

Faculty of Medicine



SBIM2243 Digital processing of medical images

[30h+15h exercises] 4 credits

Teacher(s): Benoît Macq
Language: French
Level: Second cycle

Aims

This class is devoted to the methods of medical images quantitative analysis. The theory is illustrated with exercises and demonstrations including examples of anatomical and functional medical images processing.

Main themes

A) Extension of the signal notion to images - Basics on main medical imagers - Main features of medical images B) Introduction to medical images processing - Filtering methods - Basics on mathematical morphology - Analysis and segmentation C) Viewing algorithms - Surfaces viewing - Volumes viewing - Animation D) Implementation - Introduction to coding and transmission - Software integration E) Applications - 2D imagery - 3D imagery.

Content and teaching methods

Basics on main medical imagers. Notion of signal; extension to images. Main features of medical images. Introduction to medical images processing. Filtering methods. Basics on mathematical morphology. Analysis and segmentation. Viewing algorithms. Surfaces viewing. Volumes viewing. Animation. Implementation. Introduction to coding and transmission. Software integration. Applications. 2D imagery. 3D imagery.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisite: a signal processing class (e.g.: SBIM 2241 Biomedical signals acquisition and processing). As indicated, basics on main medical imagers (e.g.: INIS 2103 Medical imaging) will be briefly recalled in the introduction.

Oral examination

Other credits in programs

ELEC22	Deuxième année du programme conduisant au grade d'ingénieur civil électricien	(4 credits)
ELEC23	Troisième année du programme conduisant au grade d'ingénieur civil électricien	(4 credits)
INFO22	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien	(4 credits)