GEOMETRIC MATRICES AND THEIR PROPERTIES

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Geometric Calculus has mostly been used in analysis, focusing less on linear algebra. In this paper we defined the fundamental operations, geometric addition (G-addition) and geometric multiplication (G-multiplication). Further, we prove some properties associated with geometric operations. Additionally, we defined the geometric determinant and examined its properties Our aim of this work is to introduce geometric matrices and fundamental matrix operations, specifically geometric addition (G-addition) and geometric multiplication (G-multiplication). Additionally, we define the geometric determinant and explore its properties. Our key findings include the commutativity, associativity, and the existence of identity and inverse elements under G-addition, as well as the non-commutativity, non-associativity, and the existence of identity and inverse elements under G-multiplication. These findings provide a foundation for further research in the application of Geometric Calculus to geometric matrix theory, opening new avenues for mathematical exploration in non-Newtonian frameworks.

Keywords: Geometric calculus, Geometric matrices.