Augmented Ontology by Handshaking with Machine Learning

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***Abstract*— Artificial intelligence products are already around us and will be emerging dramatically a lot in near future. Artificial intelligence is all about data analysis. When it comes to data analysis, there are two representative techniques: machine learning and semantic technology. They stand on the other side from where to begin analysis. Simply speaking, machine learning is based on the data while semantic technology relies on human domain knowledge (human learning). What if collected data are insufficient to reflect whole phenomenon? This is a limitation of machine learning. What if circumstance changes a lot as time goes by? Manual rule updating by experts is not a good solution in that circumstance. Based on these observations, we investigate two approaches and find a good solution which maximizes the advantages of both techniques and mitigates the limitations of them. This paper suggests a novel integration idea to compensate each technology with the other: that is semantic filtering. This paper includes a toy semantic modelling and a machine learning algorithm implementation to realize the proposed concept, semantic filtering.**

***Keyword*—** data analysis, Internet of Things, machine learning, semantic filtering, semantic technology,

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