

Control of a Symmetrical Dual-drive Gantry System using Energetic Macroscopic Representation

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Abstract. Dual-drive gantry systems are commonly used in many industrial applications. However, as few papers are available in the literature, this kind of system is difficult to broach. Based on an energetic approach so-called Energetic Macroscopic Representation (EMR), this paper presents a graphical modelling based on lumped-parameters. The initial drive is decomposed into a set of decoupled fictitious systems using a mathematical transformation. Since the modelling respects the integral causality, inversion-based controls are thus deduced. More generally, this approach proposes a way to analyze and deduce models and controls of multi-drive mechatronic systems.

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