

Abstract
**Efficient Algorithms for Hybrid
Neural Machine Translation**

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I hereby submit my doctoral dissertation in the form of a collection of papers published in peer-reviewed journals or peer-reviewed international conference proceedings. All the papers concern contemporary translation methods, in particular the inter-relations between the statistical and the neural approaches. All the papers are strictly related to the topic of the doctoral dissertation. My scientific activity concentrates around comparative analysis of both approaches. I conducted my first study in 2016, when neural translation was not yet the dominant method. As a result, I put forward a research hypothesis on the validity of solutions combining both approaches. In 2016, my assistant thesis supervisor and I introduced a hybrid model that combined the neural and the statistical approaches into machine translation. The solution took part in a shared task at the Workshop for Machine Translation (WMT) 2016, and it took the first place in the Russian–English category. In 2017, I published a paper on the effectiveness of translation algorithms. In the same year, I published an article showing the benefits of using syntactic information in the translation process. I am also a co-author of two tools for neural translation: AmuNMT and Marian NMT, which have been presented at international conferences. I concluded my research in 2019, when I performed another comparative analysis of both methods – this time from the perspective of commercial applications. The analysis confirmed the validity of my research hypothesis.

