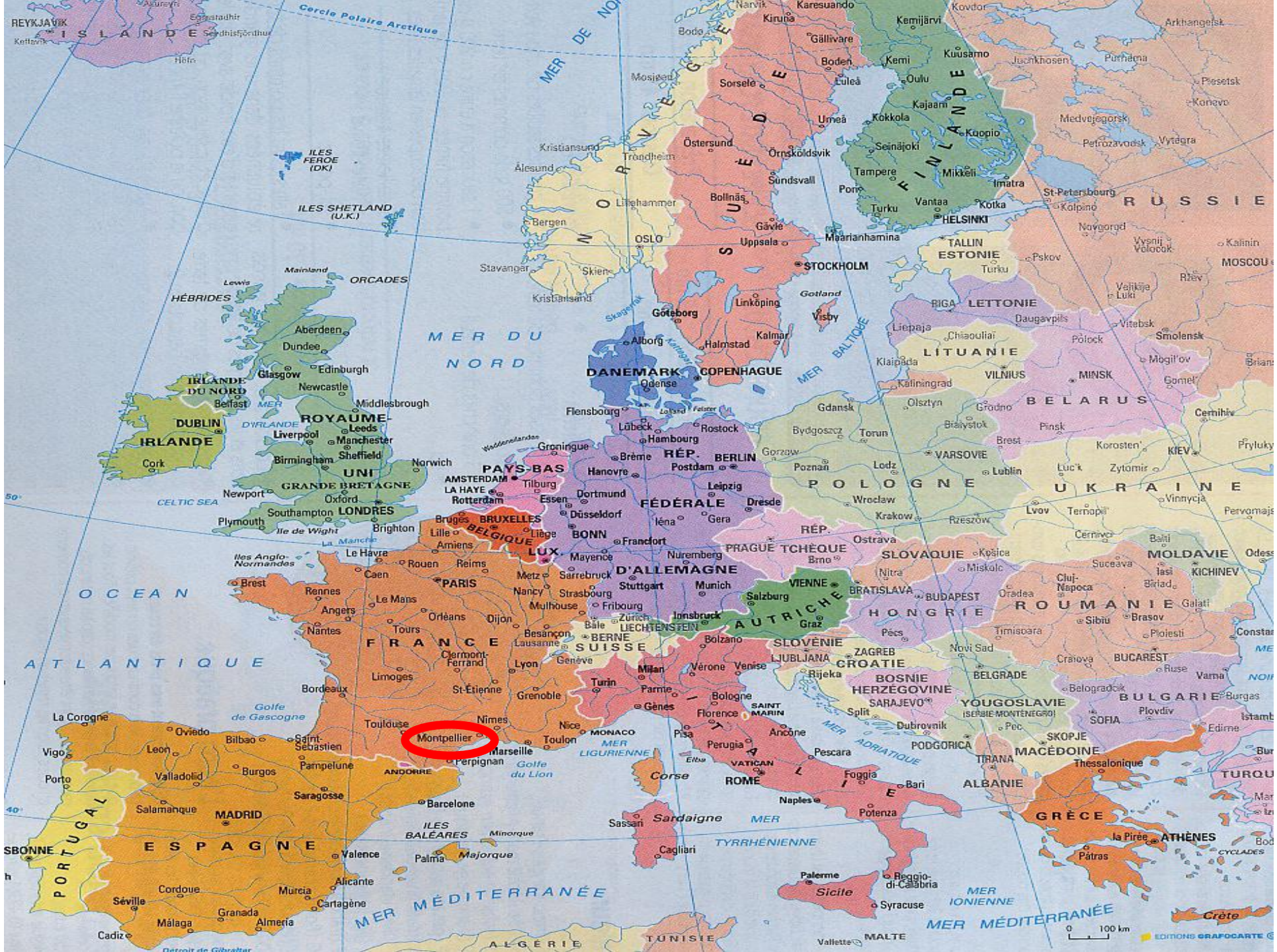
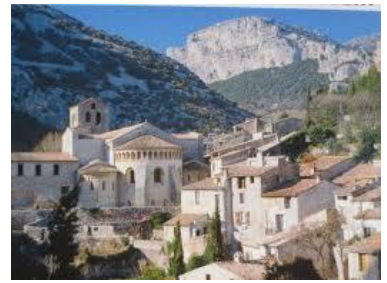
ISDM
INSTITUT DE SCIENCE DES DONNÉES
MONTPELLIER

