

# Abstract

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## **On The Performance Analysis of Symbol-Level Regressive Coding Technique via Variational Bayesian Expectation Maximization**

In a previous work, a novel channel coding scheme was introduced based on the regression of symbols via Variational Bayesian Expectation Maximization (VBEM). A certain pattern of inferring symbols was used and weights obtained from regression were mapped to the receiver embedded inside data symbols to enhance the detection process via another regression. In this paper, probability of bit error formula is characterized and verified for the proposed coding scheme to select the optimum coding parameters. To verify the equation, we apply it on Gaussian Basis functions to obtain the least possible BER. Simulations are compared to theoretical results to show high coincidence.