Explainable AI for Engineering Applications,

Parikshit N. Mahalle

Department of Artificial Intelligence and Data Science Vishwakarma Institute of Information Technology, Pune, India

Abstract

The deployment of artificial intelligence (AI), Machine Learning, and deep learning-based solutions at all places have improved for businesses from a variety of sectors, such as automotive, electronics, and medical device manufacture, when compared to conventional, rules-based implementations.

Today's AI is model-centric where the data is stable and the majority of development efforts are spent on refining the model. In a data-centric AI approach, the data serves as the primary object that is iteratively developed and made deployable. This means more time is invested in labeling, managing, slicing, supplementing, and curating the data, while the model itself is kept relatively more static. The adoption of a data-centric strategy has resulted in some advancement that potentially makes AI benefits available to most businesses. The data-centric AI focuses on comprehending, utilizing, and reaching conclusions from data. AI used to be heavily dependent on rules and heuristics before becoming data-centric. These could be helpful in some circumstances, but when used on fresh datasets, they frequently produced less-than-ideal outcomes or even errors. By adding machine learning and big data analytics tools, data-centric AI modifies this by enabling it to learn from data rather than depending on algorithms. It can therefore make wiser choices and deliver more precise outcomes. Additionally, it has the potential to be significantly more scalable than conventional AI methods. As datasets get bigger and more complicated, data-centric AI will probably become more and more significant in the future.

This session mainly focuses on recent developments in the Explainability of Outcomes of AI models and justifies the outcomes with feature importance. The key objectives of this session include presenting a need for Explainable AI well equipped with coding and approaches, and methodologies to achieve accurate results by improving the feature selections. Explainability helps to handle challenges in improving the quality of data-centric models, challenges in datasets generation, synthetic datasets, analysis, and prediction algorithms in stochastic ways, etc.

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