2nd Year Project – Milestone 2: Speech Processing

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In this milestone you will be working with both text and speech. You are supposed to work on this milestone in labs 8, 9 and 10. The speech part is released on February 26.

You will work with speech data as introduced by Andreas Søeborg Kirkedal on Tuesday, Feb 26. You will work with text for intent identification as introduced by Barbara Plank on Friday, Feb 22.

In this milestone you will a) create a sequence labeler for text-based intent classification based on the ATIS data, and b) build a system that converts speech into graphemes (ATIS 2).

For the speech data, you will:

- Do basic processing of speech data,
- Build a machine learning classifier that performs sequence-to-sequence transduction,
- Evaluate your classifier and examine what it has learned by comparing it to a baseline system.

Requested reading: Chapter 9 of [1] (Sequence Processing with Recurrent Networks), Chapter 10 of Goldberg's Primer [2] (RNNs), Chapter 9 of [3] (Automatic Speech Recognition), and, optionally, Chapter 7 of [3] (Introduction to Phonetics).

Milestone 2

Solve the exercises provided in the notebook in the milestone 2 folder.

The outcome of your milestone are two files: one slide (as pdf) with your representative finding of this milestone (e.g., a result graph or similar, you can be creative here; imagine you need to show/summarize your milestone in a single slide, so, in general, less text is more), and a link to your github repository with your solution.

Submit Replace dsproj01 with your own username and:

pdf Submit a pdf of your one-slide summary of milestone 2. Name it: `dsproj01-m2-slide.pdf`. See useful tips on how to prepare the one slide summary on LearnIt.

git Submit a link to your git repository where your notebook with the solutions is. The link should be stored in this file: `dsproj01-m2-git.txt`.

Submission deadline: The submission deadline for this exercise is **Monday, March 4** at 14:00 CET.

Submission instructions: Upload your solution to LearnIt.

References

[1] D. Jurfasky and J. H. Martin, In Preparation. *Speech and Language Processing (3rd ed. draft)*. Available at https://web.stanford.edu/~jurafsky/slp3/

[2] Y. Golderberg, 2015. *A Primer on Neural Network Models for Natural Language Processing*. Available at https://arxiv.org/abs/1510.00726

[3] D. Jurafsky and J. H. Martin, *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition (2nd ed.)*, Prentice Hall, 2009. Draft version available at https://github.com/rain1024/slp2-pdf