

Dynamic Vehicle Assessment for Intelligent Contingency Management of Urban Air Mobility Vehicles

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New algorithms will be required to ensure passenger and bystander safety during the expected era of autonomous urban air mobility (UAM) aircraft. This paper examines an approach for assessing the vehicle capability to fly itself and to complete a mission safely. The concepts combine elements of system identification, adaptive control, flight dynamics, envelope predictions, and handling qualities, as well as human pilot intuition. The approach is applied to a simulation of a generic distributed electric propulsion urban air mobility-type aircraft, which was developed under the NASA Transformational Tools and Technologies (TTT) project, Autonomous Systems / Intelligent Contingency Management subproject.

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