**PRESS RELEASE**

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**FOR IMMEDIATE RELEASE**

**Genelec assists in a new age of collaborative learning at Tilburg University**

— Two CAVE systems deploy Genelec 4420 Smart IP loudspeakers to bring their virtual reality classroom to life. —

— View video featurettes: “[Part 1 – Smart IP immersive system powers research](https://youtu.be/hU3x3isvZbU)” and “[Part 2 – Deeper dive into CAVE XR research](https://youtu.be/VUMLsn1ml_k).” —

NATICK, MA, May 7, 2024 — [Tilburg University](https://www.tilburguniversity.edu/), the Netherlands campus which specializes in artificial intelligence, social and behavioral sciences, recently upgraded its [DAF Technology Lab](https://www.tilburguniversity.edu/campus/daf-technology-lab) to revolutionize the way its students learn and collaborate. Expanding the possibilities of immersive education and innovative research, two cutting-edge CAVE (Cave Automatic Virtual Environment) systems with VR opportunities and 360º sound from Genelec now call Tilburg home. In a project that aims to positively impact education and training, Genelec’s [Smart IP](https://www.genelec.com/smart-ip) series of networked loudspeakers brought high-quality, real-life audio to a notably complex installation.

[View Genelec Tilburg University video featurettes: “[Part 1 – Smart IP immersive system powers research](https://youtu.be/hU3x3isvZbU)” and “[Part 2 – Deeper dive into CAVE XR research](https://youtu.be/VUMLsn1ml_k)”]

Max Louwerse, Professor of Cognitive Psychology and Artificial Intelligence at Tilburg University – and Founder and Scientific Director of the DAF Technology Lab – has been a big advocate of this new type of immersive learning. In several publications he explained how a CAVE system could be pivotal in the teaching of complex subjects by making them more engaging, motivating, and effective.

Created in collaboration with integrator/designer [Levtec](https://levtec.nl/) and AV partner [Kinly](https://www.kinly.com/), the DAF Technology Lab presents an all-encompassing VR environment for researchers and educators. Each has four custom [Gerriets](https://www.gerriets.com/) screens on which the virtual world is presented via four [Digital Projection](https://www.digitalprojection.com/) projectors and a state-of-the-art spatial sound system from Genelec.

“We looked at loudspeaker companies across the world, and Genelec was our preferred choice,” explains Louwerse. “Not only because of the quality of the equipment, but also because of something else that we find important – when we collaborate with a company there must be mutual trust, excitement, and enthusiasm about the project.”

The two CAVEs each have a system that comprises 42 Genelec [4420](https://www.genelec.com/4420a) Smart IP active networked loudspeakers and two Genelec [7360](https://www.genelec.com/7360a) smart active subwoofers. Some of the loudspeakers are on the ground, others are at ear height and 10 are placed above the CAVE with an additional four clustered in the middle of the five-square-meter room.

“Our goal was to create a sound system that was indistinguishable from standing in a real-life environment,” furthers sound designer Marijn Cinjee. “We wanted a system that would allow for sound objects to be moved with high precision in a virtual reality 360º world.”

The team developed a panning algorithm that took data from the loudspeakers to recreate phantom images. Live tracking via an [OptiTrack](https://optitrack.com/) passive tracking system ensures that the listener never moves outside the zone of immersion, as it can follow a maximum of 12 people at once in the CAVE by tracking bodily and facial movements.

“The Smart IP series turned out to be cost effective because you don’t need all the other infrastructure, such as extra cabling and additional amplifiers – the power, audio and loudspeaker management all run off a single CAT cable,” explains Cinjee. “The DAF Technology Lab is also a very modern space, so we couldn’t resist the temptation of going with a modern audio solution.”

Additionally, the spatial system is run on a [Digigram](https://www.digigram.com/) audio card that sends signals to all 42 channels and uses an AES67 network to access the Smart IP loudspeakers. This is run through a [QSC](https://www.qsc.com/) audio processor. Furthermore, the CAVEs use Ableton software to address the channels and move the sound in 3D.

“When you walk around the space you will experience a different way of listening depending on where you are standing, but it’s always the most optimal sound all thanks to Genelec,” continues Maarten Horden, who designed and developed the DAF Technology Lab.

Tilburg’s DAF Technology Lab CAVE systems have presented the university and its affiliated partners with a new age of both technology and teaching. The system utilizes high-quality, immersive technology to positively impact the way students respond to complex information, and Genelec has again played a key part in what looks to be a pivotal project for future collaboration both on and off campus.

“Whereas most CAVE and VR environments focus on impressive immersive visual aspects in simulations, the DAF Technology Lab combines an impressive 360 degrees immersive visual simulated environment with a cutting-edge immersive audio environment,” notes Louwerse in conclusion. “The Genelec system has provided us with unprecedented opportunities to have groups of users interact with learning content and collaborate in an extremely realistic – virtual – environment.”

For more information, please visit [www.genelec.com](http://www.genelec.com).

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Photo file 1: Tilburg\_University\_PR\_Image\_1.JPG

Photo caption 1: Interior of the CAVE systems at Tilburg University’s DAF Technology Lab

Photo file 2: Tilburg\_University\_PR\_Image\_2.JPG

Photo caption 2: Each of Tilburg’s CAVE systems deploys 42 Smart IP loudspeakers across multiple layers

Photo file 3: Tilburg\_University\_PR\_Image\_3.JPG

Photo caption 3: The 4420A loudspeaker model is used throughout each CAVE, complemented by a pair of 7360A subwoofers

Video link 1: <https://youtu.be/hU3x3isvZbU>

Video caption 1: Genelec Tilburg University featurette: “Part 1 – Smart IP immersive system powers research”

Video link 2: <https://youtu.be/VUMLsn1ml_k>

Video caption 2: Genelec Tilburg University featurette: “Part 2 – Deeper dive into CAVE XR research”

PDF file: Tilburg\_University\_FINAL.PDF

PDF caption: Genelec Tilburg University case study

Genelec, the pioneer in Active Monitoring technology, is celebrating 45 years of designing and manufacturing active loudspeakers for true and accurate sound reproduction. Genelec is credited with promoting the concept of active transducer technology. Since its inception in 1978, Genelec has concentrated its efforts and resources into creating active monitors with unparalleled sonic integrity. The result is an active speaker system that has earned global acclaim for its accurate imaging, extremely high acoustic output from small enclosures, true high-fidelity with low distortion, and deep, rich bass.

Genelec is also continuing with its 18th year of Smart Active Monitoring™ technology, which allows studio monitors to be networked, configured and calibrated for the user’s specific acoustic environment. Each Smart Active Monitor or subwoofer is equipped with advanced internal DSP circuitry, which tightly integrates with the GLM (Genelec Loudspeaker Manager) software application, running on Mac or PC. GLM’s reference microphone kit allows the user’s acoustic environment to be analyzed, after which GLM’s AutoCal feature optimizes each Smart Active Monitor for level, distance delay, subwoofer crossover phase and room response equalization, with the option of further fine tuning by the user. By minimizing the room’s influence on the sound, Smart Active Monitors deliver an unrivalled reference, with excellent translation between rooms.

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*—For more information on the complete range of Genelec Active Monitoring Systems, contact: Genelec Inc., 7 Tech Circle, Natick, MA 01760. Tel: (508) 652-0900;*

*Web:* [*http://www.genelec.com/*](http://www.genelec.com/)*.*