

# Asymptotically Optimal Blind Calibration of Uniform Linear Sensor Arrays for Narrowband Gaussian Signals

## MATLAB Package

This MATLAB package contains the implementation of the blind calibration method of uniform linear arrays for narrowband signals, presented in the paper:

Weiss, A. and Yeredor, A., “[Asymptotically Optimal Blind Calibration of Uniform Linear Sensor Arrays for Narrowband Gaussian Signals](#)”, *IEEE Trans. on Signal Processing*, vol. 68, pp. 5322–5333, Aug. 2020.

### Content

This package contains six files (excluding this instruction file):

1. `script_MLOWLS_MSE_vs_T.m` – A script that produces plots comparing the MSE vs. the sample size, for a fixed SNR level, of the ML-OWLS and LS methods. Additionally, it also computes the respective Cramér-Rao lower bounds.
2. `script_MLOWLS_MSE_vs_SNR.m` – Does the same as the above script, but for a fixed sample size, and a varying SNR level.
3. `Approx_ML_Estimate_calibration_errors.m` – A function that computes the ML-OWLS estimates of the gain and phase offset parameters.
4. `Estimate_calibration_errors_Kailath_indices.m` – A function that computes the LS estimates of the gain and phase offset parameters.
5. `generate_H_matrix_for_ML_OWLS.m` – An auxiliary function that compute a matrix of coefficients, required for the computation of the ML-OWLS estimators (see Appendix A of the paper above).
6. `Compute_FIM_blind_calibration.m` – Compute the Fisher information matrix of all the unknown deterministic parameters in the signal model.

For more details see the in-code documentation in the files.