

# Speech Analysis and Linguistics

## Lecture-1: Course Introduction

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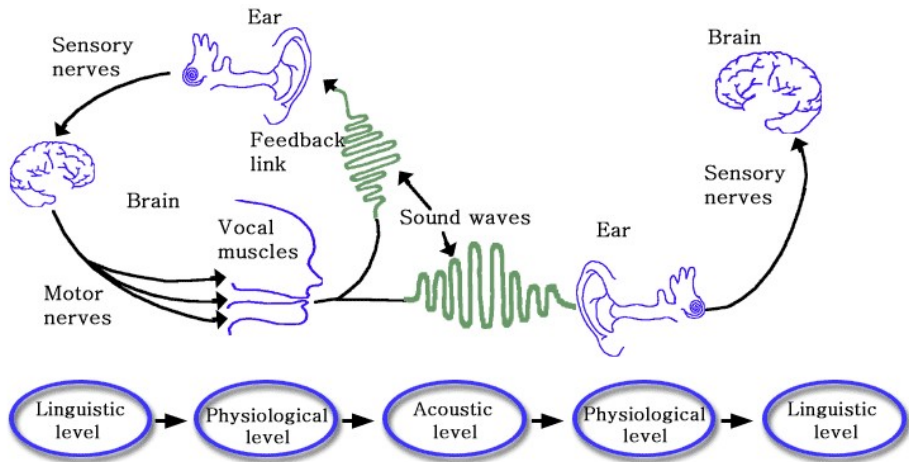
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- **Context sensitive and dependent** information will help to make sense from the language.

# The Speech Chain





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- It traditionally encompasses **semantics**, **syntax**, and **phonology**.

# Contents

- 1 Speech and linguistic basics: Description of frames, phonemes, syllables, words, phrases, sentences and its use in speech-based feature computation.
- 2 Linguistics in speech analysis: Overview of speech applications (such as ASR, TTS, Speech pathology etc.), use of phonemes, graphemes, prosody and text.
- 3 Phonemic analysis: Phonemes and its accents, visual phonetics (Spectrogram, articulatory videos), pronunciation variations and modelling, grapheme to phoneme conversion, phoneme accent variations and identification.
- 4 Prosodic analysis: Prosodic structure, word and syllable prominence, prominence detection and its applications, Intonation and its modelling (such as ToBI etc.), pitch and prominence variations, intonation identification, pauses, disfluencies and its detection, speech rhythm and speaking rate.
- 5 Text analysis: language modelling, neural language models, metrics, text normalization, character-based speech analysis.

# Text Books

- Speech and Language Processing, Daniel Jurafsky & James H. Martin (2000), Pearson Education/Prentice Hall.
- Prosody in Speech Understanding Systems, Ralf Kompe, Springer, 1997.
- The Music of Everyday Speech: Prosody and Discourse Analysis, Ann Wennerstrom, Oxford University Press, 2001.
- Relevant research articles (Will be uploaded in due course).

# Evaluation Criteria

- Quiz-1: 10%
- Mid Sem Exam: 15%
- Seminars: 20%
- End Evaluation: 15%
- Assignments: 15%
- Project: 25%



Thank you