

Abstract

The invention relates to a direction-finding method for detection and tracking of successive bearing angles of sound-emitting targets, wherein intensity plots of successive clock cycles in a waterfall plot show bearing traces of successive bearing angles, and preferred bearing traces are marked by a tracker. In order to automate the setting and deletion of trackers, starting from trace state vectors, which are determined at the time $t = k - 1$, are each associated with one bearing trace and each have a bearing angle as well as its time derivative, which is referred to as the bearing rate, and possibly an intensity and its time derivative, which is referred to as the intensity rate, and trace errors associated with the trace state vectors for the time $t = k$, predicted state vectors are together with predicted estimation errors. In this case, the prediction of each predicted state vector and of its estimation error are used as the basis for the approximation of a time profile of a bearing trace with linear subelements as target motion model dynamics. Each predicted bearing angle or each predicted intensity is calculated from the sum of the bearing angle or intensity determined most recently at the time $t = k - 1$ and a most recently determined bearing rate or intensity rate, multiplied by the clock cycle, of the same bearing trace. Measured bearing angles and/or intensities are examined for an association probability of association with one of the bearing traces. As a function of a determined association probability, a measured bearing angle and possibly a measured intensity are calculated, together with a predicted bearing angle and possibly a predicted intensity, to form an estimated bearing angle and possibly an estimated intensity at the time $t = k$. The estimated value or values determined in this way, together with the estimated bearing rate and possibly estimated intensity rate, form the trace state vector of the relevant bearing trace. When a plurality of measured bearing angles and possibly a plurality of measured intensities are associated to form a bearing trace, the respective estimated values are added in a weighted form, forming the trace state vector of this bearing trace. The trace state vector provides the output variables of the trace state vector predicted in the next clock cycle for the relevant bearing trace for prediction of $t = k$ to $t = k + 1$. Bearing traces formed in this way are displayed as a function of a trace quality.

The invention also relates to a correspondingly designed direction-finding installation.

[Figure 2]