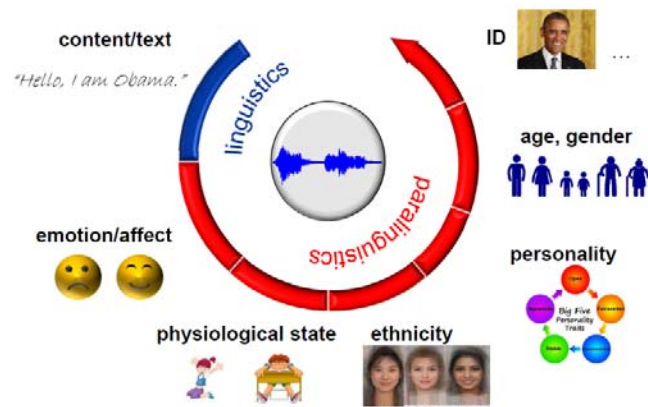


Bachelor-/Masterarbeit

Theme: Multi-Task Learning for Intelligent Speech Analysis

Intelligent Speech Analysis (ISA) plays an essential role in smart conversational agent systems that aim to enable natural, intuitive, and friendly human computer interaction. By these techniques, machine could extract not only the context from speech, but also some other information that beyond it, e.g., speaker's states (emotion, intoxication, etc.), ethnicity, personality (open, extravert, etc.), age, gender, and even identification. However, the analysis for one speech pattern is always influenced by some other patterns. For instance, it is known that speaker identification is hindered by emotion, and personality analysis is influenced by the use of second language.

Therefore, this mutual information among different patterns could be explored for booting the analysis performance of main speech pattern. **Multi-Task Learning (MTL)** is such an approach to machine learning that learns a problem together with other related problems at the same time, using a shared representation. This often leads to a better model for the main task, because it allows the learner to use the commonality among the tasks.



The task of this program is to apply MTL into the ISA system, with the aim of bridging the gap between human and machine for speech perception.

Requirements:

- Preliminary knowledge in Machine Learning
- Familiar with at least one programming languages (e.g., MATLAB, PYTHON, C/C++, Perl)
- Linux is preferred

Contact:

Dr.-Ing Zixing Zhang
zixing.zhang@uni-passau.de

Welcome to join us if you are interested! Also, if you have any questions, please contact me.