EEL 6586: AUTOMATIC SPEECH PROCESSING SPRING 2007

Instructor: John G. Harris Office: NEB 453 Phone: (352) 392-2652 Email: harris@cnel.ufl.edu Homepage: http://www.cnel.ufl.edu/hybrid/harris.html Office hours: TW 8:00-9:00am

TA: TBA

Prerequisite: EEL5701

Class Meeting: MWF 4th period (10:40-11:30pm) in NEB 101

Class Homepage: http://www.cnel.ufl.edu/hybrid/courses/EEL6586

Required Textbook: Discrete-Time Processing of Speech Signals by John R. Jr. Deller, John H. L. Hansen, John G. Proakis, Wiley-IEEE Press Reprint edition (September 21, 1999) ISBN: 0780353862.

Reference Books:

- Spoken Language Processing: A Guide to Theory, Algorithm and System Development by Xuedong Huang, Alex Acero, Hsiao-Wuen Hon, Raj Reddy Prentice Hall PTR; ISBN: 0130226165
- Speech Communications : Human & Machine by Douglas O'Shaughnessy, IEEE Press, Hardcover 2nd edition, 1999; ISBN: 0780334493.
- Digital Processing of Speech Signals, Rabiner and Schafer, Prentice Hall, 1978.
- Fundamentals of Speech Recognition, Rabiner and Juang, Prentice Hall, 1994.

J.G. Harris

- Speech and Audio Signal Processing : Processing and Perception of Speech and Music by Nelson Morgan and Ben Gold, July 1999, John Wiley & Sons, ISBN: 0471351547
- Discrete-Time Speech Signal Processing: Principles and Practice by Thomas F. Quatieri Publisher: Prentice Hall; ISBN: 013242942X; 1st edition (October 29, 2001)
- Speech Processing and Synthesis Toolboxes by Donald G. Childers, John Wiley & Sons, September 1999; ISBN: 0471349593

Course Topics:

The course covers the basics of speech processing, synthesis, and recognition. Homework assignments include writing Matlab programs to process actual speech signals. Course topics include:

- * Fundamentals of speech science
- * Modeling speech production
- * Short-term processing of speech
- $\ast\,$ Linear prediction analysis
- * Cepstral analysis
- * Speech coding and synthesis
- * Speech enhancement
- * Recognition using templates and DTW
- * Recognition using hidden Markov models

Tentative Grade Determination:

- 1/3 Homework
- 1/3 Exam 1
- 1/3 Final Project

Key Dates:

Exam March 22, period E2-E3, room TBA. Final project due April 25, midnight.