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Coding 3D Gaussian Splatting: From Theory to Real-Time Rendering

The recently popularized 3D Gaussian Splatting (3DGS) models enable photorealistic novel view synthesis at unprecedented speeds. However, the growing adoption of 3DGS in multimedia applications—from immersive AR/VR to volumetric streaming—demands efficient coding strategies to address bandwidth, storage, and computational constraints. Recent advances in sparse quantization, entropy coding, and latent-space compression have significantly reduced the bitrate requirements of 3DGS representations while preserving visual fidelity. This talk will provide an overview of the essential elements of 3DGS, presenting recent progress in the field, aiming at reducing their size and extending their use to animation and beyond.

Enzo Tartagione is a Full Professor at Télécom Paris, where he is responsible for the group Multimedia and he is a Hi!Paris associate member. He is also a Member of the ELLIS Society, Senior IEEE Member, Associate Editor of IEEE Transactions on Neural Networks and Learning Systems, Action Editor for Transactions of Machine Learning Research and of the EURASIP Journal on Image and Video Processing. He received the MS degree in Electronic Engineering at Politecnico di Torino in 2015, cum laude. The same year, he also received a magna cum laude MS in electrical and computer engineering at University of Illinois at Chicago. In 2016 he was also awarded the MS in Electronics by Politecnico di Milano, cum laude. In 2019 he obtained a PhD in Physics at Politecnico di Torino, cum laude, with the thesis "From Statistical Physics to Algorithms in Deep Neural Systems". His principal interests include compression and responsible (frugal) AI, privacy-aware learning, data debiasing, 3D Gaussian Splatting, and regularization for deep learning.

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Università di Torino, Dipartimento di Informatica

Meeting Room 3rd Floor, Via Pessinetto, 12

Link: https://tinyurl.com/4v3ebexc