Transform-Domain and DSP Based Secure Speech Communication

By Jameel Ahmed

LAP Lambert Acad. Publ. Sep 2011, 2011. Taschenbuch. Book Condition: Neu. 220x150x15 mm. This item is printed on demand - Print on Demand Neuware - Secure speech communication has been of great significance in civil, commercial and particularly in military communication systems. Speech scramblers play a major role in these systems. Transform-domain, specially, DCT (Discrete Cosine Transform) based encryption of speech signals has often been a preferable choice for researchers. In such systems, besides security, removal of redundant information and execution speed of the algorithms have also been main focus of research and exploration. In this book, these three attributes, redundancy, speed and security are envisaged by exploiting ITU-T G.723.1 speech codec, Texas Instruments 32-bit floating-point DSP TMS320C6711 and a newly developed DCT based algorithm using sub-framing and lookup table respectively. The vigorous results show that the original signal is compressed more than 90%, which helps in the removal of redundant information. To enhance the execution speed, G.723.1 codec is optimized on advanced level thereby reducing execution time from 299 msec to 140 msec. In respect of security, the newly introduced scheme yielded 0% residual intelligibility of the encrypted signal thereby rendering highest level of security. 252 pp. Englisch.

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