Deep Learning for Image Analysis
Course Introduction

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Course language

- Course material (slides, notebooks, etc.) in English
- Oral language: TBD

About the lecturers

Thomas Walter

- Researcher on bioimage informatics, director of the Centre for Computational Biology (CBIO)
- Main application fields: Biology, medicine

Santiago Velasco-Forero

- Researcher on image processing, pattern recognition, multivariate statistics, graph-based data/image analysis
- Main application fields: Remote Sensing, cosmetology, astronomy, hyperspectral imaging.

Etienne Decencière

- Researcher on image analysis, mathematical morphology, deep learning; director of the Center for Mathematical Morphology
- Main application fields: Ophthalmology, dermatology, astronomy

Course organization

- Time table:
  - Slots 1-4, 6-7: lessons
  - Slots 5 and 8: 30 minutes test + practical session
- Communication
  - General information available from: `https://moodle.psl.eu`
  - E-mail
    - Practical work: teaching assistants
    - Course questions: lecturers
    - General organization, absence justification: Etienne.Decenciere@mines-paristech.fr
- Grading (october 18, november 8):
  - Two 30 minutes tests
  - Two practical sessions

Teaching assistants

PhD students from CMM and CBIO

Main notations

i, j, n, p, q	Integer scalars
x, y, z	Real scalars
$\mathbf{x}, \mathbf{y}$	Real vectors
$\mathbf{X}, \mathbf{W}$	Matrices
f, g	Functions
$\boldsymbol{\theta}$	Set of parameters

Bibliography

- Ian Goodfellow and Yoshua Bengio and Aaron Courville, Deep learning, MIT Press.
  `https://www.deeplearningbook.org/`
- Trevor Hastie, Robert Tibshirani, Jerome Friedman, The elements of statistical learning, Springer.
  `https://web.stanford.edu/~hastie/ElemStatLearn/`
- François Chollet, Deep Learning with Python, second edition.
  `https://www.manning.com/books/deep-learning-with-python-second-edition`