

EE5027 Adaptive Signal Processing

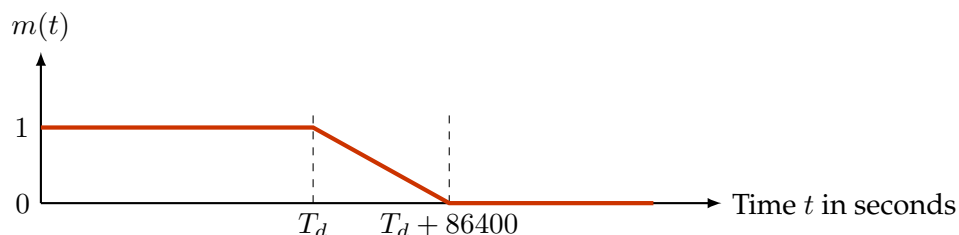
Administrative Details

- Lecture room: Barry Lam Hall Room 103 (博理103)
- Lecture hours: Wednesday 2, 3, 4 (9:10am to 12:10pm)
- Class website:
 - Course materials, homework, announcements
http://homepage.ntu.edu.tw/~chunlinliu/AdaptiveSP_Fall_2018.html
 - Homework *submission*, discussion forum
<https://ceiba.ntu.edu.tw/1071EE5027>
- Instructor: Chun-Lin Liu (劉俊麟)
 - E-mail: chunlinliu@ntu.edu.tw
 - Phone: 02-33669806
 - Office room: Ming-Da Hall 515 (明達館515)
 - Office hours: 9:00am to 10:00am on Tuesdays, or by appointment
- Teaching assistant: Yenming Huang (黃彥銘)
 - E-mail: d01942015@ntu.edu.tw
 - Office room: Ming-Da Hall 530 (明達館530)
 - Office hours: By appointment

Reference Books

1. F. Maloberti and A. C. Davies, Eds., *A Short History of Circuits and Systems*, River Publishers, 2016.
Available at <http://ieee-cas.org/short-history-circuits-and-systems>.
The history of adaptive filters and adaptive signal processing was reviewed in pp. 85-96.
2. †B. Widrow and S. D. Stearns, *Adaptive Signal Processing*, Prentice-Hall, 1985.
3. †S. Haykin, *Adaptive Filter Theory*, Fourth Edition, Prentice Hall, 2001.
4. A. H. Sayed, *Adaptive Filters*, John Wiley & Sons, 2008.
Available at <https://doi.org/10.1002/9780470374122>
5. T. Kailath, A. H. Sayed, B. Hassibi, *Linear Estimation*, Pearson, 2000.
6. P. P. Vaidyanathan, *The Theory of Linear Prediction*, Synthesis Lectures on Signal Processing, Morgan and Claypool Publishers, 2008.
Available at <https://authors.library.caltech.edu/25063/>

† Hard copies are available at Main Library 1F.

Figure 1: The masking function $m(t)$

Grading

- Homework (15% \times 4)
 - Four times
 - Homework submission:
 - * Please submit an electronic copy to Ceiba (typed or scanned). PDF files are encouraged.
 - * Please also submit a hard copy before the lecture at 9:10am. The hard copy should be identical to the electronic copy in Ceiba.
 - Codes: Please submit your executable codes to Ceiba. MATLAB is preferred.
 - Collaboration is encouraged but you need to
 1. write down your own solution independently,
 2. describe how you collaborate with others (names and details) in your solution, and
 3. cite references properly.
 - No cheating.
 Caught cheating for the first time \Rightarrow 0 for that homework/exam/report.
 Caught cheating for the second time or more \Rightarrow Failed.
 - Your score in each homework assignment
 (t =The submission time stamp in Ceiba, T_d =The deadline, both in seconds)

$$(\text{Your score}) = (\text{Your raw score}) \times m(t). \quad (1)$$

$$m(t) \triangleq \begin{cases} 1, & \text{if } t \leq T_d, \\ 1 - (t - T_d)/86400, & \text{if } T_d \leq t \leq T_d + 86400, \\ 0, & \text{otherwise.} \end{cases} \quad (2)$$

- No extensions, unless granted by the instructor before $T_d - 86400$ (one day before the deadline).
- Midterm exam (20%)
 - 2 hours in class
 - Open handwritten notes and the printed slides of Kalman Filters in a Nutshell. Calculators are allowed.
 - The following are NOT allowed: Graded homework, homework solutions, reference books, Internet, laptops, computers, and cell phones.
 - Time: 9:10am, on November 21, 2018.
 - Location: Barry Lam Hall Room 103 (博理103)
- Final report (1% + 19%)

- Literature survey in the broad area of adaptive signal processing.
 - The proposal for your final report (1%):
 1. The list of papers you are going to read. At least three peer-reviewed papers.
 2. How you will organize these papers in your final report.
 - Please submit electronic copies of your proposal and your final report to Ceiba.
 - Eqs. (1) and (2) also apply to proposals and final reports.
 - Final report formatting/layout/typesetting requirements:
 - * Title page
 - * At least 10 pages (≥ 10) on A4 papers. The title page is not included. Each page has a page number on the bottom.
 - * Font: Times New Roman or 標楷體. Font size: 12pt. Line spacing: single spaced. Page margin: 1.2 cm. Single column.
 - * The organization of the report includes Abstract, Keywords, Introduction, Main contents (This part can be extended into multiple sections), Simulations, Conclusion, and References.
 - Some points to be addressed in your final report:
 - * What is the importance of this topic to the community?
 - * In the literature, what have other researchers done for this topic?
 - * How is this topic relevant to this course?
 - * How are these papers related to the literature?
 - * What are the advantages and limitations of these methods?
 - * What are the possible future directions of this topic?
 - You can validate these papers by writing your own simulation program. New experiments are optional, but encouraged.
- Other notice
 - In case Ceiba is down or under maintenance, please send your homework/proposal/final report to the instructor and the TA by E-mail. If so, the submission time stamp is based on the E-mail. If you have multiple submissions, we will read the latest submission by default.
 - 10 more minutes (10:00am-10:10am) every week.

Last updated November 17, 2018.