VARJO

Varjo's dream
is a new reality.

Varjo makes human-eye resolution VR and XR products that help professionals in the most demanding industries push the limits of what's ever been possible.

Ultimately we're creating a new kind of immersive computing, where virtual, augmented and physical realities become one. When we're done, computers will look nothing like they do today.

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Varjo XR-1 Developer Edition: Photorealistic Mixed Reality

Varjo XR-1 is a developer device made for engineers, researchers, and simulation professionals who are pioneering a new reality. Varjo XR-1 makes it possible to build truly photorealistic mixed reality experiences where virtual objects seamlessly merge with reality for the first time in full field of view. XR-1 users can also switch between mixed reality and full VR, as well as use the integrated eye tracking for unique user research and data analytics.

Available for purchase now

XR-1 Developer Edition is now available for purchase in North America, Europe and Japan for €9995. It is sold together with Varjo's Software and Support service at €1995. For business use only.

"XR-1 is the only device that can be used to drive in mixed reality."

CASPER WICKMAN — TECHNICAL LEADER,
VOLVO CARS

VARJO

Already trusted by:

Bohemia Interactive SIMULATIONS   VOLVO   FlightSafety international

Develop a new reality with XR-1 Developer Edition.

Blend the real and the virtual with XR-1, the only device that lets you build photorealistic mixed reality experiences. XR-1's photorealism is powered by ultra-high definition video pass-through, which is achieved with superior cameras, sensors, optics, ISPs and our patented Bionic Display™.

This gives you pixel-perfect control over everything you see and makes XR-1 the only device to deliver photorealistic mixed reality. XR-1's ultra-low latency image pipeline (< 20 ms) lets you explore true-to-life digital worlds as natural extensions of the real world.

Technical specifications

Camera & optics	2 x 12 megapixel at 90 Hz. Fixed focus, 1/3" sensor size with 1.55μ pixel size. 94° circular viewing angle.
Imaging pipeline	4 streams (2 per eye): 1008 x 1008 downscaled from the full 12 Mpx + foveated 834 x 520 full resolution crop.
VR display system	Bionic Display™ with resolution at over 20/20 vision (over 60 PPD / 3000 PPI), flicker-free screen refresh at 60/90 Hz. Combining two 1920 x 1080 low persistence micro-OLEDs and two 1440 x 1600 low persistence AMOLEDs.
Field of view	87 degrees
Latency	<20 ms
Eye tracking	Industrial-grade, sub-degree accuracy integrated 100 Hz stereo eye tracking delivering unmatched accuracy and precision across real and virtual environments, even when wearing glasses or contact lenses.
Depth	An active IR sensor system consisting of 2 wide-angle cameras and LEDs. The depth system is synchronized with video pass-through to provide low latency and a robust depth map.
Connectivity	10 m active optical Thunderbolt cable
Colors	Infinite contrast ratio (over 10,000:1) enabling the deepest blacks and individually calibrated colors, delivering outstanding accuracy and image quality.
Tracking	Compatible with Steam VR™ and ART™
XR-1 weight	1050 g without counterweight (including head band); 1300 g with counterweight
Comfort & wearability	XR-1 can also be worn by people who wear glasses. It features an active airflow system, adjustable and detachable headband and head strap, comfortable usage with two different sized, easily replaceable face cushions and automatic interpupillary distance (IPD) adjustment for easy and accurate calibration.

System requirements

We are maintaining a list of computers known to work with the XR-1 Developer Edition. It is strongly recommended that you use one of the recommended models on the list. You can find the list at varjo.com/start.

	Recommended
Motherboard	See list of compatible motherboards and laptops at varjo.com/start
Processor	Intel Core i7-7820X
GPU	NVIDIA GeForce® RTX 2080 Ti NVIDIA Quadro RTX 6000
RAM	32 GB
Storage space	2 GB
Video output	2 x DisplayPort 1.2 or 2 x Mini DisplayPort
USB port	1 x USB-A 3.0 port or newer, not using any Hub
Thunderbolt port	1 x Thunderbolt 3 port
Operating system	Windows 10 (64-bit)

Purchase XR-1 Developer Edition: varjo.com/xr-1

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VR-2 & VR-2 Pro:
Human-Eye Resolution VR

Use VR-2 and VR-2 Pro to create, train and run research in the only true-to-life VR environment. With human eye-resolution, integrated eye tracking, and unprecedented software support that now includes SteamVR applications, VR-2 and VR-2 Pro allow you to design and modify 3D models, train in realistic environments, and create limitless research scenarios – all with the pixel-perfect clarity that only Varjo can deliver.

Varjo devices are already compatible leading software tools, including:

UNREAL® UNITY® STEAMVR® CONTENT AUTODESK VRED® ZEROLIGHT® PREPAR3D®

Available for purchase now

VR-2 and VR-2 Pro are sold together with Varjo's Software & Support service starting at €795. For business use only.

VR-2 PRO
€5 995
(including hand tracking)

VR-2
€4 995

Already trusted by:

SIEMENS   CAE

Technical specifications

		VR–2	VR–2 PRO
Resolution and refresh rate	Next-generation Bionic Display™ with resolution at over 20/20 vision (over 60 PPD / 3000 PPI), flicker-free screen refresh at 60/90 Hz. Combining two 1920x1080 low persistence micro-OLEDs and two 1440x1600 low persistence AMOLEDs.	⌄	⌄
Colors	Infinite contrast ratio (over 10,000:1) enabling the deepest blacks and individually calibrated colors, delivering outstanding accuracy and image quality. Individual image uniformity compensation done for every device for optimized image quality.	⌄	⌄
Tracking	Compatible with Steam VR™ and ART™	⌄	⌄
Optics	Dual lens design combining different refractive index lenses for minimal color aberrations, zero ghost rays, and minimal reflections. Each surface coating has been methodically designed to maximize the brightness and clarity of the light fusion needed to achieve human-eye resolution. Improved optical materials generating more natural images.	⌄	⌄
Field of view	87 degrees	⌄	⌄
Eye tracking	Now with even faster and more accurate calibration – industrial-grade, sub-degree accuracy integrated 100Hz stereo eye tracking delivering unmatched accuracy and precision. Made to work seamlessly with Varjo's next generation Bionic Display™.	⌄	⌄
Comfort & wearability	Active airflow system, adjustable and detachable headband and head strap, comfortable usage with two different sized, easily replaceable face cushions and automatic interpupillary distance (IPD) adjustment for easy and accurate calibration when switching headset users.	⌄	⌄
Weight	605 g (+ headband)	⌄	+ counterweight 250 g
Connectivity	Thin and light optical fiber cables with USB-C. Link box for easy connection with PC.	5-meter cable	10-meter cable
Hand tracking	Integrated Ultraleap hand tracking. An active IR sensor system consisting of two wide-angle cameras and LEDs.	—	⌄

System requirements

The key system requirements for the Varjo headsets and related software:

Component	Recommended	Minimum
Processor	Intel Core i7-8700 AMD Ryzen 7 2700	Intel Core i7-6700 AMD FXTM 9590
GPU	NVIDIA GeForce® RTX 2080 NVIDIA Quadro RTX 6000	NVIDIA GeForce® GTX 1080 NVIDIA Quadro P6000
RAM	32 GB	16 GB
Storage space	2 GB	
Video output	2 x DisplayPort 1.2	2 x Mini DisplayPort 1.2
USB port	1 x USB-A 3.0	
Operating system	Windows 10 (64-bit)	

Learn more and purchase VR-2 and VR-2 Pro at varjo.com.

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