Digital Signal and Image Processing

Course Overview

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Digital Signal and Image Processing

The course aims to introduce **fundamental concepts of signals and images**, present **principles and methodologies** of **signal analysis** and **signal processing** through discrete-time systems, and illustrate the main techniques for **audio, image, and video signal compression**.

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Signals and signal processing

Discrete-time signals in the time domain

Discrete-time signals in the frequency domain

Discrete-time systems

The Z-Transform

The Discrete Fourier Transform

Discrete-time LTI systems in the frequency domain

Digital filter structures

Finite precision arithmetic effects

Digital filter design

Multirate signal processing

Adaptive filters

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