Multi-modality Interaction

S1 Rel-18 Study Proposal
-Motivations, Use cases and Objectives

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Motivation and Use cases

- Human–Computer Interaction (HCI) with AI is more popular these days, such as human and computer voice dialogue.
- Nowadays, Human–Computer interaction always bases on single-modality command/info, i.e. input information from single source and output to single destination
- Furthermore multi-modality interaction (input from more than one sources and/or output to more than one destination) with fusion technology would provide more benifits:
  - More accurate interpretation
  - Interpret more rapidly and respond more quickly
  - Enables a more free and natural communication

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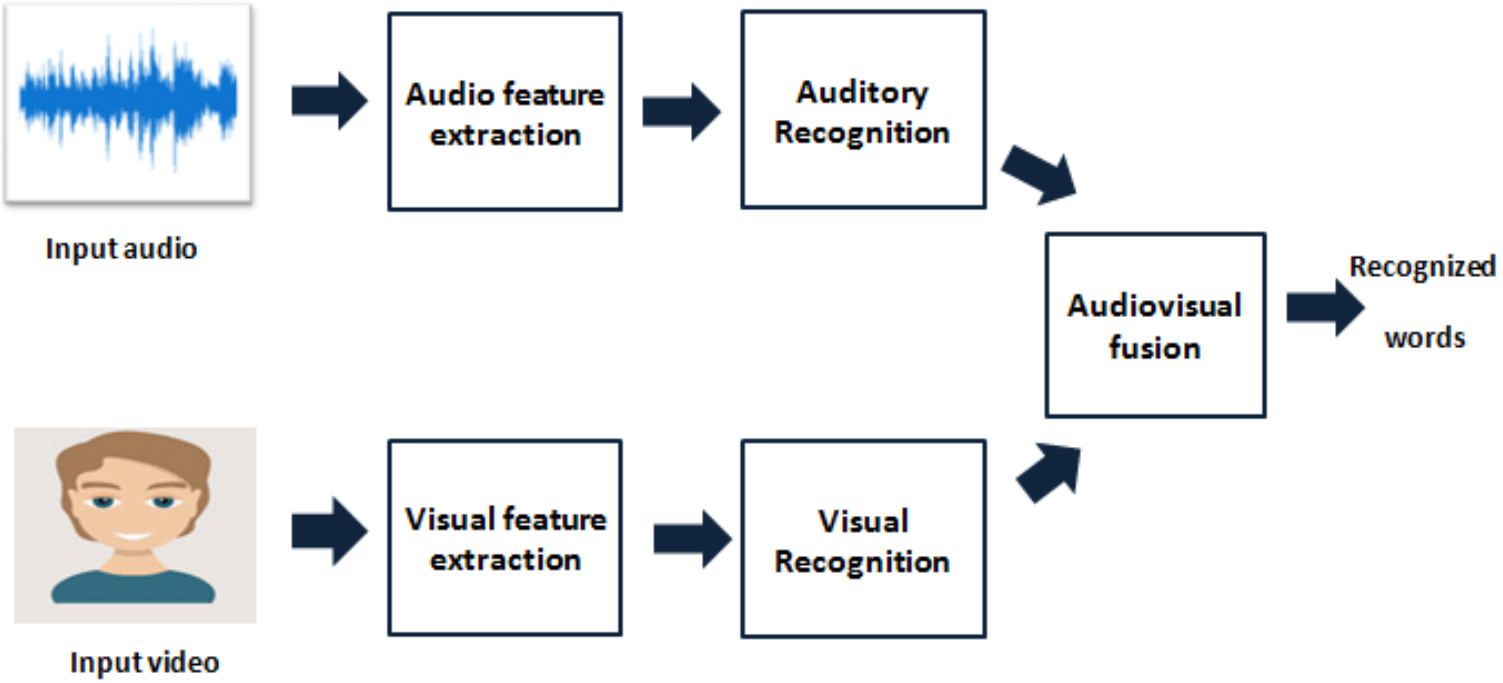
Motivation and Use cases

- An example of audio and video fusion for multi-modality input, more accurate than one of audio and video interpretation



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Example Use case

- Scenario:
  - User commands with voice, gesture and touch.
  - Video, audio and touch signal are collected and fused at server or edge to understand users order.
  - System identifies the user through face recognition to deliver unique information.
  - Multi-modality information is shown at displays and sound box.
- Input device (from one or multiple UE):
  - FHD Camera, 120FPS, *3
  - ToF Camera, 120FPS, *1
  - Mic, *2
  - Touch panel, *1
- Output device (to one or multiple UE): :
  - 4K Display, 144FPS, *1
  - FHD Display, 120FPS, *1
  - Sound box, *2

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Considering on existing functionality and requirements

- Some existing functionalities may partially address the target use cases and requirements, and potential gaps / enhancements should be investigated, e.g.
  - Low latency
  - QoS
  - High Data throughput
  - High density devices

- Other functionalities may not be very suitable or flexible for the target use cases, e.g.
  - Sync between Input Devices as well Output Devices
  - Efficient data distribution among multiple devices
  - Codec for multi-modality
  - Enhanced security for sensitive data
    - Security and privacy of biometry, etc.

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SA1 Rel-18 Study Proposal - Objectives

- The objectives include:
  - Studying the use cases and potential service and performance requirements for multi-modality.
  - Gap analysis on performance requirements for multi-modality, e.g.
    - Synchronization between modalities.
    - Data rate, latency, reliability, coverage and capacity, QoS, codec, security, etc. for multi-modality.

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