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Before joining Keio University in 2013, he had been a senior research engineer of NTT, which he joined in 1989 to do research and development in application of artificial intelligence, to convergent systems for mobile and fixed telecommunication, such as conversational robots and humanoids. This became, in 1998, a part of Japan Science and Technology Agency's program called Core Research for Evolutional Science and Technology Program that aimed at "Creating the Brain". Since 2000, he was involved in several projects in and outside of Japan to apply metadata and ontology for various services including, but not limited to, telecommunication and broadcasting, which have led to global standards that are currently commercially deployed in several services. He is also actively involved with the International Telecommunication Union, part of the United Nations.

Making Intangible Cultural Heritage Tangible

In this presentation, we consider two approaches to the conservation, access, transmission and management of (intangible) cultural heritage, both of which are necessary for heritage science. The first approach is the holistic approach, which takes advantage of the recent development in digital multimedia technology. It is needless to say that intangible cultural heritage should be recorded as accurately as possible, with the community and the people who preserve it. In this regard, recent advancement in digital recording technology can greatly help us record, share and transmit heritage. The second approach is the analytical approach, which is rooted in the interpretative/semantic analysis in artificial intelligence and cognitive science. One example is ontology. In order to preserve intangible cultural heritage, knowledge and skills, it is also necessary to record the background information of them, and the relationship among the background entities. This is where ontology and metadata for cultural heritage become essential. Another example is from the area of multimedia information retrieval (MIR), which enables to search and catalogue multimedia data. This is important in creating archives and applications that can be used to transmit cultural heritage. Recent technology like Dynamic Bayesian Network (DBN) can be applied to give analytical meaning to the holistically collected multimedia data.