Adhi Widagdo

Researcher & Engineer | XR and Video Systems

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Researcher and engineer connecting XR software, video systems, and robotics. Experience spans immersive rendering, telepresence, sensing, and user studies; current research focuses on foveated streaming and neural video compression.

EXPERIENCE

Doctoral Researcher | Cloud-XR & Gaming

University of Helsinki | November 2023-present

- Develop gaze-adaptive VR streaming in ALVR, integrating HLSL/Vulkan shaders, eye tracking, H.265, and synchronized server/headset reconstruction.
- Build latency compensation, gaze-analysis tools, and perceptual evaluation workflows; contribute to user studies and thesis supervision.
- Published foveation work includes a native 72 FPS implementation and collaborative studies with 16 and 30 participants.
- Investigate neural video compression for VR. Ongoing, unpublished work.

Researcher | Immersive Telepresence

University of Oulu | 2019-October 2023

- Built immersive rendering for 16K panoramic images and 8K video; integrated Oculus and Varjo headsets, eye tracking, and live media.
- Connected VR applications with mobile robotics, ROS 2, navigation, cameras, and inertial sensing; supported deployments and user studies.
- Supported robot-based headset benchmarking and Python analysis of motion-to-photon latency, field of view, and tracking accuracy.
- Created interactive Unity environments, optimized rendering, and contributed to photogrammetry capture and 3D asset processing.

SELECTED PUBLICATIONS

Gaze-Adaptive Foveation for Remote Rendered VR
First author | ACM Multimedia 2025

Latency-Driven Optimization for Foveation in Remote Rendered VR
First author | ACM Multimedia 2026 (forthcoming)

Investigating a simple technique to alter viewpoint height in immersive 360° video
Co-author | IEEE Conference on Telepresence 2024

EDUCATION & RESEARCH TRAINING

University of Helsinki | PhD studies in Computer Science, May 2024-present. In progress.

MSc Electrical Engineering | National Taiwan University of Science and Technology (Taiwan Tech).

BASc Mechatronics Engineering | Sepuluh Nopember Institute of Technology, Indonesia.

SELECTED RECOGNITION

Best Student Conference Paper, CACS 2015. Team: first place, RoboCup 2015 Teen-size Technical Challenge; second place, Teen-size Soccer.

TECHNICAL SKILLS

C++ | Python | PyTorch | Unity / C# | HLSL / Vulkan | ROS 2 | Computer vision | Sensor fusion | User studies