

99. 다중 음원 환경에서 수동형 거리추정 기법의 성능 개선에 관한 연구

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In this thesis, the author studies the passive range estimation method using various beamformers for a linear hydrophone array. There are many applications in which it is of interest to estimate the time delay. A kind of important consideration in estimator design is the available amount of a priori knowledge of the signal and noise statistics. In many problems, this information is negligible. In passive ranging, the source spectrum is unknown or only known approximately. One common method of determining the time delay, the arrival angle relative to the sensors axis is to compute the cross correlation function. Because of the finite observation time, however, the cross correlation function cannot be precisely calculated. A low SNR is considered in underwater environment, so it is very difficult to gather data from the sound source in each hydrophones for improper cross-correlation values. Previous works have said that one important thing is to select the appropriate sensors having data including information of the target, but the towed linear array is physically limited. And in detecting multi-targets, it is difficult practically for the TDE (time delay estimation) method to detect them at the same time. The author makes appropriate sub-arrays in a linear array of N sensors and apply the beamformers such as a conventional beamformer, weighted and sum, etc. to compare, that is, we present and analyze the performance of range estimation using beamformers considering near-field. It is assumed that the real range is from the center of the linear array to the target, it means that there are two groups including several or many sub-arrays to make their own beam. From the center of the array to the left is called the left and to the right of the center, the right group. These beamformers of the sub-arrays make their own beams in equal increments to the equal-range in the known direction of the target step by step, the opposite side of the array make beams, also. As a result of these, the maximum values can be determin.

100. 3차 PLL 주파수합성기의 1/f 잡음 모델링에 관한 연구

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다양한 목적으로 이용되는 무선 통신 시스템에서 발생되어진 신호를 왜곡시키는 요소는 채널