

## **An Area-Based Vertical Motion Estimation on Heterogeneous Wireless Networks**

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### Abstract

In this paper, we will propose an area-based vertical motion estimation (AVME) scheme to efficiently and accurately predict target wireless networks and corresponding target cells for the next handoff of the mobile node (MN) on the increasingly prevalent heterogeneous wireless network environment which consisting of several different wireless networks such as wireless LAN (WLAN), third generation cellular network (3G), etc. We adopt the back propagation neural network (BPN) model in this AVME scheme to generate mobility patterns of MNs by training the BPN model with historical handoff information of these MNs. By using the IBM City Simulator [1] to create the city plan and motions of all MNs, simulation results show that our AVME scheme on heterogeneous wireless networks can achieve higher level of predication accuracy for next handoff than traditional cell-based prediction scheme does on a single wireless network, but with less resources and computations.