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Advancing Question Answering in Nuclear Physics: A Comparative Review of NQuAD and EXPERT2 Datasets with Pathways to Next-Generation Models

This article provides a comprehensive comparative review of state-of-the-art question-answering (QA) methods in the nuclear physics domain, focusing on the NQuAD and EXPERT2 datasets. As nuclear physics expands in complexity and depth, the demand for robust and accurate QA systems has grown significantly, driving advancements in datasets and algorithms tailored to this specialized field. This review synthesizes previous efforts, highlighting the methodologies, performance metrics, and unique challenges inherent in these approaches. By systematically analyzing the capabilities and limitations of existing QA models, particularly those applied to the NQuAD and EXPERT2 datasets, the article aims to identify critical areas for improvement. The findings of this study will serve as a foundation for proposing innovative QA methods that surpass current performance benchmarks, with the ultimate goal of enhancing the efficiency and accuracy of QA systems in nuclear physics. This work represents a significant step towards developing next-generation QA models to better meet the intricate demands of nuclear physics research and applications.

Section

Nuclear physics (Section 1)

Primary author: AKHMETOV, Iskander (KBTU)

Presenter: AKHMETOV, Iskander (KBTU)

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