

Recommendation **ITU-T F.748.30 (06/2024)**

SERIES F: Non-telephone telecommunication services

Multimedia services

Requirements of communication services for digital humans

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Recommendation ITU-T F.748.30

Requirements of communication services for digital humans

Summary

Digital human technology is developing rapidly and is being used in various fields. Recommendation ITU-T F.748.30 defines the communication services for digital humans and the requirements for developing and utilizing digital humans. This Recommendation defines entities and their roles in communication services for digital humans, interaction and communication types between entities, and describes human and digital human communication service types. It also defines the concept model for communication services for digital humans.

Emotions and memories are needed for perfect communication, and digital human communication also requires emotions and memories. This Recommendation also defines requirements of communication services of digital human using emotions and memory.

History*

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Digital human, communication service, emotion, memory.

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FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Recommendation ITU-T F.748.30

Requirements of communication services for digital humans

1 Scope

This Recommendation describes the concepts and requirements of *communication services for digital human*. The scope of this recommendation includes:

- Entities and interactions in communication services for digital humans.
- Requirements for the user interface for those who are creating digital humans.
- Requirements for the digital human creation and utilization procedures.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T F.748.15] Recommendation ITU-T F.748.15 (2022), *Framework and metrics for digital human application systems*.
- [ITU-T H.862.5] Recommendation ITU-T H.862.5 (2021), *Emotion enabled multimodal user interface based on artificial neural networks*.
- [ITU-T H.862.6] Recommendation ITU-T H.862.6 (2023), *Functional requirements for counselling services based on artificial emotional intelligence*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 content** [b-ITU-T H.780]: A combination of audio, still image, graphic, video, or data.
- 3.1.2 digital human** [ITU-T F.748.15]: A computer application that integrates the technologies of computer graphics, computer vision, intelligent speech and natural language processing. It can be used for digital content generation and human-computer interaction to help improve content production efficiency and user experience.
- 3.1.3 dynamic content** [b-ITU-T F.744.2]: Contents created on demand while a user dynamically operates a web application.
- 3.1.4 extended reality (XR)** [b-ITU-T P.1320]: An environment containing real or virtual components or a combination thereof, where the variable X serves as a placeholder for any form of new environment (e.g., augmented, assisted, mixed, virtual or diminished reality).
- 3.1.5 non-interactive digital human** [b-ITU-T F.748.14]: A digital human without the ability to interact, which can only read and execute commands.
- 3.1.6 question answering** [b-ITU-T F.746.3]: A system that provides answers in natural language to questions which are in natural language form by analysing the questions and all the knowledge resources that are available to the system.

3.1.7 static content [b-ITU-T F.744.2]: Content that changes infrequently. This type of content is not changed with the requests of users.

3.1.8 videoconference service [b-ITU-T F.702]: An audiovisual conversational conference service providing bidirectional real-time transfer of voice and motion video between groups of users in two or more separate locations. Although the audio and motion video information are the essential part of the service, other types of information, such as high resolution still pictures, text or graphics may also be exchanged.

3.1.9 virtual reality (VR) [b-ITU-T P.1320]: An environment that is fully generated by digital means. To qualify as virtual reality, the virtual environment should differ from the local environment.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CSDH	Communication Service for Digital Human
DB	Database
VR	Virtual Reality
XR	Extended Reality

5 Conventions

In this Recommendation:

- The keywords "**is required to**" indicate a requirement which must be strictly followed and from which no deviation is permitted if conformance to this document is to be claimed.
- The keywords "**is recommended**" indicate a requirement which is recommended but which is not absolutely required. Thus, this requirement need not be present to claim conformance.
- The keywords "**can optionally**" indicate an optional requirement which is permissible, without implying any sense of being recommended. These terms are not intended to imply that the vendor's implementation must provide the option and the feature can be optionally enabled by the network operator/service provider. Rather, it means the vendor may optionally provide the feature and still claim conformance with the specification.

6 Communication services for digital human

A digital human is displayed in a digital space having the appearance and voice of a human and acts like a human. A digital human can communicate with humans using human-like features such as facial expressions and gestures, and allows them to have more realistic conversations compared to the past text-based chatting services. The development of digital human production technology can enrich human communication and provide opportunities for more experiences.

Communication services for digital humans (CSDHs) are defined as services that use digital humans to expand human communication opportunities. CSDHs solve temporal and spatial limitations of communication. CSDHs include services in various fields like education, entertainment and customer services.