

**Topic:** Explore bilingual adapters for cross-lingual transfer to low-resource languages

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**BSc, MSc:** BSc/MSc

**Summary:**

Fine-tuning large pre-trained language models has become a de-facto standard approach to many NLP tasks. Given the inefficiency of updating an entire model for each new task, various parameter-efficient fine-tuning methods have been proposed. One prominent approach is the adapter module which introduces a small number of new parameters for each downstream task. MAD-X (Pfeiffer et al., 2020) and its variants introduce language adapters that enable efficient cross-lingual transfer. However, they focus on creating language-specific adapters that do not specialize in specific transfer directions. There are cases where we want to incentivize certain transfer pairs (e.g. for similar languages), this can be especially meaningful if we have data in a language (i.e. the transfer language) related to our target low-resource language. One possible approach to improve the connection between the transfer and target languages is bilingual adapters. There is currently little research on bilingual or multilingual adapters. In this project, we would like to explore bilingual/multilingual language pair adapters for transfer learning to low-resource languages.

**Prerequisites:** good programming skills, knowledge of Transformer models, PyTorch

**References:**

1. MAD-X: An Adapter-Based Framework for Multi-Task Cross-Lingual Transfer, Pfeiffer et al., EMNLP 2020
2. BAD-X: Bilingual Adapters Improve Zero-Shot Cross-Lingual Transfer, Parović et al., NAACL 2022