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Experience oriented intelligent Internet of things

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Nowadays, extracting valuable information from data produced by Internet of things (IoT), and transforming the information into knowledge to empower IoT to become intelligent is the most challenging part and the essential goal of the concept of IoT. By utilizing artificial intelligence technologies, such as data mining and machine learning, smartness and intelligence can be added to IoT. The experience-oriented intelligent things (EOIT) is a novel approach that enables IoT to extract knowledge from their past experiences, as well as store, evolve, share, and reuse such knowledge aiming for intelligent functions. Artificial neural networks and deep learning are used in the EOIT for knowledge discovery and evolution, the acquired knowledge is represented as the set of experience knowledge structure (SOEKS), and organized as the Neural Knowledge DNA. Rather than taking all the data produced by IoT, this approach focuses on using only interesting data for its knowledge discovery and evolution process, by capturing decision events of IoT, this approach gathers its domain's daily decisional operation experience, which is the interesting data for knowledge discovery and evolution. The Neural Knowledge DNA is a domain-independent, flexible, and sharable experiential knowledge representation method designed to allow knowledge acquisition, reuse, evolution, and sharing for artificial neural network-based applications.

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