**

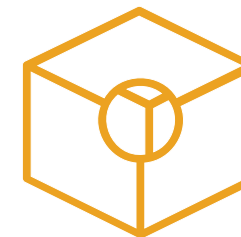




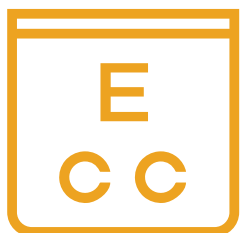
Genuine image depth
offers extended usage
without eye-strain
or nausea.



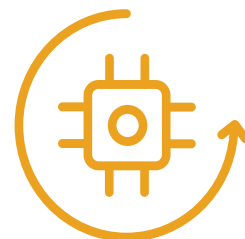
Continuous focus
allows users to focus correctly on
virtual objects at any distance,
enhancing user interaction.



High spatial resolution
offers a truly immersive
experience with retinal
resolution imagery.




Adaptive prescription
offers users a tailor-made
experience matching their
visual needs.



Computational efficiency
allows real-time light-field
rendering on mobile platform.



No eye-tracking required
enables a simple and robust
system architecture.

	Digital light field (sequential) 	Holography	Classical light field (spatial)	Multiple depth planes	Varifocal element
Genuine image depth	Yes	Yes	Yes	No	No
Continuous focus (planes)	Unlimited ¹	Unlimited ¹	> 10	2 - 4	> 100
Spatial resolution	High	Medium	Low ²	High	High
Adaptive prescription	Yes	Yes	Yes ³	Only SHY	Only SHY
Computational efficiency	High	Very low	Medium ⁴	High	High
Eye-tracking required	No	No	No	No	Yes
Hardware complexity	Low	High	Medium	Low	Low

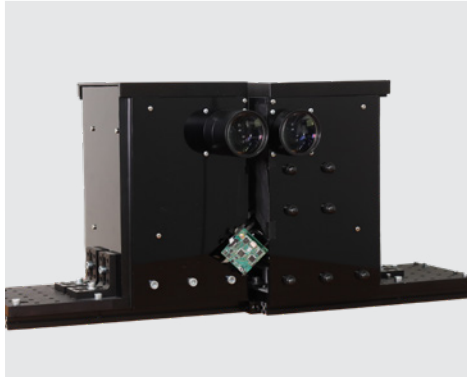
¹ Resolution is finite, however much higher than an eye can resolve

² To achieve high spatial resolution would require HD microdisplay (8K and above)

³ Only in small range

⁴ Computational efficiency is usually limited by the image data transfer bandwidth

