



THE DISPLAY THAT CARES
FOR YOUR VISION

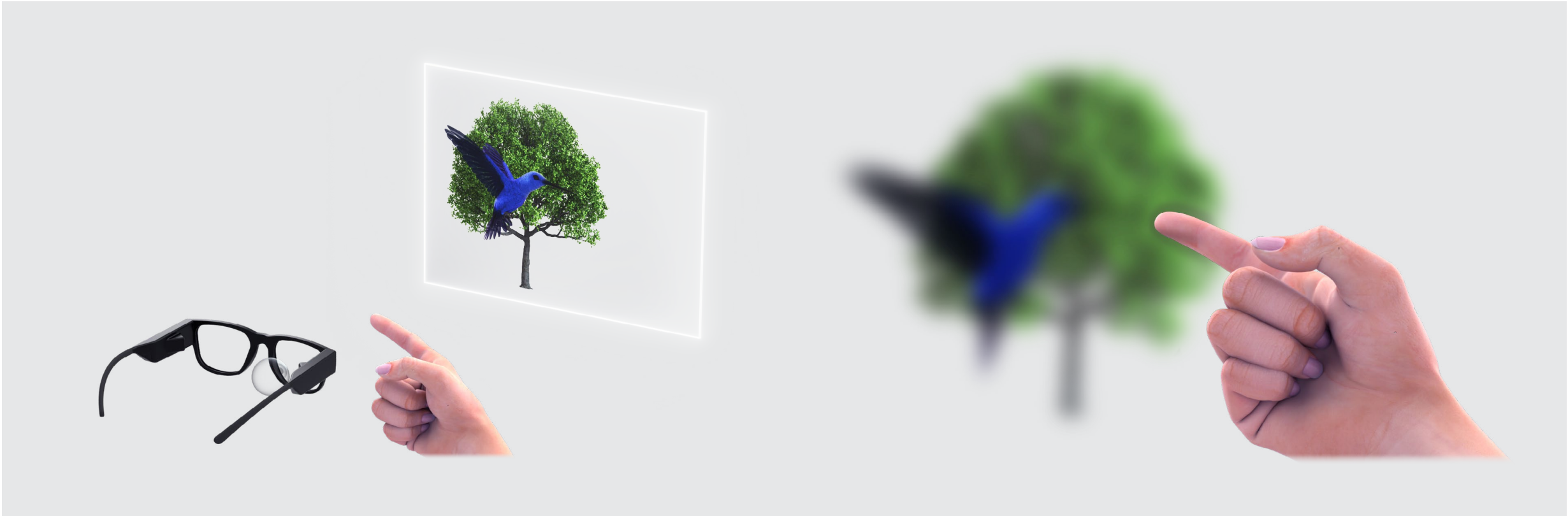


CREAL's unique light field display projects a digital image supporting the natural behavior of the human eye.

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.



