

Gijs Fiten

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Education

KU Leuven - Faculty of Engineering Technology

PhD, Generative AI for realistic, multi-user, interactive Extended Reality

Expected 2028

Leuven, Belgium

KU Leuven — Faculty of Engineering Technology

MSc Engineering Technology: Electronics-ICT, Software (Cum Laude)

June 2024

Leuven, Belgium

• Thesis: AI-Driven Holistic Scene Understanding | R&D: Signal Processing Algorithms & Implementations

KU Leuven — Faculty of Engineering Technology

BSc Engineering Technology: Electronics-ICT (combined with part-time engineering role)

June 2023

Leuven, Belgium

Technical Skills

Research	Gaussian Splatting, NeRFs, Deep Learning, Computer Vision, Transformers, Diffusion Models, Optimal Transport, VR/XR
Languages	Python, C/C++, Rust, Bash, MATLAB, SQL, Java, JavaScript, HTML/CSS, PHP
ML & Tools	PyTorch, CUDA, WandB, Unity, Docker, Git, SLURM, HPC clusters, Linux
Hardware	TI DSP, Rockchip SoC, Raspberry Pi (CM, Pico), Meta Quest 3, 3D printing (FDM), Fusion 360, Solid Edge

Publications

First-author

G. Fiten, J. Chatterjee, K. Vanhaeren, M. Martens, and M. Torres Vega. “Redirected Walking for Multi-User eXtended Reality Experiences with Confined Physical Spaces.” *17th Int. Conf. on Quality of Multimedia Experience (QoMEX)*, Madrid, 2025, pp. 1-7. **Best Student Paper Award**. IEEE Xplore

G. Fiten, R. Jansen, S. Selleri, J. Chatterjee, J. Sameri, and M. Torres Vega. “On the Impact of the Embodiment of AI-agents on Active Engagement in Virtual Reality Experiences.” *ACM Interaction and Storytelling with(in) Immersive Media (ISIM '26)*, Athlone, Ireland, 2026.

G. Fiten, J. Chatterjee, and M. Torres Vega. “GSI-GEN: Gaussian Splats for Resolution Invariant Image Generation.” *IEEE/CVF Winter Conf. on Applications of Computer Vision (WACV) 2027* (under review).

G. Fiten, S. Winant, J. Chatterjee, and M. Torres Vega. “Edge-XReal: Distributed Holistic Scene Understanding for Edge XR Devices.” *Springer Multimedia Systems* (under review).

Co-author

J. Wen, J. Chatterjee, **G. Fiten**, and M. Torres Vega. “Pose-Aware Multi-View Diffusion for Consistent 3D Texture Generation from a Single RGB Image.” *GRIVAPP 2026*.

J. Chatterjee, **G. Fiten**, and M. Torres Vega. “GGD-Text: Geometry-Guided Diffusion for 3D Texture Synthesis from Single RGB Image.” *VISAPP 2026*.

Research Experience

PhD Researcher — Generative AI for Extended Reality

2024 - Present

KU Leuven, Faculty of Engineering Technology | Advisor: Prof. Maria Torres Vega

Leuven, Belgium

- Designed a novel hybrid redirected-walking algorithm combining static geometry distortion with curvature-gain interpolation, enabling multi-user XR in confined physical spaces (*QoMEX 2025*, **Best Student Paper Award**).
- Developed **GSI-GEN**, a feed-forward VAE generating 2D Gaussian Splats instead of pixels (PointNet++ encoder, Transformer decoder, Sinkhorn optimal-transport loss); 9.21M parameters — 6.1-14.5× smaller than pixel-based baselines — with resolution-invariant rendering (*under review*, *WACV 2027*). Open-sourced a 70k-image Gaussian Splat conversion of FFHQ.
- Built and evaluated a real-time embodied AI agent for VR (Unity, LLM, STT/TTS pipeline, sub-4s end-to-end latency); user study (N=24) showed a statistically significant 3.5× increase in voluntary user engagement over a text-based baseline (*ACM ISIM '26*).
- Developed **Edge-XReal**, a distributed architecture offloading 3D scene-understanding models from edge XR headsets to a remote server, reducing processing time by 40-48%; deployed as a working proof-of-concept on Meta Quest 3, open-sourced (*under review*, *Springer Multimedia Systems*).

Master's Thesis Supervision

KU Leuven — Master of AI & Master of Engineering Technology

2024 - Present

Leuven, Belgium

- Supervising 10 Master's theses across generative AI and XR, spanning Gaussian Splat editing, panoramic video generation, and diffusion-based procedural city layout generation.

Professional Experience

Full Stack Engineer (part-time)

June 2022 - Sep. 2023

Pomki NV

Pelt, Belgium

- Engineered a Computer Vision and ML pipeline to track apple stock in the commercial 'Pomki Juicer', achieving >97% accuracy at <€30 hardware cost per unit.
- Built and maintained an internationalized web UI with error reporting and a management portal, deployed on 20+ machines worldwide.
- Implemented real-time MQTT communication between the Juicer's PLC and Microsoft Azure, significantly reducing troubleshooting and maintenance times.

Student Teaching Assistant

Feb. 2022 - June 2024

KU Leuven — Campus Group T

Leuven, Belgium

- Led lab sessions in Electronics (1st year), Operating Systems (3rd year), and Transmission of Digital Information (3rd year) for Belgian and international students.

Languages: Dutch (Native), English (Fluent), French (Working) | **Interests:** Home automation, guitar, puzzle games, reading