

Re: What's mean "specify the optimal hypothesis test"?

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I got a problem. In this problem, consider hypohese

$H_0: r=0$ $H_1: r \neq 0$
and observations $Z_i = r + W_i$,
with W_i zero-mean jointly Gaussian but not
independent.
Denoting $W = [W_1 \dots W_n]'$
 $E[WW'] = P$
And given some other conditions.

the question is "Specify the optimal hypothesis test
for false alarm probability α ."

I think this problem is not hard. But I don't know
what the question want. Does it need me to get a
value or something? I don't know what "the optimal
hypothesis test"
mean. I only want to clear what is question want me
to do.

Thanks for help!

James

If P is known, then the test that rejects H_0 when

$$z'P^{-1}z > \text{Chisq}(n, 1-\alpha)$$

is UMP invariant.

Jack

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