DOCTORAL SCHOOL OF INFORMATICS
COMPLEX EXAM SUBJECT

Information theory and coding (recommended subject)

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1. Entropy, conditional entropy. Mutual information. Maximum entropy, Fano inequality. Entropy in non-discrete systems.
2. Decomposable codes, prefix codes, comma codes. McMillan's inequality and its "reversal." Huffman codes, Shannon codes, Gilbert-Moore codes.
3. Entropy of information sources. Noise-free coding.
4. The principle of entropy conservation. Noise-free coding with a specified error probability.
5. The coding theorem for noisy channels
6. Entropy in the case of non-discrete distributions.
