

マルチメディア配信システム

- No.14 コンテンツ配信アプリケーション (1) -

渡辺 裕

Multimedia Distribution System

- No.14 Content Distribution Application (1) -

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Multimedia over the Internet

- Speech/Audio
- Still Image/Video
- Graphical Operation
- Synchronization
- Psuedo-3D Representation
- 3D Video

Speech/Audio Application

- Media Player
 - [Windows Media Player](#)
 - Microsoft
 - [Real Player](#)
 - Real Communications
 - [DivX Player](#)
 - [DivX Inc.](#)
- [IP phone](#)
 - [Skype](#) (Microsoft)
 - [Fusion Communications](#)
 - [Cisco Unified IP Phone](#)

Speech/Audio Format

- [WAV](#)
 - PCM 16 bit, 44.1 KHz sampling
- [MP3](#)
 - MPEG-1 Layer 3
 - iPod, Podcasting, car audio
- [AAC](#)
 - Advanced Audio Coding (MPEG-4 Audio)
 - iPod
- [WMA](#)
 - Microsoft windows media audio

Still Image/Video Application (1)

- Distribution
 - Image/Video on the Web page
 - Photo Album
 - [Flickr](#)
 - [Picasa](#)
 - Video streaming
 - [YouTube](#)
- Communication
 - Videophone
 - [Skype](#)
 - Videoconferencing
 - H. 26X based tools

Still Image/Video Application (2)

- Digital Storage Media
 - DVD
 - [Blu-ray](#)
 - Video CD
 - Web Application
- Broadcasting
 - Digital Television (Terrestrial, Satellite)
 - HDTV
 - Mobile
- Digital Cinema

Still Image/Video Format (1)

- BMP
 - PCM 8bit *RGB
- JBIG
 - Binary Image, FAX, Copying machine
 - Prediction, Arithmetic Coding
- JPEG
 - Natural Image, Digital Camera, Web Image
 - DCT, Lossy, Lossless
- JPEG2000
 - Natural Image, Digital Cinema
 - Wavelet

Still Image/Video Format (2)

- H.261
 - Videophone, Conferencing
 - Motion Compensated Interframe Prediction + DCT + Huffman Coding
- H.263
 - Improved Prediction
- H.264
 - Improved Prediction, R-D optimization, Arithmetic Coding
- MPEG-1
 - Video CD, Web application
 - Motion Compensated Interframe Prediction + DCT + Huffman Coding

Still Image/Video Format (3)

- MPEG-2
 - Digital Television, DVD, HDTV
 - Interlaced Video
 - Motion Compensated Interframe Prediction + DCT + Huffman Coding
- MPEG-4
 - Video Creation
 - Object Based Audio Visual Coding
 - MC+DCT Video, Animation, 3D shape by Wavelet
- MPEG-4 AVC (Advanced Video Coding)
 - Mobile Video, HDTV
 - Improved Prediction, R-D optimization, Arithmetic Coding

Graphical Operation

- Java
 - Programming language
 - Sun Microsystems
 - C, C++, Java Script

- Flash Player
 - Macromedia -> Adobe

Synchronization

- SMIL
 - The World Wide Web Consortium ([W3C](#)) Recommendation
 - Audio Video Synchronization, size control, transition control

W3C: a forum for information, commerce, communication, and collective understanding

Pseudo-3D Representation

- [VRML](#)
 - Virtual Reality Modeling Language
 - [Web3D](#) consortium, ISO/IEC JTC1/SC24

- [X3D](#)
 - integrated 3D graphics and multimedia framework
 - [Web3D](#) consortium, ISO/IEC JTC1/SC24

- [MPEG-4](#) system
 - VRML+
 - BIFS (Binary Format for Scene)

3D Video

- MPEG 3D AV coding
 - Multi-view coding
 - Extension of AVC
 - [Ray space representation](#)