

Summer School on Mathematical Morphology



Program

Dates : from 4 to 8 October 2010

Schedule : 9.00-12.30 and 14.00-17.30

Location : Ecole des Mines. 35, rue St Honoré. 77300 Fontainebleau

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Overview

The Centre for Mathematical Morphology (CMM), specialized in image processing, is an ARMINES - Mines Paristech joint research centre. The CMM, creator of the Mathematical Morphology theory, has acquired a leading position in theoretical foundations, efficient algorithms design and resolution of applications involving image processing in the bio-medicine, material sciences and multimedia fields. This course gives a comprehensive presentation of the morphological tools. Filtering and segmentation techniques are addressed, in 2D or 3D, for grey-tone or colour images, for still images or sequences as well as related techniques necessary to develop successful applications. The course is organised during five full days, in a single week : lectures in the morning (9h-12h30), and practical training in the afternoon (14h-17h30). The practical training is performed with Morph-M, a multi-platform Mathematical Morphology software, developed and used in most CMM research projects. Demonstration will reinforce pedagogical aspects of the course.

Lecturers

- Serge Beucher : CMM, Mines ParisTech
- Beatriz Marcotegui : CMM, Mines ParisTech
- Fernand Meyer : CMM, Mines ParisTech

Practical trainings are supervised by CMM researchers.

Contents

- Monday October 4th
 - morning : Basic notions. Erosions, dilations, openings, closings, granulometries, top-hat (Fernand Meyer).
 - afternoon : introduction to morph-M software. Practical trainings.

- Tuesday October 5th
 - morning : Geodesy, residues, ultimate opening (Serge Beucher)
 - afternoon : Practical trainings.
- Wednesday October 6th
 - morning : Filtering, levelings (Fernand Meyer, Beatriz Marcotegui)
 - afternoon : Practical trainings.
- Thursday October 7th
 - morning : Introduction to segmenting tools. Watershed, hierarchical segmentation (Serge Beucher, Beatriz Marcotegui).
 - afternoon : Practical trainings.
- Friday October 8th
 - morning : Segmentation of 3D images, sequences and color images.
 - afternoon : Practical trainings.