# Exploring Meta/Curriculum/Active Learning for efficient Natural Language Processing

Motivation

Although increasingly complex models like GPT-3 and BERT continue to set new state-of-the-arts in many natural language processing tasks, training such models requires a vast amount of data and resources. Increasing the complexity and data even further poses an essential problem due to the limits of currently available hardware, and moreover, is often only possible for large tech-companies.

The goal of this thesis is to explore and evaluate various approaches that specifically opt for efficient model training in low-resource scenarios. By investigating approaches from meta-learning [1], curriculum learning [2] and active learning [3] on a wide range of NLP tasks, our goal is to better understand the mechanisms of efficiently training deep neural networks.
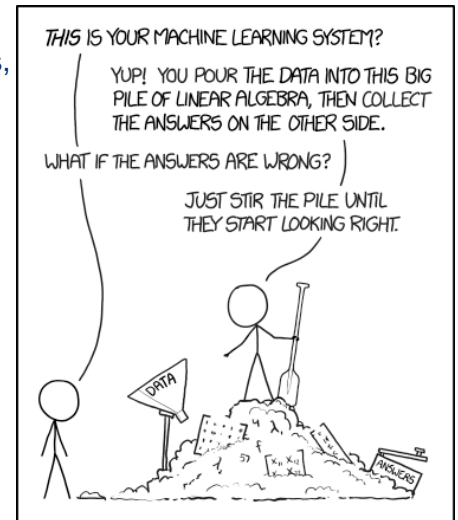
Task Description

- Explore and apply state-of-the-art approaches for efficient model training on various NLP tasks
- Work with recent deep learning architectures (transformers) and frameworks (PyTorch)

References

[1] Bansal, Trapit, et al. "Learning to Few-Shot Learn Across Diverse Natural Language Classification Tasks." ACL. 2020.
[2] Platanios, Emmanouil Antonios, et al. "Competence-based Curriculum Learning for Neural Machine Translation." NAACL-HLT. 2019.
[3] Yuan, Michelle, et al. "Cold-start Active Learning through Self-Supervised Language Modeling."

Analysis   ■■■■■
Programming   ■■■■□
Literature   ■■■■□

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