Outline

Abstract

- This document contains the explanation of question 7.18 of Papoulis Pillai Probability book of chapter sequence of random variables.

ASSIGNMENT 6

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Show that if $a_0 + a_1x_1 + a_2x_2$ is the non-homogeneous linear MS(Mean Square) estimate of s in terms of $x_1$and X_2,then
$\hat{E}\{s - n_s|x_1 - n_1, x_2 - n_2\} = \alpha_1(x_1 - n_1) + \alpha_2(x_2 - n_2)$

$$\hat{E}(\frac{s}{x_1, x_2}) = a_0 + a_{1x1} + a_2 x_2$$

$$\hat{E}(\frac{s}{x_1 - n_1, x_2 - n_2}) = a_0 + a_1(x_1 - n_1) + a_2(x_2 - n_2)$$

$$\hat{E}(\frac{s - n_s}{x_1 - n_1, x_2 - n_2}) = \hat{E}(\frac{s}{x_1 - n_1}) - \hat{E}(n_s x_1 - n_1, x_2 - n_2)$$

$$= a_0 + a_1(x_1 - n_1) + a_2(x_2 - n_2) - \hat{E}(a_0) - \hat{E}(x_1 - n_1)$$

$$-\hat{E}(x_2 - n_2)$$

$$= a_0 + a_1(x_1 - n_1) + a_2(x_2 - n_2) - a_0$$

$$= a_1(x_1 - n_1) + a_2(x_2 - n_2)$$