Current AR displays

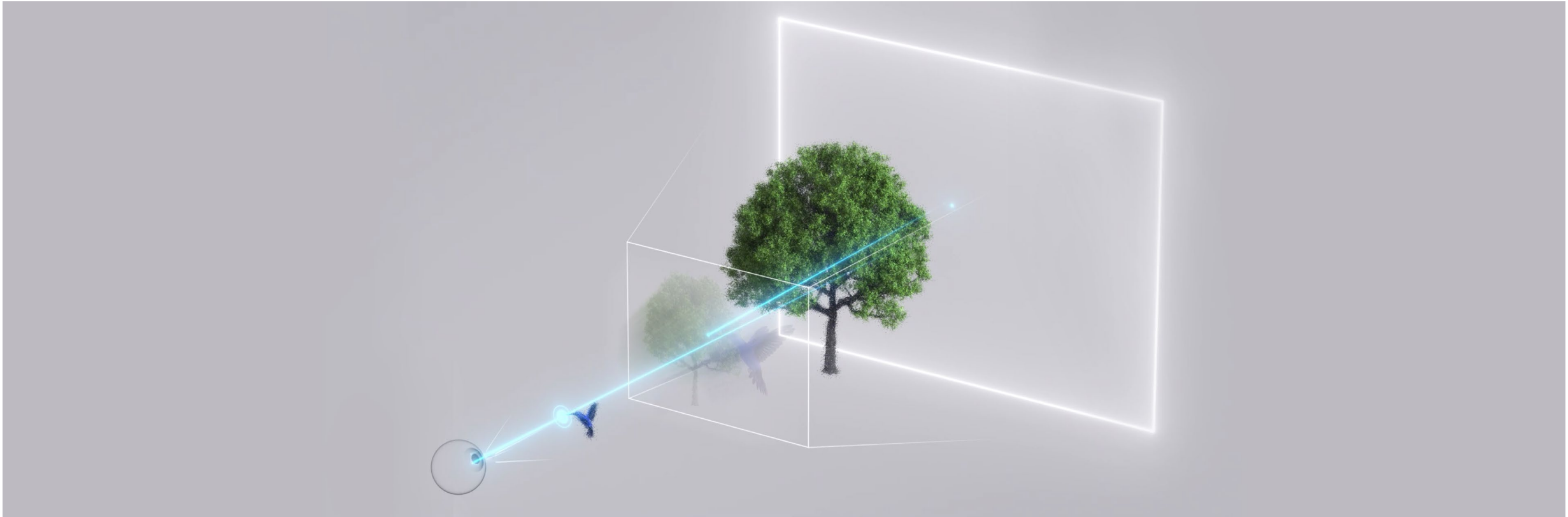
CREAL's light field display



- 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



CREAL's light field display explainer



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.**

Key benefits



Natural image depth

offering extended use time without eye-strain or nausea.



Transparent lenses

bringing an aesthetic look to AR glasses, without glow or rainbow effect.



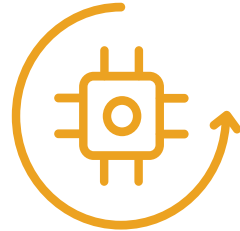
Prescription compatibility

offering users a tailor-made experience matching their visual needs.



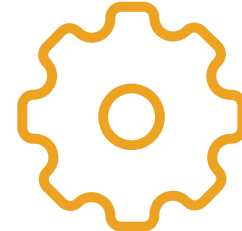
High brightness

enabling clear visual experience, even outdoor.



Computational efficiency

allowing real-time light-field rendering on mobile platform.



Simple and robust

system architecture enabling easy scalability.

Benchmark comparison: displays with focus cues

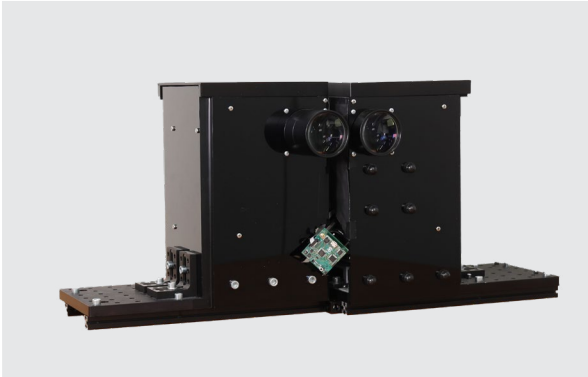
	Digital light field (sequential) CREAL	Holography	Classical light field (spatial)	Multiple depth planes	Varifocal element
Genuine image depth	Yes	Yes	Yes	No	No
Continuous focus (planes)	Unlimited ¹	Unlimited ¹	> 10	2 - 4	> 100
Spatial resolution	High	Medium	Low ²	High	High
Adaptive prescription	Yes	Yes	Yes ³	Only SPH	Only SPH
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)

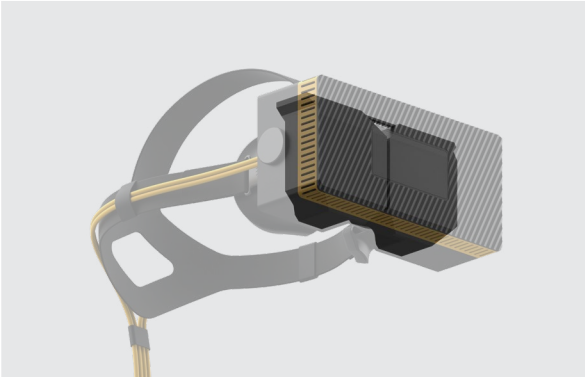
³ Only in small range
⁴ Computational efficiency is usually limited by the image data transfer bandwidth



