

# Analysis of Mobility Prediction and Future Passenger Directions for Maximizing Futuristic Optimization by using ML

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**Abstract:** *The NEWS framework employs an intelligent HO skipping scheme in combination with context-aware HO skipping for its operation. The proposed technique enables train passengers to skip HOs dynamically after evaluating the complex LUO train network dynamics which surpass traditional HO schemes for smooth HO operations. The NEWS framework uses ML to analyze mobility predictions and future passenger directions as its first step toward future optimization. The PPP-based HO skipping model is simulated using ML classification results to perform topology-aware multiple HO skipping schemes for efficient HO management. The HO schemes use passenger location and cell-size as well as path and velocities and travel direction and cell-loads to determine the HOs to bypass unnecessary cell changes on the passenger trajectory. The Context-aware HO skipping technique provided better performance than all traditionally equipped HO schemes based on evaluation through coverage probability and average throughput and HO cost measurements.*

**Keywords:** ML driven mobility predictions, Context-aware HO skipping, Logistic regression