NPTEL Video Course - Electronics and Communication Engineering - Information Theory and Coding

Subject Co-ordinator - Prof. S.N. Merchant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Information Theory and Coding
Lecture 2 - Definition of Information Measure and Entropy
Lecture 3 - Extention of An Information Source and Markov Source
Lecture 4 - Adjoint of An Information Source, Joint and Conditional Information Measure
Lecture 5 - Properties of Joint and Conditional Information Measures and A Morkov Source
Lecture 6 - Asymptotic Properties of Entropy and Problem Solving in Entropy
Lecture 7 - Block Code and its Properties
Lecture 8 - Instantaneous Code and Its Properties
Lecture 9 - Kraft-Mcmillan Equality and Compact Codes
Lecture 10 - Shannon's First Theorem
Lecture 11 - Coding Strategies and Introduction to Huffman Coding
Lecture 12 - Huffman Coding and Proof of Its Optamality
Lecture 13 - Competitive Optamality of The Shannon Code
Lecture 14 - Non-Binary Huffman Code and Other Codes
Lecture 15 - Adaptive Huffman Coding - Part-I
Lecture 16 - Adaptive Huffman Coding - Part-II
Lecture 17 - Shannon-Fano-Elias Coding and Introduction to Arithmetic Coding
Lecture 18 - Arithmetic Coding - Part-I
Lecture 19 - Arithmetic Coding - Part-II
Lecture 20 - Introdution to Information Channels
Lecture 21 - Equivocation and Mutual Information
Lecture 22 - Properties of Different Information Channels
Lecture 23 - Reduction of Information Channels
Lecture 24 - Properties of Mutual Information and Introdution to Channel Capacity
Lecture 25 - Calculation of Channel Capacity for Different Information Channels
Lecture 26 - Shannon's Second Theorem
Lecture 27 - Discussion On Error Free Communication Over Noisy Channel
Lecture 28 - Error Free Communication Over A Binary Symmetric Channel and Introdution to Continous Sources ar
Lecture 29 - Differential Entropy and Evaluation of Mutual Information for Continuous Sources and Channels

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Lecture 30 - Channel Capacity of A BandLimited Continuous Channel
Lecture 31 - Introduction to Rate-Distortion Theory
Lecture 32 - Definition and Properties of Rate-Distortion Functions
Lecture 33 - Calculation of Rate-Distortion Functions
Lecture 34 - Computational Approach for Calculation of Rate-Distortion Functions
Lecture 35 - Introduction to Quantization
Lecture 36 - Lloyd-Max Quantizer
Lecture 37 - Companded Quantization
Lecture 38 - Variable Length Coding and Problem Solving in Quantizer Design
Lecture 39 - Vector Quantization
Lecture 40 - Transform Coding - Part-I
Lecture 41 - Transform Coding - Part-II
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