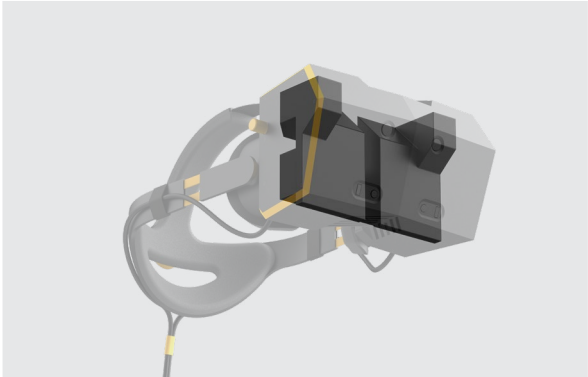
2019



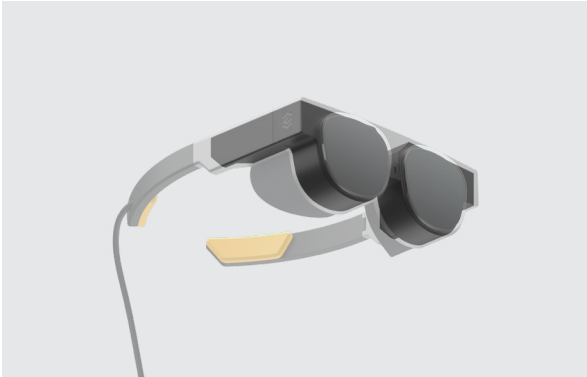
2020

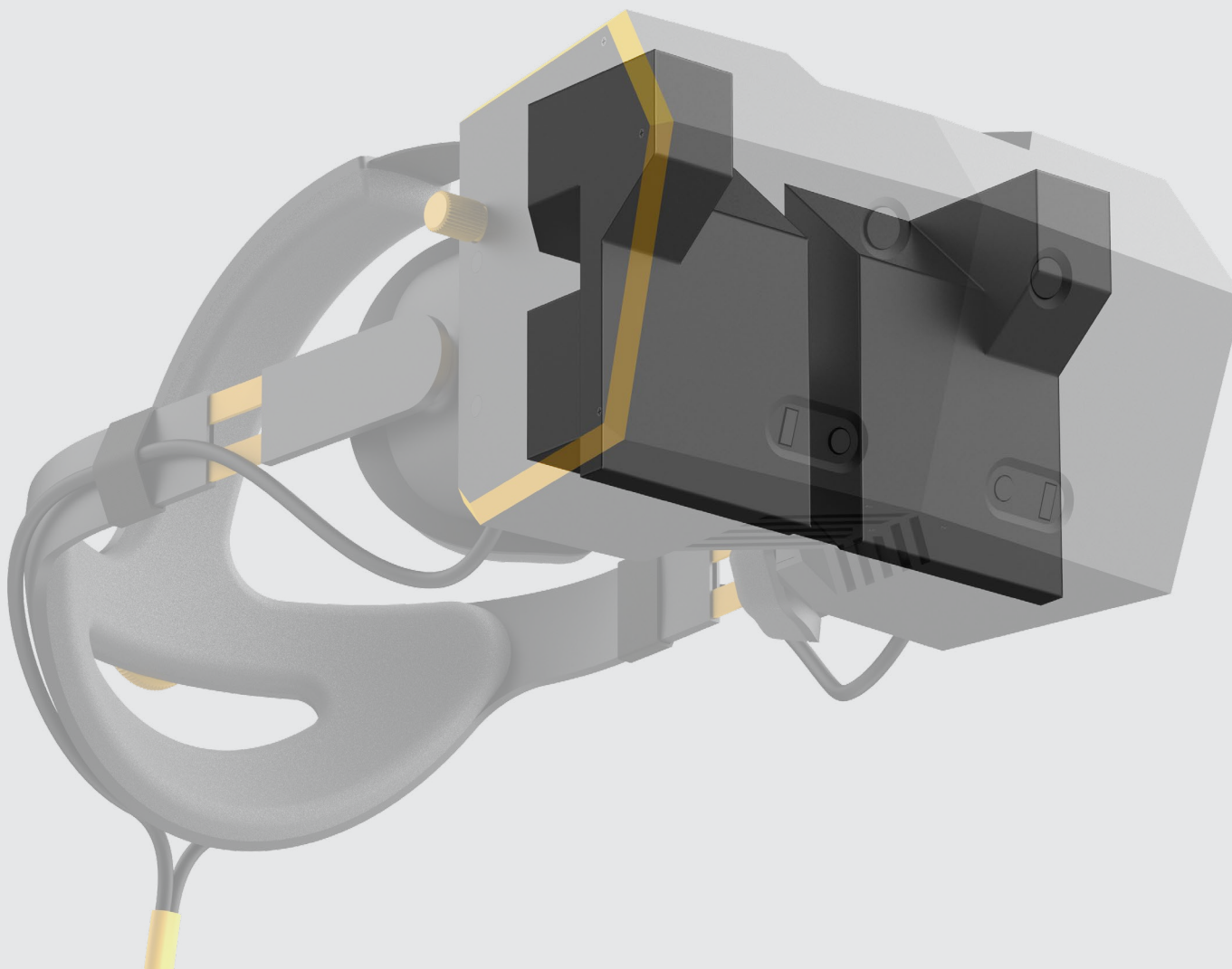


2021



2025+





CREAL'S LIGHT FIELD
DISPLAY FOR VR

Focus cues

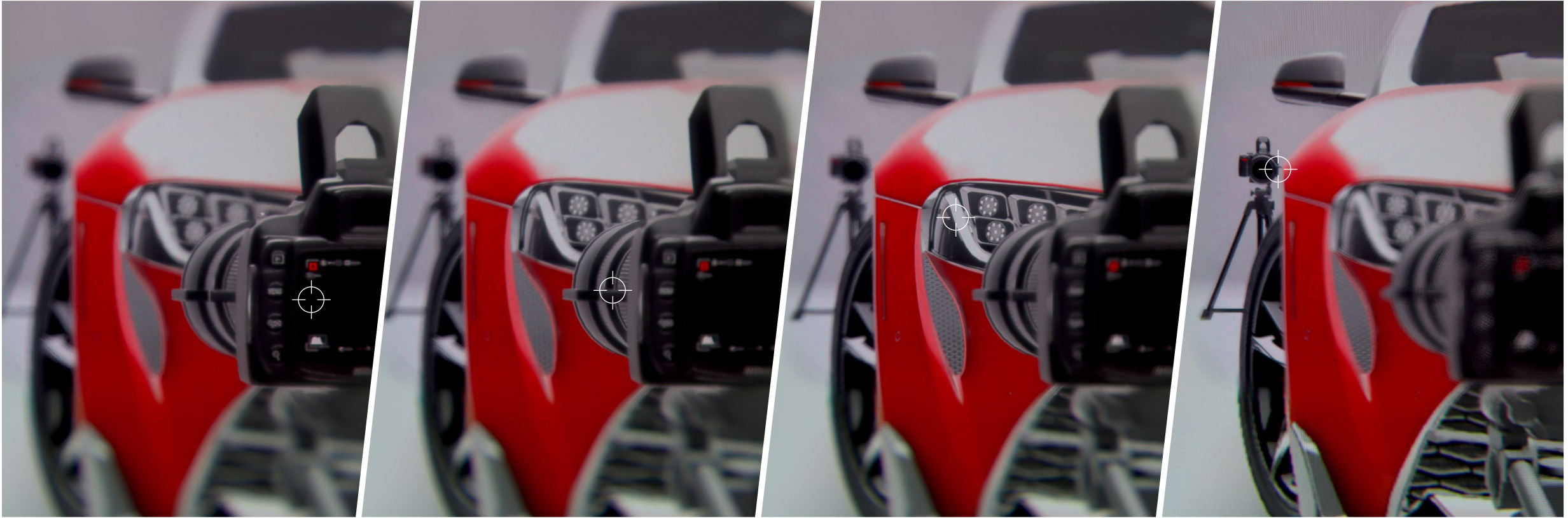


Eye focus
0.3 m



Eye focus
3 m

Continuous focus



Eye focus
0.2 m

Eye focus
0.3 m

Eye focus
0.6 m

Eye focus
3 m

— Focus: 0.3 m



The display that cares for your vision

— Focus: 0.3 m



Product specifications

Per eye	2023	Achievable with optimization (2025+)
Depth resolution (planes)	Continuous	Continuous
Angular resolution at infinity	45 px/° light-field	45 px/° light-field
FoV (diagonal)	100° (Foveated light field: 32°)	110° (Foveated light field: 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

