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### SEAMLESS INDOOR-OUTDOOR NAVIGATION FOR UNMANNED AERIAL PLATFORMS

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Abstract. This paper discusses the development of navigation algorithms to enable a multi-copter in an indoor-outdoor environment. In urban and indoor environments, GPS signals are unavailable not only due to shadowing, significant signal attenuation or multipath deception. The proposed navigation algorithm uses data from a GPS receiver, an Inertial Measurement Unit (IMU). This paper addresses the proposed multi-mode fusion algorithm using flight test data. This paper furthermore describes the 3DR hexacopter platform in an operational environment, starting in an open environment, transitioning into a building, and, finally, transitioning back to the outdoor environment. Implications for future research are discussed.

[Conference Paper](#) (PDF, 1628 KB)

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