

ECE 6950 Final Take Home, Due Wednesday, 14 Dec. by 7:15 pm

No collaboration or help is allowed on this take-home exam, it must be your own work!

(1) Computer Project from Chapter 10.

(a) Dr. Bazuin demonstrated interference cancellation using the partB code as PartB_bjb_aug. The code used the e-NLMS algorithm. As an algorithm comparison, write another version of this code using the RLS algorithm.

(2) Comparison of LMF and LMMN algorithms.

Starting with Dr. Bazuin's code from exam #2 (Ch05partA_LMS_NLMS_RLS_zetaSSbound.m), include the LMF and LMMN algorithms in the simulation. Include steady state error bounds.

Notes: (1) There is an implementation of LMF in Chap 9 partG, you may want to use this example. (2) Read the remarks [implementation] on p. 313.

(3) Based on the textbook and in-class solutions for the least-squares problems of sections 11.1, 11.2, and 11.3, provide a detailed solution to prove 11.4 – the weighted regularized least-squares solution and Theorem 11.4.1.

For your solutions:

(a) Design, simulate and document in a **written report** the solution and results.

(b) Provide graphs, equations, figures, and plots that demonstrate that all elements of the problems have been completed.

(c) **E-mail the Matlab *.m file code to me.** The files must be received AND execute without modification in order to receive credit. It is likely that I will execute your code to verify the results that you submit. Therefore, if non-standard *functions* are used, send them as well. Non-standard is anything not in the basic matlab package, signal processing toolbox, communications toolbox, or control system toolbox. (Check to see where your functions come from!)