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CHALLENGES OF NLP FOR SPACE INDUSTRY: THE CASE OF COMMONSENSE REASONING

Abstract

Natural language processing (NLP); a branch of A.I., is gaining attention in space activities. Cognitive systems capable of manipulating and understanding language; such as CIMON 2 (Crew Interactive Mobile Companion) that employ IBM's Watson system as its AI., could make an integral part of the space industry. Its developers look for a future that having an artificial intelligence, astronauts going out to the moon or to Mars would have instantly all the knowledge of mankind. The ability to naturally interact with humans, makes a key element of these cognitive systems. For this purpose, the systems need to understand, reason, learn and interact like humans; in other words, they should understand imagery, language, and other unstructured data like humans. Discussing linguistic and real-world challenges of NLP for space industry, we argue that a well-organized and special corpus can be used for training issues of commonsense reasoning to these cognitive systems, although it is sometimes claimed that corpora are solely used for statistical linguistic analysis and hypothesis testing. We propose a type of multi-modal corpora to train these systems for linguistic and commonsense reasoning issues aimed at space missions. While being workable for high-resource languages (HRLs), it also would be useful for relatively low resourced languages (LRLs); where substantial corpora are not yet available.