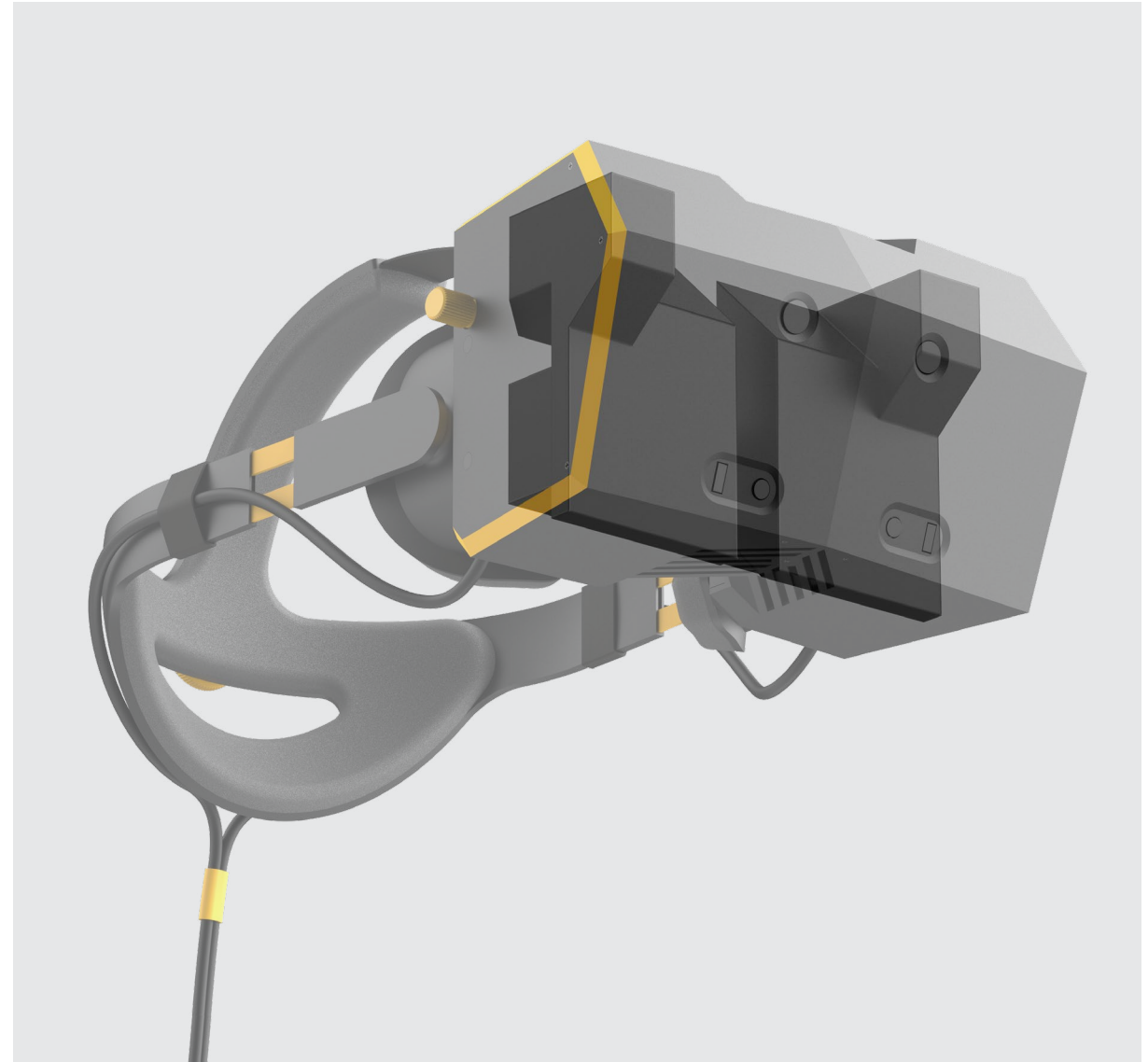


Our offer

+ 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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