
Information Theory and Coding

Finalità

The course aims to present the main results of information theory, with a rigorous approach and in the perspective of signal transmission, processing and storage.

Programma

Entropy and mutual information of discrete random variables. Typical sets and sequences. Entropy rate of stochastic processes. Data compression. Huffman and universal codes. Capacity of a discrete communication channel. Differential entropy of continuous random variables. Capacity of a gaussian communication channel. Rate distortion theory. Network information theory.

Attività d'esercitazione

Training is based on classroom solutions of periodical homework assignments.

Modalità d'esame

For those who attend the course: overall evaluation based on homework and oral examination.

For anyone: evaluation based on oral examination.

Propedeuticità

None.

Testi consigliati

T. M. Cover, J. A. Thomas, Elements of Information Theory, John Wiley and Sons, 1991.