MUSE
MONTPELLIER UNIVERSITY OF EXCELLENCE

Montpellier
Data Science Institute

isdm@umontpellier.fr

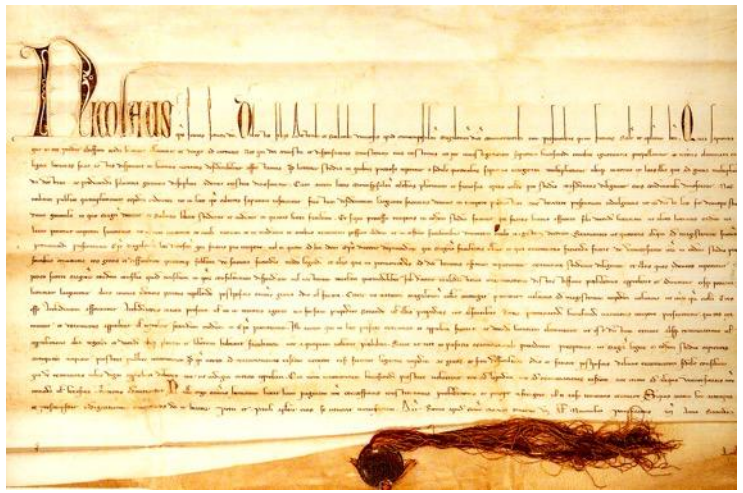

Montpellier
FRANCE
ESPAGNE
PORTUGAL
ITALIE
ALLEMAGNE
PAYS-BAS
BELGIQUE
SUISSE
AUTRICHE
ROYAUME-UNI
IRLANDE
DANEMARK
SUÈDE
NORVÈGE
FINLANDE
POLOGNE
RÉP. TCHÈQUE
SLOVAQUIE
HONGRIE
ROUMANIE
BULGARIE
GRÈCE
ALBANIE
SLOVÉNIE
CROATIE
BOSNIE HERZÉGOVINE
YOUGOSLAVIE
LITUANIE
LETTONIE
ESTONIE
BELARUS
UKRAINE
MOLDAVIE
RUSSIE
ISLANDE
MER DU NORD
MER BALTIQUE
MER MÉDITERRANÉE
OCEAN ATLANTIQUE
PARIS
LONDRES
BRUXELLES
AMSTERDAM
BERLIN
MADRID
ROME
VIENNE
PRAGUE
BUDAPEST
COPENHAGUE
OSLO
STOCKHOLM
HELSINKI
MOSCOU
ATHÈNES
Corse
Sardaigne
Sicile
Crète
ILES BALÉARES
Majorque
Minorque
ILES FEROE (DK)
ILES SHETLAND (U.K.)
ORCADES
HÉBRIDES
Golfe de Gascogne
Golfe du Lion
MER LIGURIENNE
MER TYRRHÉNIENNE
MER ADRIATIQUE
MER IONIENNE
ANDORRE
MONACO
SAINT MARIN
VATICAN
ALGÉRIE
TUNISIE
MALTE
Cercle Polaire Arctique
CELTIC SEA
La Manche
Skagerrak
Kattegat
Gotland
0 100 km
EDITIONS GRAFOCARTE

