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Deep Learning for Arabic NLP: A Survey

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Abstract

The recent advances in Deep Learning (DL) have caused breakthroughs in many fields such as computer vision, natural language processing (NLP) and speech processing. Many DL based approaches have been shown to produce state-of-the-art results on various tasks that are of great importance to Online Social Networks (OSN) and social computing such as sentiment analysis (SA) and Pharmacovigilance. NLP tasks are becoming very prominent in OSN and DL is offering researchers and practitioners exciting new directions to address these tasks. In this paper, we provide a survey of the published papers on using DL techniques for NLP. We focus on the Arabic language due to its importance, the scarcity of resources on it and the challenges associated with working on it. We notice that DL has yet to receive the attention it deserves from the Arabic NLP (ANLP) community compared with the attention it is getting for other languages despite the vast adoption of social networks in the Arab world. The majority of the early works on using DL for ANLP focused on OCR-related problems while the more recent ones are more diverse with the increasing interest in applying DL to SA, machine translation, diacritization, etc. This survey should serve as a guide for the young and growing ANLP community in order to help bridge the huge gap between ANLP literature and the much richer and more mature English NLP literature.

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