
Toward characterization of 3D bijective digitized reflections

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Résumé

In this talk, we focus on 3D digitized reflections, whose compositions lead to 3D rotations, and characterization of their bijectivity. The chosen framework is geometric algebra since it allows to reformulate and redefine problems involving geometric transformations in a more intuitive and general way. There are less degrees of freedom for reflections than rotations, allowing us to visualize bijective ones using the verification algorithm. This brings to us the conjecture that bijective digitized reflections in 3D are a simple extension of the 2D cases and that no other bijective digitized reflection exists in 3D. Affirmatively answering this conjecture proves that there are no other bijective digitized 3D rotations beyond the simple 2D extension.

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