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*Title:* Clifford Algebra in Sensor Fusion and Coordinate Transformation.

*Abstract:* One of the main issues within sensor fusion, in robotics applications and calibration, is the transformation of coordinates or variables between different reference frames. This transformation is carried out using different approaches; among them are the quaternion parameters and direction cosines. The nature of applications necessitates fast in computation and easy or concise in manipulation. Therefore, the objective of this paper is to use Geometric algebra in coordinate transformation. Using Geometric algebra, we find that this formulation is simpler, with lower computational time and more obvious than other methods as it depends on the characteristics of Geometric algebra which unites vectors of different planes into a single mathematical system with a comprehensive geometric significance.