Q1 2020



Q1 2021



Q1 2022

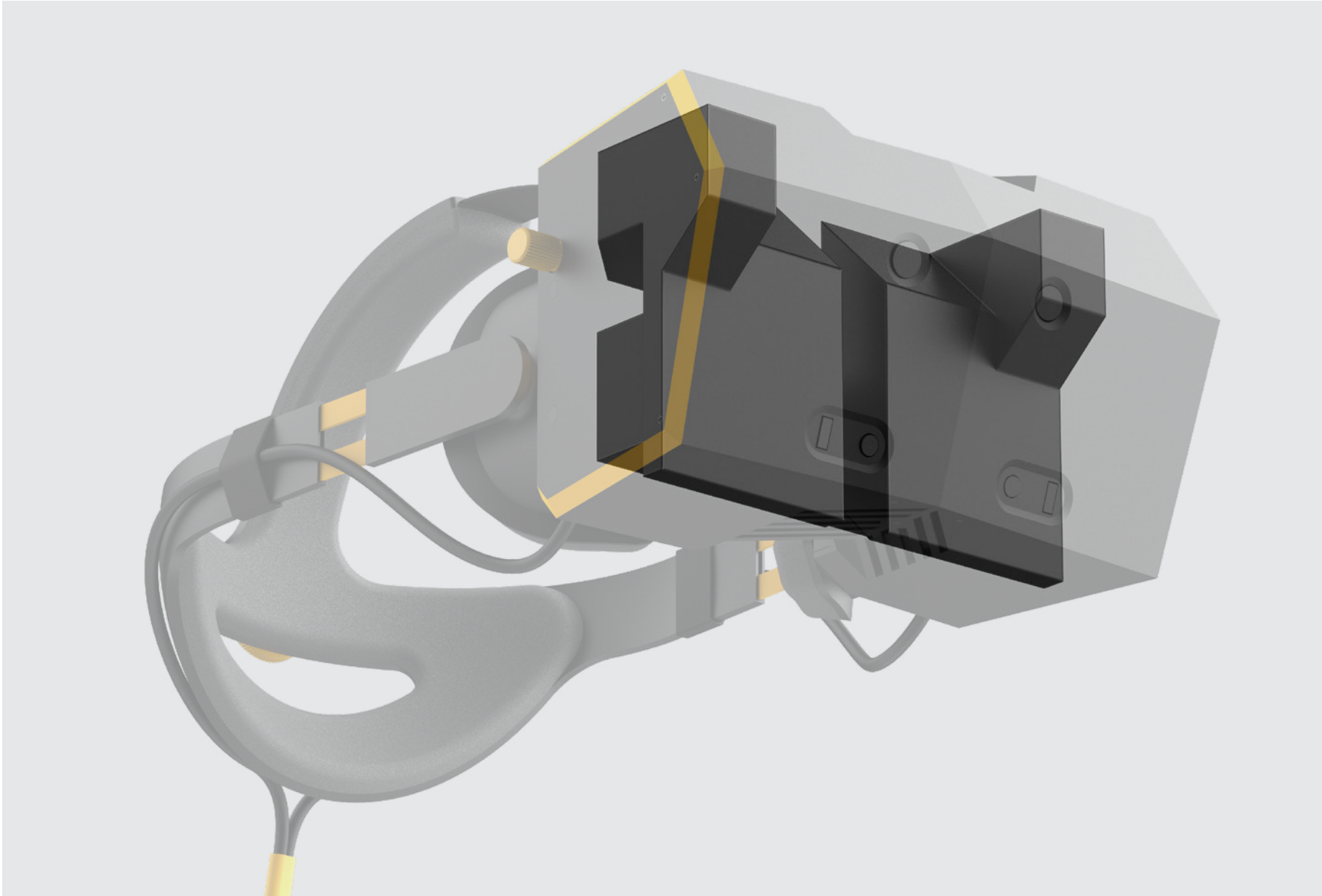


2024



2025+





CREAL'S
LIGHT FIELD
DISPLAY FOR VR



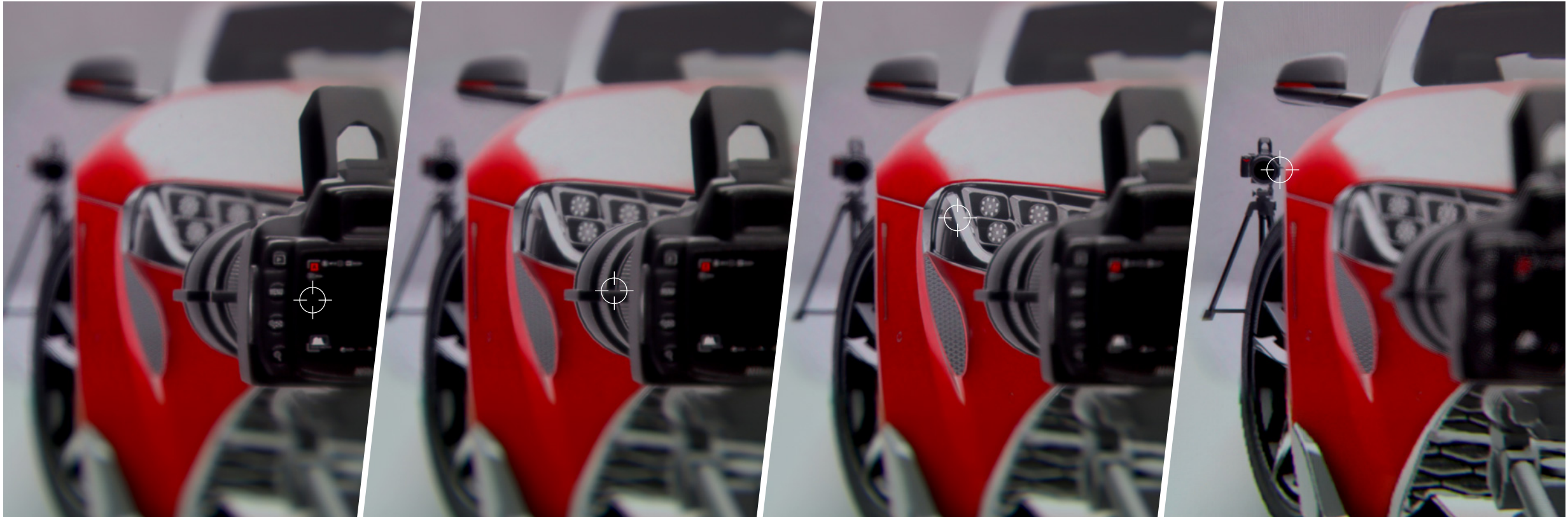
Focus

0.3 m



Focus

3 m



Focus

0.2 m

Focus

0.3 m

Focus

0.6 m

Focus

3 m





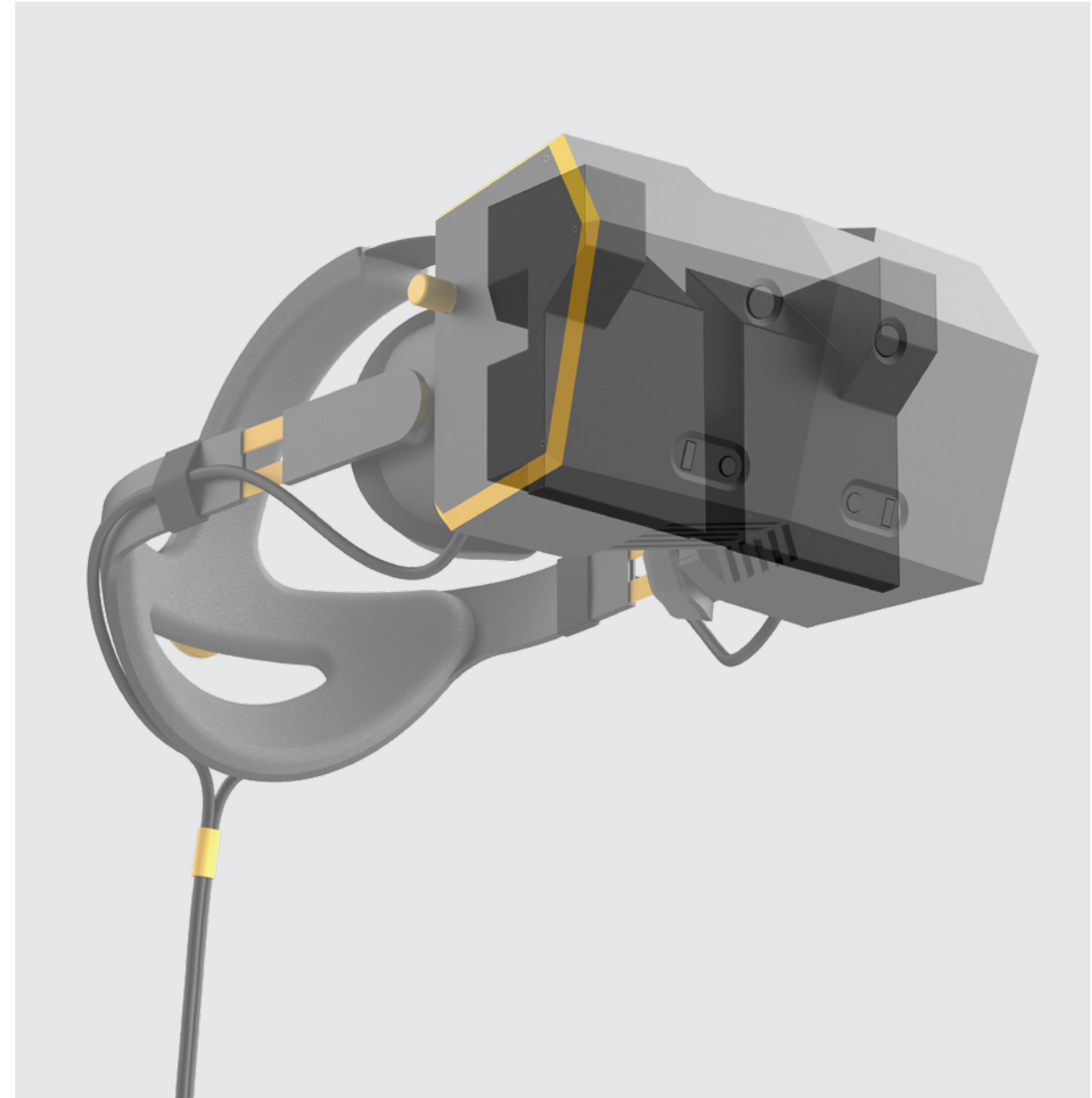
Per eye	2023	Achievable with optimization (2025+)
Depth resolution (planes)	Continuous	Continuous
Angular resolution at infinity	45 px/° LF.	45 px/° LF.
FoV (diagonal)	100° (Foveated LF.: 32°)	110° (Foveated LF.: 36°)
Effective eyebox (exit pupil)	13 mm (7 mm)	16 mm (10 mm)
Eye relief	17 ± 3 mm	17 ± 3 mm
Colors	~5 M	~10 M
GPU load	FHD (equivalent)	FHD (equivalent)
Frame rate	160 - 240 Hz	240 Hz
Sub-frame rate	6.5 kHz	8 kHz



+ Foveated light field optical engine solution

Our light field technology enables high-fidelity imagery, offering fully immersive experiences to users for any application case.

For further information on CREAL's VR technology evaluation kit, engineering and support integration and more, please contact sales@creal.com.



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