pds_shomega.m

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May 2, 2016

Abstract

The function pds_shomega() represent the formulation of $E = H(\Omega_M)$ in symmetric case of binary CEO problem.

1 Introduction

The function pds_shomega() in the m-file pds_shomega.m is defined as:

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E = pds_shomega(Ps,M).
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This function represent the formulation of $E = H(\Omega_M)$ in symmetric case of binary CEO problem, being $\Omega_M = U_1U_2 \ ... \ U_M$, $Pr(U_0) = 0.5$ and $P_s = Pr(U_i \neq U_0|U_0)$.

$$E = -\sum_{k=0}^{M} \binom{M}{k} Prob(k) log_2(Prob(k)) \tag{1}$$

$$Prob(k) = 0.5(Ps^k(1-Ps)^{M-k} + Ps^{M-k}(1-Ps)^k) \tag{2}$$

This equation can be seen in [1].

References

[1] Ferrari, G.; Martalo, M.; Abrardo, A.; Raheli, R., "Orthogonal multiple access and information fusion: How many observations are needed?," Information Theory and Applications Workshop (ITA), 2012 , vol., no., pp.311,320, 5-10 Feb. 2012. doi: 10.1109/ITA.2012.6181783