

## SPCOMIT Poster Presentation

Title: Measure transformed quasi likelihood ratio test for Bayesian binary hypothesis testing

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### Abstract

In this paper, a generalization of the Gaussian quasi likelihood ratio test (GQLRT) for Bayesian binary hypothesis testing is developed. The proposed generalization, called measure-transformed GQLRT (MT-GQLRT), selects a Gaussian probability model that best empirically fits a transformed conditional probability measure of the data. By judicious choice of the transform we show that, unlike the GQLRT, the proposed test is resilient to outliers and involves higher-order statistical moments leading to significant mitigation of the model mismatch effect on the decision performance. Under some mild regularity conditions we show that the test statistic of the proposed MT-GQLRT is asymptotically normal. A data driven procedure for optimal selection of the measure transformation parameters is developed that minimizes an empirical estimate of the asymptotic Bayes risk. The MT-GQLRT is applied to signal classification in a simulation example that establishes significantly improved probability of error performance relative to the standard GQLRT.

Nir Halay is an M.Sc. student of Dr. Koby Todros.

The seminar will take place on **Thursday, 23-6-2016, 14:10, in room 102 building 33.**