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On Certification of Artificial Intelligence Systems

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Machine learning systems are today the main examples of the use of Artificial Intelligence in a wide variety of areas. From a practical point of view, we can say that machine learning is synonymous with the concept of Artificial Intelligence. In some works, this definition is somewhat limited, and they only talk about artificial neural networks and deep learning in the context of artificial intelligence, but this does not change the essence of the matter. Yes, there is the concept of the so-called strong artificial intelligence (Strong AI, full AI, and AGI are also all synonyms), but it is still far from practical use. Accordingly, in practice, we must focus on the current architectures of machine learning systems and on existing machine learning models and schemes for their implementation. Today, artificial intelligence (machine learning) applications are used in a wide variety of fields. The spread of machine learning technologies leads to the need for their application in the so-called critical areas: avionics, nuclear energy, automatic driving, etc. Traditional software, for example, in avionics, undergoes special certification procedures. These ad hoc testing procedures cannot be directly transferred to machine learning models. The article discusses approaches to the certification of machine learning models.

Summary

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