**Introduction to artificial general intelligence**

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**Abstract**

Deep neural network (DNN) is current trend and current popular implementation of artificial neural network, which simulates human neural network including nerve cells and synapses. Electric signals are modeled as propagation rule and weight updating rule built in DNN whose skeleton/structure quantified by weights is trained from data. In other words, DNN is infrastructure of artificial intelligence (AI), which is corresponding to human brain. However, human intelligence also includes another aspect that is reasoning ability to produce new knowledge as well as another aspect that is self-learning and self-training. DNN can produce new knowledge too by its subdomain that is generative artificial intelligence (GenAI) but GenAI needs data to train itself as well as GenAI must be structured by specific parameterized models like any DNN applications. Therefore, artificial general intelligence (AGI) can open a new sky for AI if some AI applications or AGI applications can train themselves without predefined and restricted parameters, which leads to an excellent result that an AGI application may solve an unknown problem which is the problem that it does not know yet before. Moreover, data is not so essential to AGI because AGI has self-learning mechanism. For easy explanation, AI or narrow AI for specific goals is infrastructure and AGI is high-level architecture (superstructure) so that narrow AI and AGI are developed mutually and symbiotically. This relationship is similar to the relationship between human brain and human reasoning. Note, narrow AI which is referred here as a focus group of AGI and narrow AI models are often mentioned as DNN applications although DNN is subdomain of narrow AI. Recall that a narrow AI model is the AI model which has concrete structure and concrete predefined parameters and aims to solve specific problems. This research is a short introduction of AGI with regard to narrow AI.

**Keywords:** artificial general intelligence (AGI), narrow artificial intelligence (narrow AI).

**1. Introduction**

**References**