Authors:
Omar Waleed Abdulwahhab

Abstract

In this paper, the memorization capability of a multilayer interpolative neural network is exploited to estimate a mobile position based on three angles of arrival. The neural network is trained with ideal angles-position patterns distributed uniformly throughout the region. This approach is compared with two other analytical methods, the average-position method which relies on finding the average position of the vertices of the uncertainty triangular region and the optimal position method which relies on finding the nearest ideal angles-position pattern to the measured angles. Simulation results based on estimations of the mobile position of particles moving along a nonlinear path show that the interpolative neural network approach outperforms the two other methods in its estimations for different noise conditions.

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Index Terms

Computer Science   Artificial Intelligence

Keywords

Angle of arrival (AOA)   average position   optimal position   interpolative neural network.