Application of Hyper-Dual Numbers to the Equations of Motion

The seminar will be given in Hebrew

The develop of hyper-dual numbers of order n and their application to rigid body equations of motion. First, we introduce the general form of a hyper dual number followed by an extension of Kotelnikov’s principle of transference to hyper-dual numbers of order n. We then introduce a theoretical symbolically formulated model for the equations of motion of a rigid body, in a hyper-dual number form. Defining the hyper-dual angle that encompasses a body’s position, which enables the use of the “automatic differentiation” feature of the dual numbers to obtain the equations of motion from the hyper-dual transformation matrix. The equations are obtained from the elements of the hyper-dual Jacobean matrix by algebraic manipulations only, with no need for time derivatives of the body pose.

בברכה,

2018.03.14 (כסibraltar, תשע”א), בניין ליידי דייוויס, אודיטוריום 250, 13:30

מרצה:
אבי כהן

מנחה:
פרופ’ משה שניאו

על הנושא:
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