

# Mathematical Modelling and Identification of a Quadrotor

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**Abstract:** Motivated by the important growth of VTOL vehicles research such as quadrotors and to a small extent autonomous flight, a quadrotor dynamical model is presented in this work. The purpose of this study is to get a better understanding of its flight dynamics. It is an underactuated system. So, a simplified and clear model is needed to implement controllers on these kind of unmanned aerial systems. In addition, a computational tool is used for validation purposes. For future works embedded or intelligent control systems can be developed to control them. Gyroscopic and some aerodynamics effects are neglected.

**Keywords:** Quadrotor, VTOL, Flight dynamics, UAV