

EE-724

**Human language technology: applications to information access**

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Cursus	Sem.	Type
Electrical Engineering		Obl.

Language of teaching	English
Credits	4
Session	
Exam	Multiple
Workload	120h
<b>Hours</b>	<b>56</b>
Courses	28
TP	28
<b>Number of positions</b>	

**Frequency**

Every 2 years

**Remark**

Next time: Fall 2020

**Summary**

The HLT course introduces applications of human language technology focusing on accessing text information across three types of barriers: the quantity barrier (large repositories), the cross-lingual barrier, and the subjective barrier (human interactions).

**Content**

The following technologies will be studied for each barrier to information access:

- The quantity barrier: information retrieval, web search, document classification, topic models, learning to rank, question answering, recommender systems.
- The crosslingual barrier: machine translation (history of the field, presentation of rule-based and of statistical systems including phrase-based and tree-based ones, domain adaptation, the use of syntax and semantics), methods for text alignment, issues and metrics for MT evaluation, cross-language information retrieval.
- The subjective barrier: sentiment analysis, subjectivity detection, analysis of human exchanges (spoken or written) for information access, search within multimedia archives.
- Conclusion on the bases of HLT research: defining a problem, building reference data, finding features for machine learning algorithms, training the algorithms, evaluating and analyzing the performance.

**Keywords**

Human language technology, language engineering, information retrieval, machine translation.

**Learning Prerequisites****Recommended courses**

At least one prior course in statistics, machine learning, computational linguistics, or artificial intelligence. Programming proficiency in a language such as Perl or Java.

**Assessment methods**

Project report and oral presentation.

**Resources**

### Websites

- <http://iict-space.heig-vd.ch/apu/hlt-course/>