Interference Estimation in Wireless Mobile Random Waypoint Networks

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Abstract:

It is well known that the stochastic nature of the interference deeply impacts on the performance of emerging and future wireless communication systems. In this work we consider an ad hoc network where the nodes move according to the Random Waypoint mobility model. Assuming a time-varying wireless channel due to slow and fast fading and, considering the dynamic path loss due to the mobility of the nodes, we start by characterizing the interference distribution caused to a receiver by the moving interferers located in a ring. Based on the interference distribution, we evaluate two different methodologies to estimate the interference in real-time. The accuracy of the results achieved with the proposed methodologies in several simulations show that they may used as an effective tool of interference estimation in future wireless communication systems, being the main contribution of this work.