Title: Bridging neural rendering and classical computer graphics
Presenter name: **Anthony Cioppa (work by Jan Held)**
Company name / Institute: University of Liège / VIULab
Project name: None
Funding group: FRIA/FNRS
Abstract can be published on website (select): ☒ **YES** ☐ **NO**

Add here your abstract below. Limit to max 1-page A4. Feel free to include pictures. Purpose of the abstract is to interest the visitor on the website to join the event and listen to your contribution.

What if we could reconstruct the world in 3D from just a handful of photos, and render it in real time? Recent advances in neural rendering have brought this vision within reach. Among them, 3D Gaussian Splatting has become the method of choice, representing scenes as clouds of volumetric primitives and delivering stunning visual quality at interactive speeds. Yet for all its success, this approach hits a wall when it comes to sharp geometry, crisp surfaces, and, importantly, compatibility with the graphics pipelines that power today's games, films, and AR/VR experiences.

In this keynote, I will show that the choice of primitive matters more than we thought. Rather than clouds of Gaussians, what happens if we build radiance fields from smooth convex shapes, from triangles, or even from full meshes?

I will present three approaches that progressively close the gap between neural rendering and classical computer graphics. 3D Convex Splatting replaces Gaussians with smooth convex shapes that capture flat surfaces and sharp edges with fewer primitives and less memory. Triangle Splatting goes further and revisits the most fundamental primitive in computer graphics, making triangles directly optimizable through differentiable rendering and natively compatible with existing GPU pipelines. Finally, MeshSplatting optimizes fully opaque, connected triangles into coherent surfaces that drop straight into real-time rendering engines, ready for augmented and virtual reality without any postprocessing.

Together, these results tell a simple story: decades of GPU-accelerated graphics and modern differentiable frameworks are not competing paradigms but natural allies. By moving from Gaussians to convexes to triangles and finally to meshes, we can have it all: high-quality reconstruction, geometric consistency, efficient rendering, and seamless integration with the tools the graphics community has refined for decades.

Add here your profile picture that we can include in the presentation slide deck.

