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KÄHLER DYNAMICS FOR THE UNIVERSAL MULTI-ROBOT FLEET

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Abstract. A general model is formulated for a universal fleet of all unmanned vehicles, including Aerial Vehicles (UAVs), Ground Vehicles (UGVs), Sea Vehicles (USVs) and Underwater Vehicles (UUVs), as a geometric Kähler dynamics and control system. Based on the Newton-Euler dynamics of each vehicle, a control system for the universal autonomous fleet is designed as a combined Lagrangian and Hamiltonian form. The associated continuous system representing a very large universal fleet is given in Appendix in the form of the Kähler-Ricci flow.

MSC: 32Q15, 37J99, 68T40
Keywords: Aerial, autonomous multi-robot operation, Kähler dynamics, sea and underwater vehicles, unmanned ground

Contents

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