

1st AθNLP Schedule - 18-25 September 2019

During the morning there will be lectures focusing on the main areas of NLP. Then there will be a practical session in the afternoon, where students will have the opportunity to test the concepts in practice. The practical sessions will consist of implementation exercises in Python of the methods learned during the morning, testing them on real examples.

Here is the *tentative* schedule:

Wednesday, September 18th

Evening: Registration

Thursday, September 19th

Morning: L1 - Classification (Ryan McDonald)

- Input Representations: Sparse feature representations vs embeddings
- Linear Classifiers (Perceptron; SVMs; Logistic Regression; Regularization)
- Neural Networks (FF-NNs/MLPs; Common loss functions; Activation functions; Backpropagation; Regularization and dropout)

Afternoon Lab: Lab 1 - PoS-tagging with Perceptron

Evening Seminar: TBA (Andre Martins)

Friday, September 20th

Morning: L2 - Structured Prediction (Xavier Carreras)

- Sequence Models (HMMs; CRFs; Viterbi/CKY, Forward-Backward)
- Factored Models vs. Transition-based Models

Afternoon Lab: Lab 2 - Pos-tagging with Structured Perceptron

Evening: Posters / Demos

Saturday, September 21st

Morning: L3 - Encoder-Decoder NNs (Barbara Plank)

- Input Encoders: RNNs; CNNs; Character vs. word; Attention mechanisms; Task-specific word embeddings
- Output Decoders: MLPs; RNNs; CRFs

Afternoon Lab: Lab 3 - Neural Encoding for Text Classification

Evening Seminar: TBA (Ryan Cotterell)

Sunday, September 22nd

Day off!

Monday, September 23rd

Morning: L4 - NLP Applications I: Machine Translation (Arianna Bisazza)

- History: Phrase-based MT
- Neural Machine Translation: Early models
- SOTA Encoder-Decoder Models: Transformer

Afternoon Lab: Lab 4 - Neural Language Modeling

Evening: Social Dinner

Tuesday, September 24th

Morning: L5 - NLP Applications II: Machine Reading (Sebastian Riedel)

- Information Extraction: Entity, Relation Identification and Classification
- Knowledge Bases
- Question Answering: Factoid, Dialogue-based, Answer Ranking

Afternoon Lab: Lab 5 - Neural Machine Translation

Evening Seminar: TBA (Angeliki Lazaridou)

Wednesday, September 25th

Morning: L6 - NLP Applications III: Dialogue and Generation (Vivian Chen)

- Task-oriented vs Open-ended dialogue
- Templates vs ML End-to-end dialogue

Afternoon Lab: Lab 6 - Question Answering

Evening Seminar: TBA (Vinodkumar Prabhakaran)