



## Thesis proposal

**Topic:** Multilinguality of large-scale language models

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**Examiner:** Hinrich Schütze

**Level:** BSc / MSc

**Summary:** The increasing prevalence of large-scale language models, such as ChatGPT, Bloom, LLaMa, and Alpaca, has revolutionized natural language processing (NLP) applications across various domains. However, their performance in multilingual scenarios remains an area of ongoing research. This project aims to explore the multilinguality of these models. The study will delve into the performance variations, strengths, and limitations of each model across a range of languages and language families. By employing rigorous evaluation metrics and benchmark datasets, the research aims to provide nuanced insights into the multilingual proficiency of these models, paving the way for advancements in the development of language models to mid- and low-resource languages. Possible experiments include:

- select multilingual benchmarks
- evaluate ChatGPT, Bloom, LLaMa, and Alpaca with designed prompt

**Requirements:** good programming skills, ability to use large scale language models; knowledge in a federated learning framework is a plus.

### References:

- Hailin Chen et al. (2024). *ChatGPT's One-year Anniversary: Are Open-Source Large Language Models Catching up?* arXiv: [2311.16989](https://arxiv.org/abs/2311.16989) [cs.CL]
- BigScience Workshop et al. (2023). *BLOOM: A 176B-Parameter Open-Access Multilingual Language Model.* arXiv: [2211.05100](https://arxiv.org/abs/2211.05100) [cs.CL]