pds_shomega.m

Fernando Pujaico Rivera

August 24, 2015

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:

```
E = pds_shomega(Ps,M).
```

This function represent the formulation of $E = H(\Omega_M)$ in symmetric case of binary CEO problem, being $\Omega_M = U_1 U_2 \ldots U_M$, $Pr(U_0) = 0.5$ 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