UWB PRECISION GEOLOCATION USING FFT INTERPOLATION
(WedPmPO1)

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Abstract:
A precision positioning algorithm employing low data rate ultra wideband (UWB) technology is proposed. The positioning algorithm utilizes cross-correlation for estimating time difference of arrival (TDOA) between UWB pulses received at multiple receivers and provides a precise location estimate of the signal source thanks to FFT interpolation. The geolocation estimate is obtained from an iterative maximum likelihood estimator implemented as a Gauss–Newton algorithm. The effectiveness of the proposed precision positioning algorithm is verified by way of computer simulations.