EE6110 Adaptive Signal Processing

Assignment

The assignment problems have been chosen from the textbook by A. H. Sayed (2008). The relevant parts of the book are uploaded in moodle. The book is available on IEE-EXplore at
https://ieeexplore.ieee.org/book/5237520

1. Solve one of the following sets of problems (each corresponding to a stochastic gradient algorithm). Please show *all* important steps clearly.

   (a) Problems III.14, III.15, and III.29: Sign-error LMS

   (b) Problems III.12, and III.26: Leaky-LMS

   (c) Problems III.16, and III.30: LMF

   (d) Problems III.17, and III.31: LMMN

   (e) Problems III.21, and III.36: CMA1-2, NCMA

   (f) Problems III.18, and III.33: CMA2-2

   (g) Problems III.19, and III.34: RCA

   (h) Problems III.20, and III.35: MMA

2. Write programs to generate the results in Figures 10.10 of the book (in pages 177). Discuss the results and present your observations.

3. Write programs to generate the results in Figures 16.2 and 16.3 of the book (in pages 250-251). Discuss the results and present your observations.

Submission instructions:

- Each student should submit a report by Nov 27, 2020.

- For the simulation assignment, submit a report with the appropriate plots in a single PDF file. Your *observations* from the plots should be clearly mentioned in the report.

- For the first problem, scanned hand-written solutions to the problems should be submitted as a PDF file.

- While you can discuss the problems with others in the class, the simulation programs and report have be *original*. Any case of copying will result in no credit for the assignment.

Evaluation: Evaluation will be based on the reports and, if required, a viva.