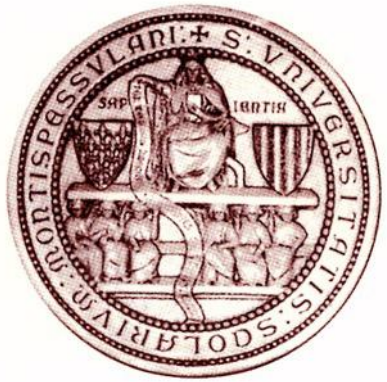


oldest active university of Medicine in Europe

A School of Medicine
was established in the early 12th century
in Montpellier…

… a School of Law soon followed…





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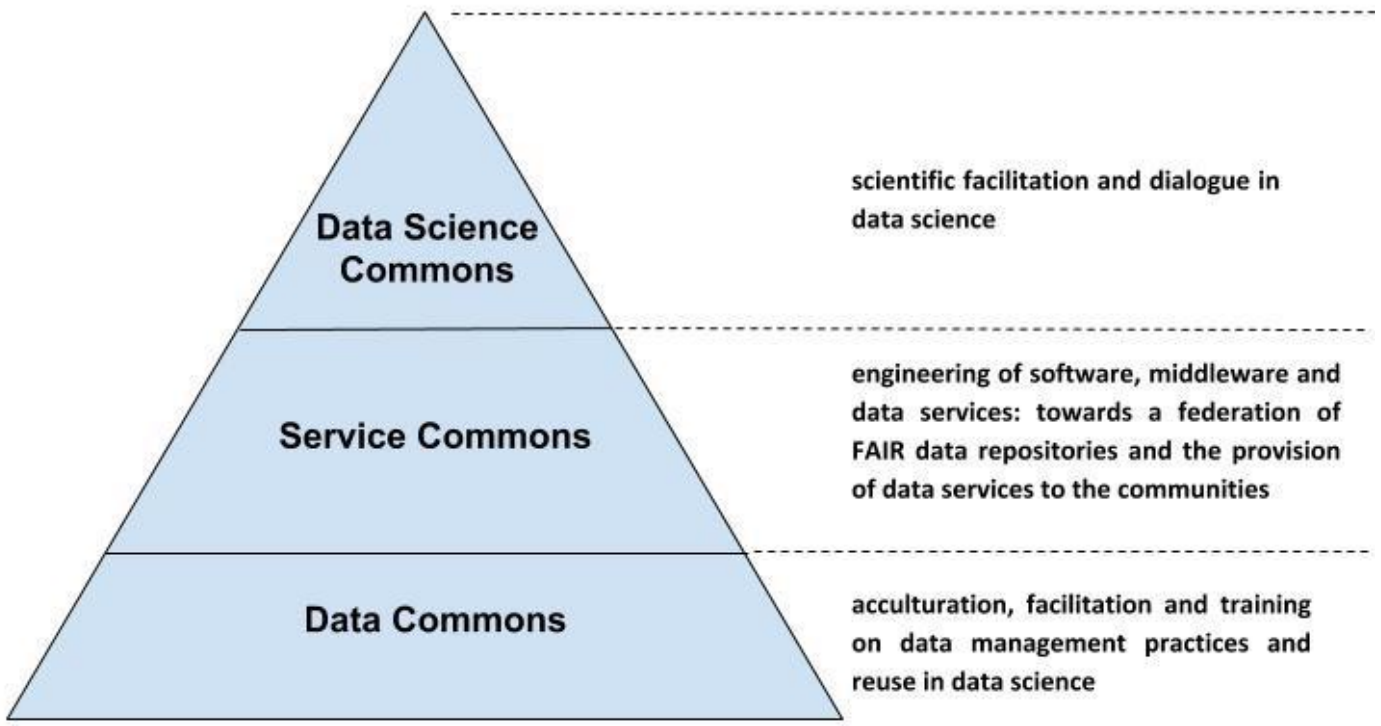
Goals

- **Structuring** the Montpellier ecosystem in data science
- Show **strengths from all scientific communities**
- Promote and **disseminate the use of data science** integrating responsible management of the data life cycle and open science

« Data science for all sciences »



- support
- scientific animation
- capacity building
- HPC-Data resources (MESO@LR)

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ANIMATION

Events
Data challenges
hackathons

TRAINING

DIPLÔME UNIVERSITAIRE
SCIENTIFIC DATA MANAGEMENT
UNIVERSITÉ MONTPELLIER

STRUCTURAL PROJECTS

MAPPINGS

Research and Education

AWARENESS PROGRAMS

Information on scientific, legal and ethical issues in data science and data science

SUPPORT

Data stewards
Data Engineers
Data Scientists
Data Librarians
FAIR Data
....

Specialist Units (under construction…)

Infrastructures Data-HPC

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Headed by Jean-Michel MARIN

Board :
Jean-Michel MARIN, IMAG
Laurent JOURNOT, IGF
François ROUSSET, ISEM

Bioinformatics, biostatistics, data management, …

At the interface of the scientific fields of life, KIM DATA & LIFE SCIENCES will create an interdisciplinary community that will contribute to the development of large-scale data analysis methods and software.

