

Lemnis Technologies unveils Verifocal™ mixed reality headsets with new generation eye tracker at SIGGRAPH 2019

Los Angeles, California (25 July 2019)

Lemnis Technologies, the technology company behind the award-winning Verifocal™ platform, today announced the first mixed reality headsets to include a new generation eye tracker with hassle-free calibration. The headsets will be demonstrated at the SIGGRAPH 2019 Exhibition in Los Angeles, California (July 30 - August 1). SIGGRAPH attendees will be able to try Verifocal™ headsets in professional applications and to experience the benefits of Verifocal™ in the context of mixed reality learning and training.

The **Verifocal™** platform developed by Lemnis Technologies (<https://www.lemnis.tech>) addresses the eye strain, visual discomfort, and low image clarity that plague today's VR and AR. Current headsets focus at a fixed distance, leading to sensory conflicts when users observe nearby objects. In contrast, headsets with Verifocal™ adjust the focus naturally as the user looks around, eliminating the vergence-accommodation conflict with a combination of advanced software and hardware. This leads to more natural experiences and improves text readability, enabling applications involving virtual objects within arm's reach, such as reading an instruction manual or training with hand-based interaction.

At SIGGRAPH, Lemnis Technologies will demonstrate headset prototypes based on commercial devices augmented with a set of unique features to enable best-in-class visual fidelity in Mixed Reality:

- ▶ **Hassle-free eye tracking** monitors user's eye movements to enable analysis and adjustments in real-time. Based on advanced computer vision algorithms and over two years of development, Lemnis' eye tracking system is calibrated only once per user. This significantly lowers the barrier of entry to eye tracking in a professional setting, with no recalibration needed when repositioning the headset or after taking it off.
- ▶ **Vision correction** incorporates the user's eyeglasses prescription directly into the headset optics. This eliminates the need of eyeglasses for most users, leading to a more comfortable experience with a larger field of view. A single device can be shared by multiple users, with a tailored correction for each.
- ▶ **Verifocal™ AR** enables video pass-through augmented reality thanks to high-speed stereo cameras with large field of view. Dynamic camera focus combined with eye tracking makes it possible to focus on real objects at any distance, increasing visual clarity and image sharpness in mixed reality applications such as reading or hands-on training.

Headsets powered by Verifocal™ are compatible with leading VR engines such as Unity and SteamVR, along with professional applications such as Lockheed Martin's Prepar3D® simulation software, Autodesk® VRED™ and 3ds Max visualization software.

" Today we have reached a significant milestone in Lemnis' mission to **make Mixed Reality viable as the next computing platform**," states Dr. Pierre-Yves Laffont, CEO and co-founder of Lemnis Technologies.

"We help build the **ideal headsets for demanding professionals seeking the highest visual fidelity**. Our patent-pending Verifocal™ platform, combined with a state-of-the-art eye tracker and varifocal video pass-through AR, **turns Mixed Reality from an oddity into a transformative business tool**. This opens new opportunities for training, product design, engineering, and other applications far beyond consumer-oriented gaming."

Lemnis Technologies invites all interested partners to experience Verifocal™ mixed reality at SIGGRAPH 2019 or schedule a private demo at demos@lemnis.tech

About Lemnis Technologies

Lemnis Technologies, based in Singapore and incorporated in 2017, is a team of experienced scientists and engineers aiming to set a new standard for visual fidelity in head-mounted displays. The company was named a CES® 2019 Innovation Awards Honoree for its Verifocal™ VR Kit. **Lemnis Technologies will be exhibiting at the SIGGRAPH 2019 Exhibition in Los Angeles** (booth 721).

Press Kit available for download,

<http://www.tradeshownews.com/events/siggraph-2019/lemnistech/>

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WORK SMARTER WITH MIXED REALITY

Clearer images and less eye strain with Verifocal™ and Verifocal™ AR

Lemnis Technologies develop Verifocal™, the world's first platform to control the focus dynamically in a head-mounted display.

Working together with the natural mechanisms in the human eye, Verifocal™ dynamically adjusts the optics in the headset to create a more comfortable experience. Text finally becomes readable in VR, and users can focus naturally at every distance.

Coupled with eye tracking, Verifocal™ eliminates the vergence-accommodation conflict that plagues today's headsets. And with Verifocal™ AR, the real and the virtual world are combined seamlessly, always in focus.



We build the ideal headsets for demanding professionals seeking highest visual fidelity

We upgrade commercial headsets with unique features to enable best-in-class visual fidelity in Mixed Reality, for professionals who care about what they see.

Mixed Reality can finally be used in realistic training scenarios and at every stage in the development of complex new products: allowing designers to inspect all the details of a virtual car mockup, human factors experts to validate the layout of a new cockpit, or decision makers to approve a new model.

A platform developed by Lemnis Technologies, Verifocal™ augments Mixed Reality headsets with unique features that set a new standard for visual fidelity.

Key Technologies



Hassle-free eye tracking

- ▶ Determines the 3D point that the user is looking at in Mixed Reality, precisely and in real-time
- ▶ Single calibration per user
 - no need to recalibrate after repositioning the headset or taking it off!



Verifocal™

- ▶ Dynamically adjusts the focus in the headset to match the distance where the user is looking at
- ▶ Eliminates the vergence-accommodation conflict
 - more natural experience, reduced eye strain, improved image clarity
- ▶ Enables applications involving virtual objects within arm's reach, such as reading an instruction manual or training with hand-based interaction



Vision correction

- ▶ Incorporates the user's eyeglasses prescription directly into the headset optics, at runtime
- ▶ Eliminates the need of eyeglasses for most users
 - more comfortable experience and larger field of view



Verifocal™ AR

- ▶ Video pass-through augmented reality thanks to high-speed stereo cameras with large field of view
- ▶ Dynamic camera focus combined with eye tracking
 - real objects look sharp at any distance



Adaptive calibration

- ▶ Unified calibration processes for multiple headset designs
 - optimize visual quality and tracking performance
- ▶ Backbone of many technologies developed at Lemnis, based on physically-based simulations

