

Welcome to
MINES Saint-Étienne!



Mathematical Imaging and Spatial Pattern Analysis

Master of Science

www.mines-stetienne.fr



INSPIRING
INNOVATION
SINCE 1816

A Master of Science (National Masters' Degree)
*Accredited by the French Ministry of Higher
Education and Research
at the **École Nationale Supérieure des Mines
de Saint-Étienne**, France*

 **Taught in English**

A new opportunity for international students

- Taught in English
- A one-year programme
- A diploma of Master of Science
- A key step for PhD studies

A one-year programme taught in English designed to provide the basic and advanced knowledge in Mathematical Imaging and Geometric Pattern Sciences. Emphasis is placed on the mathematical and computational aspects.

Course structure

Theoretical modules with training sessions:

- Image modelling, image processing and image analysis.
- Colour and multispectral image processing.
- Advanced mathematical imaging.
- Geometry for spatial pattern modelling and analysis.

Tutored laboratory project:

- Literature survey on a selected topic
- Theoretical and practical research work
- Project defense in March (report and oral examination).

A 6-month internship in a company R&D Centre or in a research laboratory:

- Each MSc student is supervised by a Professor and an internship scientist.
- The internship leads to a written MSc thesis to be defended in September during an oral examination.

PhD Opportunities

- Colour logarithmic image processing
- Random mosaic modelling by means of thresholded spatial random fields
- Stochastic geometric modelling and characterisation of anisotropic particle patterns

Internship Opportunities

- Mac Gill university (canada): geometric random fields applied to brain mri images
- LVMH corporate research centre (France): skin color appearance modelling and characterisation
- General Electric corporate research centre (USA): perceptual image processing

Job Opportunities

- General Electric: R&D scientist
- Philips: Applied researcher
- University or Higher Academic Institutes: Researcher and/or Professor





Requirements for applicants

Applicants should hold:

- A completed first year Master in Mathematics or Computer Sciences or an engineering degree (or a registration in the final year in a French graduate School) or an equivalent diploma

Admission:

- Written application and interview
- The decision of the admission committee will be communicated to each applicant
- Prior successful completion of a first year of a Master's Degree in theoretical and / or applied science, or equivalent diploma (at the home university or Ecole des Mines) / or 240 ECTS validated
- A good command of English is mandatory

With the collaboration of the research team in Mathematical Methods for Image and Spatial Pattern Processing, Analysis and Modeling

Nb PhD Students and post-doctorate fellows: 6

Industrial partnerships: Biomérieux, CEA, General Electric, LVMH, Philips, Siemens, Thales

Contact:
J. DEBAYLE
debayle@emse.fr



La Région
Auvergne-Rhône-Alpes



**INSPIRING
INNOVATION**
SINCE 1816