

What Can Hamilton, Grassmann, Clifford and Hestenes Tell us About Perception and Action Systems

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Abstract. This paper shows the power of geometric algebra to handle complex tasks of perception action systems. We focus on three robot tasks: invariant theory and omnidirectional vision using conformal geometric algebra for object recognition, conformal geometric control of robot devices and robot learning using Clifford Support Vector Machines. The impact of the ideas as legacy of Hamilton, Grassmann, Clifford and Hestenes is vividly demonstrated with real robot vision tasks.

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