## Mobility-Aware Relay Selection in Two Hop Unmanned Aerial Vehicles Network

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**Abstract :** Unmanned Aerial vehicles (UAV's) have gained great popularity due to their remoteness, ease of deployment and high maneuverability in different applications like real-time surveillance, image capturing, weather atmospheric studies, disaster site monitoring and mapping. These applications can involve a real-time communication with the ground station. However, altitude and mobility possess a few challenges for the communication. UAV's at high altitude usually require more transmit power. One possible solution can be with the use of multi hops (UAV's acting as relays) and exploiting the mobility pattern of the UAV's. In this paper, we studied a relay (UAV's acting as relays) selection for a reliable transmission to a destination UAV. We exploit the mobility information of the UAV's to propose a Mobility-Aware Relay Selection (MARS) algorithm with the objective of giving improved data rates. The results are compared with Non Mobility-Aware relay selection scheme and optimal values. Numerical results show that our proposed MARS algorithm gives 6% better achievable data rates for the mobile UAV's as compared with Non MobilityAware relay selection scheme. On average a decrease of 20.2% in data rate is achieved with MARS as compared with SDP solver in Yalmip.

**Keywords :** mobility aware, relay selection, time division multiple acess, unmanned aerial vehicle **Conference Title :** ICCSC 2018 : International Conference on Communication Systems and Components **Conference Location :** Amsterdam, Netherlands

Conference Dates : December 03-04, 2018

1