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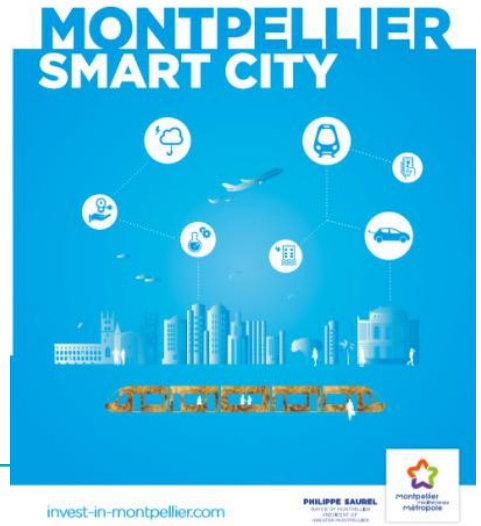
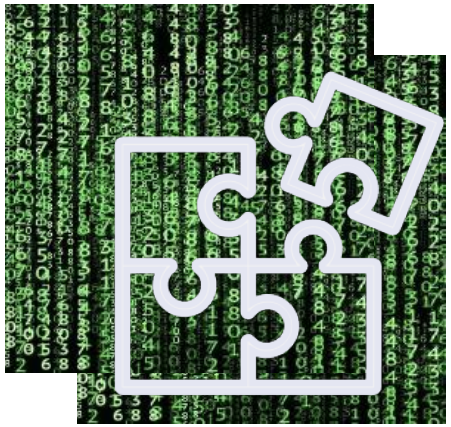
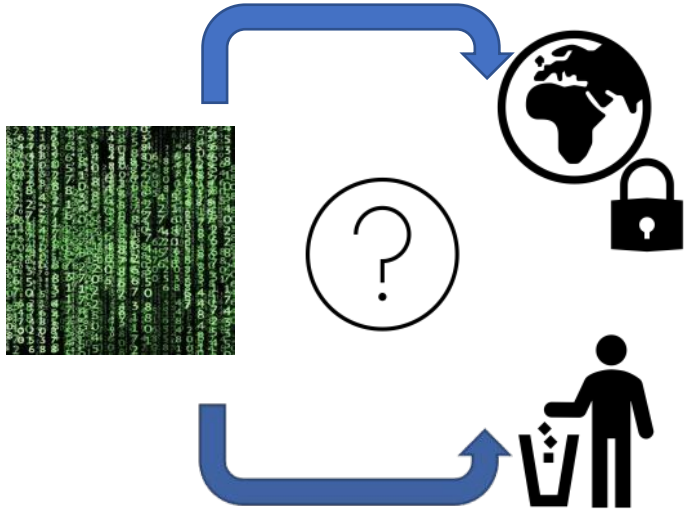
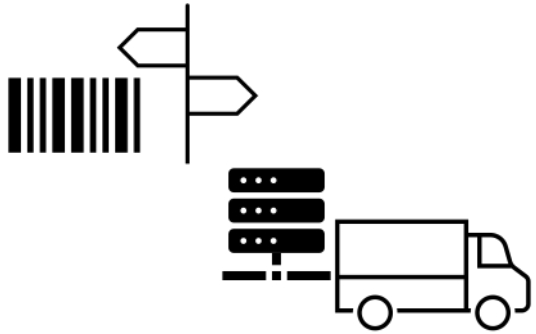
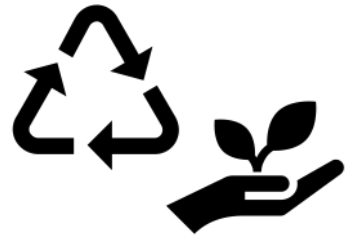
HUman at home projecT

