College of Computer & Information Sciences
King Saud University

CEN549 Digital Speech Processing   Fall 2020 Semester
Instructor: Prof. Yousef A. Alotaibi   Course Outlines

Digital Speech Processing

Class	Dates (Hijri)	Topic
1	11/1/1442H	Introduction
2	18/1	Speech Signal
3	25/1	Arabic/English language basics
4	3/2/1442H	Arabic/English language basics
5	10/2	Hearing and Auditory Perception
6	17/2	Hearing and Auditory Perception
7	24/2	Short-Time Analysis of Speech
Exam I	**25/2/1442H**	Monday, Oct. 12, 2020
8	1/3/1442H	Short-Time Analysis of Speech
9	8/3	Homomorphic Speech Analysis
10	15/3	Homomorphic Speech Analysis
11	22/3	Linear Predictive Analysis
12	29/3	Linear Predictive Analysis
13	7/4/1442H	Introduction to Hidden Markov Models
Exam II	**8/4/1442H**	Monday, Nov. 23, 2020
14	14/4	Application to Digital Speech Processing
15	21/4	Review
16	28/4	General course final exams (Dec 13, 2020)
17	5/5/1442H	Final exams (Dec 20, 2020)

Prerequisites:
> (1) CEN340 "Signals and Systems", (2) CEN543 "Digital Signal Processing", (3) compliance to academic department regulations, if any.

Grading System:
- 20% Midterm Exam I.
- 20% Midterm Exam II/Research Project
- 20% Assignments/ Research Assignment
- 40% Final Exam.

Main Textbooks:
- L. Rabiner and R. Schafer, *"Theory and Applications of Digital Speech Processing,"* 1st Edition, Prentice Hall 2011.
- L. Rabiner and R. Schafer, "*Introduction to Digital Speech Processing*", NOW: The Essence of Knowledge, 2007.
- Mansour Alghamdi "Arabic Phonetics", Al-Toubah Bookshop, Riyadh 2001. (In Arabic).
- Other handouts about Arabic Language.

References:
- Sadaoki Furui, "*Digital Speech Processing, Synthesis, and Recognition*," Marcel Dekker, Inc 2001.
- L. Rabiner and B. Juang, *"Fundamentals of Speech Recognition,"* Prentice Hall1993.
- J. Deller, J. Proakis, and J. Hansen, *"Discrete-Time Processing of Speech Signals,"* Macmillan 1993.
- A. Oppenheim and A. Willsky, *"Signals and Systems,"* Prentice Hall 1997.
- Rowden, *"Speech Processing,"* McGraw-Hill 1992.

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