

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 Decenière

- 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

- <https://moodle.psl.eu>
 - Announcements
 - Questions about course and practical sessions
 - Knowledge tests (not taken into account for grading)
- E-mail
 - General organization, absence justification:
Etienne.Decenciere@minesparis.psl.eu

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
θ	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>