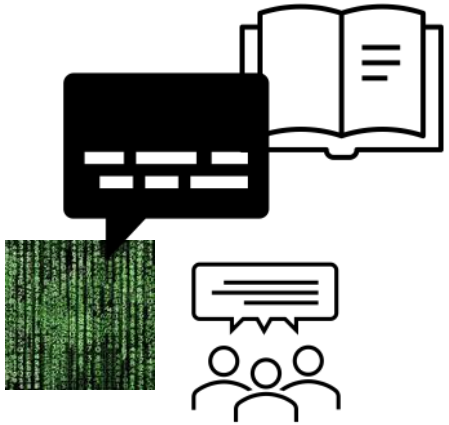












Algorithm 2 Autograd-test-CuSum

Input: data stream $X_1, X_2, \ldots, X_n$, log-likelihood function ℓ,

Algorithm 1 Autograd-test

Input: data $(X_i)_{i\in[n]}$, log-likelihood function ℓ, MLE $\hat{\theta}_n$, thresholds α_l and α_s.
Compute H_p for each $p \in \mathcal{P}$.
Compute $(\nabla^2_\theta \ell_n(\hat{\theta}_n))^{-1}$.
for $\tau = 1$ **to** $n-1$ **do**
  Compute $\nabla_\theta \ell_{(\tau+1):n}(\hat{\theta}_n)$
  Compute $\nabla^2_\theta \ell_{(\tau+1):n}(\hat{\theta}_n)$.
  Compute $\hat{T}_n(\hat{\theta}_n|\tau)$ by (3).
  Compute $R_n(\tau)$ by (2).
  $v_s \leftarrow \mathrm{diag}(\hat{T}_n(\hat{\theta}_n|\tau))^{-1} S^2_{(\tau+1):n}(\hat{\theta}_n)$.
  for $p \in \mathcal{P}$ **do**
    Let T_p be the index set of the largest p components of v_s.
    Compute $R_n(\tau, T_p)$.
  end for
end for
Compute $\psi_{\mathrm{lin}}(\alpha_l)$ by (5).
Compute $\psi_{\mathrm{scan}}(\alpha_s)$ by (6).
Output: $\psi(\alpha) = \psi_{\mathrm{lin}}(\alpha_l) \vee \psi_{\mathrm{scan}}(\alpha_s)$.

$$\min_{\mathbf{w}\in\mathbb{R}^d} \frac{1}{2}\|\mathbf{y} - \mathbf{X}\mathbf{w}\|_2^2 + \sum_{j=1}^{d} r_\lambda(|w_j|)$$

MESO@LR

300 Nodes	2 Nodes with Large Memory	2 GPU Nodes Vizualisation	1 Po Scratch
580 Total Users	216 Projects	250 HPC Active Users	21 Secured Partitions
15 Po Data Storage	4 Research National Partners	Cloud OpenStack / Kubernetes	Anti – RansomWare Replication
HDS – Health Data			

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20+ research labs conduct scientific research in Artificial Intelligence in Montpellier ....

Signal Processing

Federated Learning

Big Data

Management of imperfection

Image processing

Data Vizualisation

Image processing

Statistical and Symbolic Learning

Statistical Inference

Deep Learning

Legal framework of AI

Recommendation Systems

Pattern Mining

SVM

Sequence Mining

Knowledge representation

Explainable AI

Graph Mining

Ontologies

Causality

NLP

Regression

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Articulations

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Université Fédérale Toulouse Midi-Pyrénées

DROcc
Datacenter Régional Occitanie

Hébergement
Cloud IT
Cloud Research
Cloud Education
HPC
Data

- CTO
- Open Science

DYNAMIQUES DU DROIT UMR 5815
AMAP lab Botanique et Modélisation de l'Architecture des Plantes et des végétations
b&pmp Montpellier
isem Institut des Sciences de l'Evolution-Montpellier
TERRITOIRE ENVIRONNEMENT TELEDETECTION INFORMATION SPATIALE
diade
lmgc
HSM
tetis
Lphi Laboratory of Pathogen Host Interactions Montpellier
igmm INSTITUT DE GÉNÉTIQUE MOLÉCULAIRE DE MONTPELLIER
Espace DEV OBSERVATION SPATIALE, MODÈLES & SCIENCE IMPLIQUÉE
marbec
EuroMov Digital Health in Motion
I G H
MRE MONTPELLIER RECHERCHE ÉCONOMIE
IMAG INSTITUT MONTPELLIERAIN ALEXANDER GROTHENDIECK
DATA & LIFE SCIENCES
LIRMM
LabEx NUMEV
ies l'institut d'électronique
#DigitAg

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