

SECRETARIAT DU  
CENTRE DE MORPHOLOGIE MATHÉMATIQUE E.N.S.M.P.

35, Rue Saint Honoré  
77305 FONTAINEBLEAU CEDEX  
France

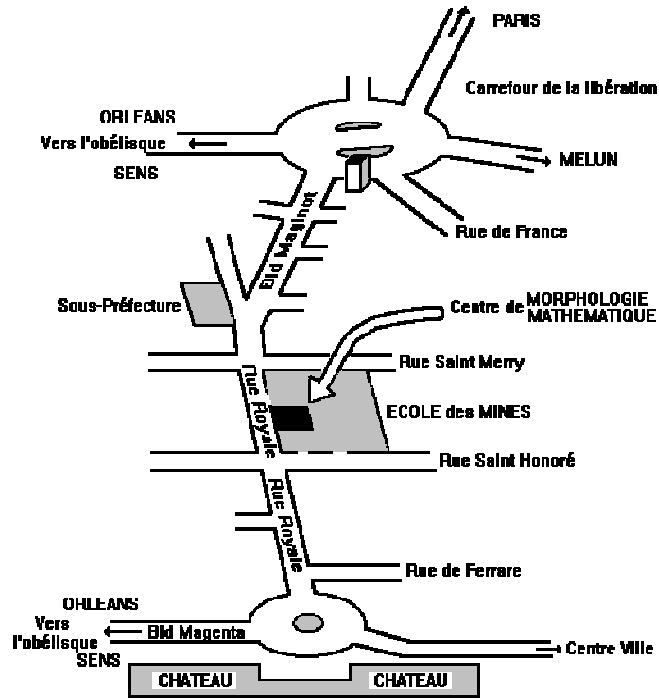
### Your way to the CMM.

From the airports to Paris :

- Charles de Gaulle : RER.
- Orly : RER or Orlybus.

From Paris to Fontainebleau (60 km) :

- By road : A6 airway (Lyon direction, Fontainebleau way out).
- By train : From Gare de Lyon to Fontainebleau-Avon, bus (« château » stop) or taxi to the Ecole des Mines.



ARMINES  
ECOLE DES MINES  
DE PARIS

## CENTRE DE MORPHOLOGIE MATHÉMATIQUE



## ECOLE D'ETE DE MORPHOLOGIE MATHÉMATIQUE

FONTAINEBLEAU (France)

35, Rue Saint Honoré  
77305 FONTAINEBLEAU CEDEX  
France

March 26 – 30, 2012

## **MATHEMATICAL MORPHOLOGY AND IMAGE PROCESSING**

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. Demonstrations will reinforce the pedagogical aspects of the course.

A wide range of operators will be addressed, starting from the basic morphological erosion and dilation up to current research developments such as numerical residues or hierarchical segmentation. The following topics will be addressed:

- Erosion, dilatation, opening, closing, granulometries, gradients, top-hat.
- Morphological filtering.
- Geodesy, connected operators, levellings.
- Segmentation : watershed, hierarchical segmentation, ultimate opening.
- 3D images, image sequences.
- Color processing.

All these notions will be illustrated through many examples, chosen from different application domains: bio-medicine, material science, scene analysis, multimedia, etc.

The manipulation of images during practical training in the afternoon allows a full understanding of the studied notions.

For additional information, please have a look at our website : <http://cmm.ensmp.fr>

## **GENERAL INFORMATION**

### **Organisers**

ECOLE DES MINES DE PARIS / ARMINES  
CENTRE DE MORPHOLOGIE MATHÉMATIQUE

### **Lecturers**

J. Angulo, S. Beucher, M. Bilodeau, E. Decencière, B. Marcotegui, F. Meyer

### **Place**

Centre de Morphologie Mathématique (ENSMP)  
35, Rue Saint Honoré 77300 FONTAINEBLEAU  
Phone + 33 1 64 69 47 06 – Fax + 33 1 64 69 47 07

### **Schedule (lectures in english in 2012)**

9.00 AM - 5.30 PM, from March 26th to 30th 2012.

### **Registration fees**

- 1.600 € VAT excluded before February 10th 2012
- 1.800 € VAT excluded after this date
- a 50% discount is applied for students.

Registration will be effective only after fee payment. The fees include the course, the slides (paper or CD-ROM) and lunches. Dinners, travel expenses and accommodation are not included.

*(ARMINES is an authorized continuing education organism, registered with number 11 75 254 0675. It is possible to establish a professional training convention between ARMINES and your company).*

### **Registration**

Please send us back this application form.

Be careful ! We have a limited number of places.

### **Cancellation**

Cancellations after March 16th 2012 will be charged 20% of the participation fees, to cover reproduction and pedagogical material rental.

## **REGISTRATION APPLICATION**

**March 26 – 30, 2012**

Fill in and mail this application to :

Centre de Morphologie Mathématique  
35, Rue Saint Honoré  
77305 FONTAINEBLEAU CEDEX (France)

**Please label the payment for the registration costs to ARMINES\*.**

Name : .....

Surname : .....

Company : .....

Address : .....

.....

Tel / Fax : .....

Email : .....

Position : .....

Professional training agreement : YES  NO

### **Hotel booking**

Upon request, hotel bookings can be arranged by our secretary (please contact Catherine MOYSAN, [catherine.moysan@mines-paristech.fr](mailto:catherine.moysan@mines-paristech.fr)) before February 10<sup>h</sup> 2012.

\* These costs are part of the continuing education budget : upon request, a professional training agreement is available.