MP3 (MPEG-1 AUDIO LAYER III)

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MUMT621: MUSIC INFORMATION ACQUISITION, PRESERVATION, AND RETRIEVAL

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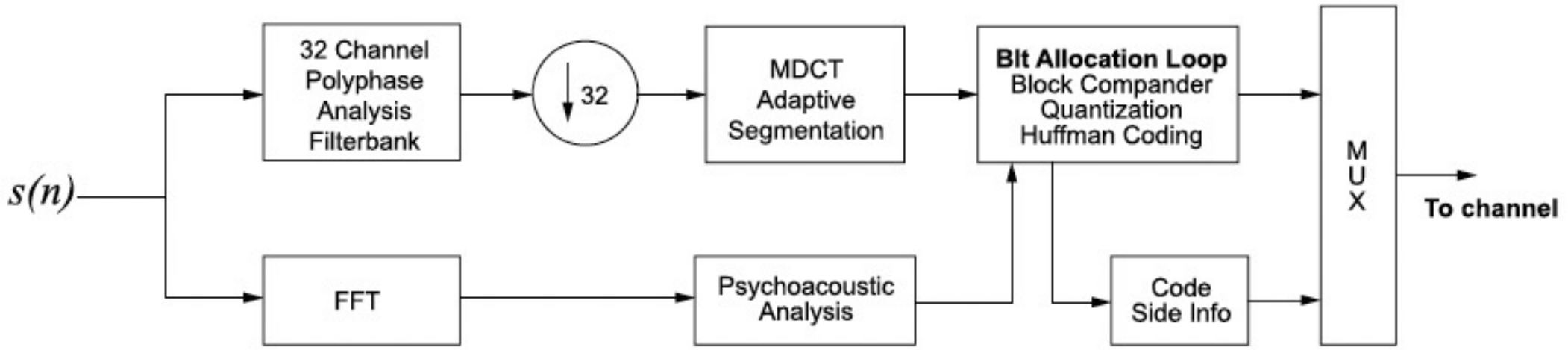
CONTENTS

BACKGROUND

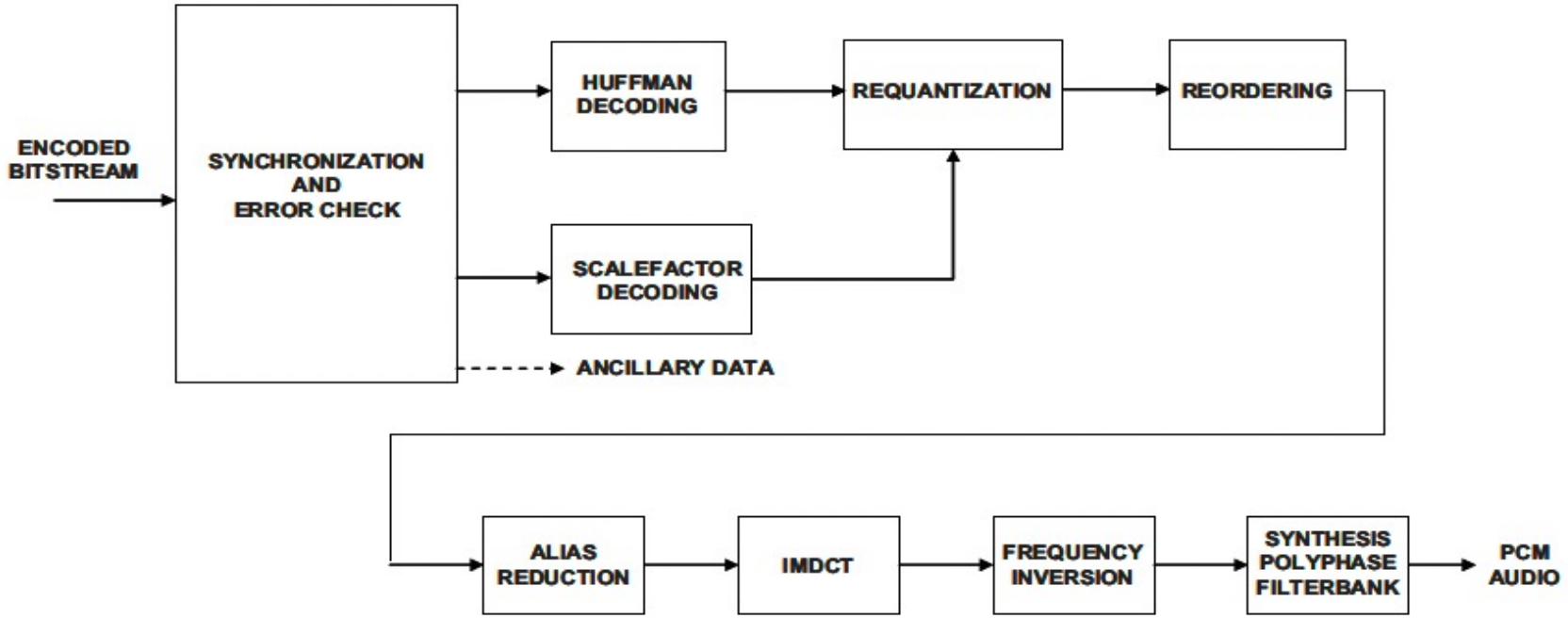
- Defined by MPEG (Moving Picture Experts Group) in 1991
- Open-standard
  - Licensed for use on “fair and reasonable” terms
- High flexibility
- Example of lossy compression
  - Perceptual audio coding

Source: Bradenburg (1999)



ENCODING ALGORITHM

SOURCE: THIAGARAJAN AND SPANIAS (2011)



DECODING ALGORITHM

SOURCE: THIAGARAJAN AND SPANIAS (2011)

RESPONSE FROM CONSUMERS, ARTISTS, AND OTHER BUSINESSES

- Generally favorable
- Convenient for consumers
- Eliminating the intermediate (the record industry)
- Creation of new technology (the MP3 player)

Sources: Garofalo (1999), McCandless (1999), Ponce (1999)

THE RECORDING INDUSTRY, ON THE OTHER HAND…

RESPONSE FROM THE RECORDING INDUSTRY

- Concerns of piracy
- Two schools of thought:
  1. ”If you can’t beat them, join them” – big names in tech, RealAudio
  2. “My way or the highway” – the Recording Industry Association of America (RIAA)
     - Cause of many lawsuits against Rio (the creators of the original MP3 player), Napster

Sources: The Editors of Encyclopedia Britannica (2009), McCandless (1999), Ponce (1999)

LOSSY COMPRESSION AND MP3 IN MUSIC RESEARCH

- Lossy compression, especially MP3 not ideal, but pertinent enough that they need to be accounted for in algorithm design
  - Debate: compressed vs. uncompressed
- Still, can be useful data in music research
  - Audio Fingerprinting Systems (Haitsma and Kalker 2003)
  - Automatic Playlist Generator (Pauws and Eggen 2003)

Source: Reiss and Sandler (2004)

MP3 SUCCESSORS

- MPEG continues to update their standards
- Immediately following MP3 → MPEG-2 Advanced Audio Coding (AAC)
- Other examples: MPEG-D (Unified Speech and Audio Coding), MPEG-H (3D Audio)

Sources: Bradenburg (1999), Moving Picture Experts Group

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