Smart Assistance Services Based on Multisource Data Sensing and Edge Analytics

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Many digital devices (mobile or embedded) appear near people due to the Internet of Things (IoT). Such a device can be utilized to serve humans. Devices enable cooperative service construction. Any IoT environment can be considered as a smart or intelligent environment, since the goal is to produce smart services for its users.

Smart service is characterized by such properties as context-awareness, personalization, information assistance, ubiquitous access, adaptation, pro-active delivery, and others. Service intelligence can be created based on the Ambient Intelligence (AmI).

IoT environment provides multisource data and sensing possibilities. Data sources are people, information systems, Internet services, smart IoT objects, and embedded and mobile sensors. The data are fused and analyzed to derive the proper information to assist the user. The analysis is in the form of smart information services that make analytics over the sensed data primarily at the Internet edges.

In this tutorial we study the following open problems.
- Services provide analytics in real-time using edge IoT devices.
- Applying AI methods to robotic movement analysis with very fast response.
- Assistance services based on event recognition in video data.
- Programming smart services for IoT environments as an information system of agents.