

HYBRID TDOA/AOA GEOLOCATION USING OPTIMIZATION SOLUTION

KYUNGHYUN LEE & KWANHO YOU

Department of Electrical and Computer Engineering, Sungkyunkwan University, Korea

ABSTRACT

Recently, mobile location estimate problem is a significant issue in many industrial fields such as radar, wireless communication, target tracking, and various types of location based services. Time difference of arrival (TDOA) and angle of arrival (AOA) are typical geolocation techniques for estimation of mobile location. In this paper, we suggest a hybrid TDOA/AOA geolocation equation as a simple matrix form. We can derive the objective function to minimize the estimation error with using geolocation algorithm. Also, Nelder-Mead simplex method based optimization solution is proposed. We confirm the performance of our proposed algorithms with a simulation result.

KEYWORDS: TDOA, AOA, Geolocation, Optimization Problem, Nelder-Mead Simplex Method