

# 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: biometry, dermatology, materials science

# Course organization

- Communication
  - Main tool: <https://moodle.psl.eu>
  - Web page: <http://cours.cmm.mines-paristech.fr/wiki/doku.php/deep/>
  - E-mail
    - Practical work: teaching assistants
    - Course questions: lecturers
    - General organization, absence justification: Etienne.Decenciere@mines-paristech.fr
- Grading:
  - Practical sessions
  - One hour and a half test

# 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
$\theta$	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>