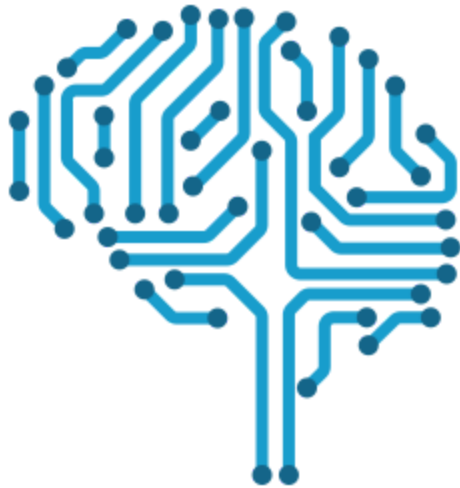


Machine Learning



Initiation au machine learning

par [Fabien Barbaud](#) - [@BarbaudFabien](#)

Définition

L'apprentissage automatique ou apprentissage statistique, champ d'étude de l'intelligence artificielle, concerne **la conception, l'analyse, le développement et l'implémentation de méthodes** permettant à une machine (au sens large) **d'évoluer** par un processus systématique, et ainsi de remplir **des tâches difficiles ou problématiques** par des moyens algorithmiques plus classiques.

[Wikipedia](#)

Collecter les données

The Norwich line steamboat train, from New-London for Boston, this morning ran off the track seven miles north of New-London.

morning



morning overlooks

Type the two words:

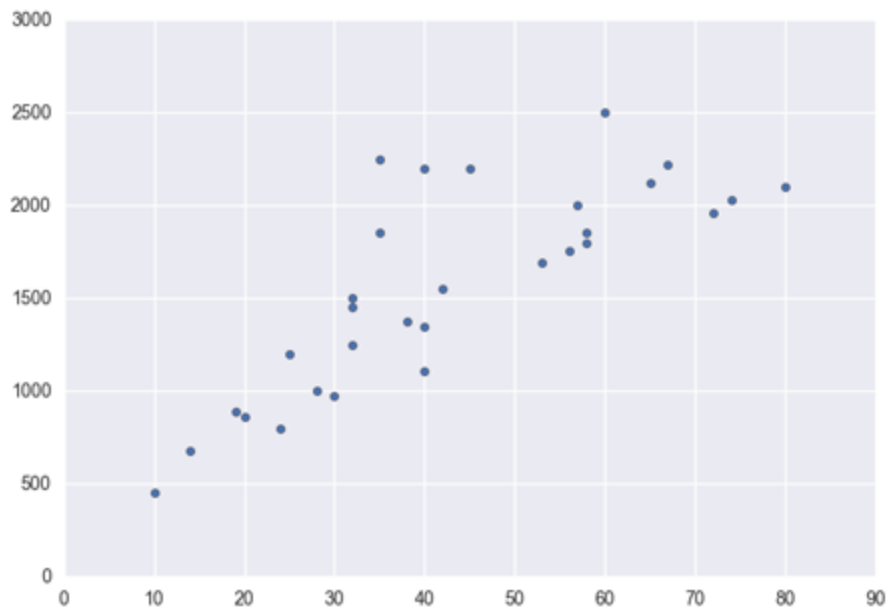
reCAPTCHA™
stop spam.
read books.

The reCAPTCHA Project

Modéliser les données

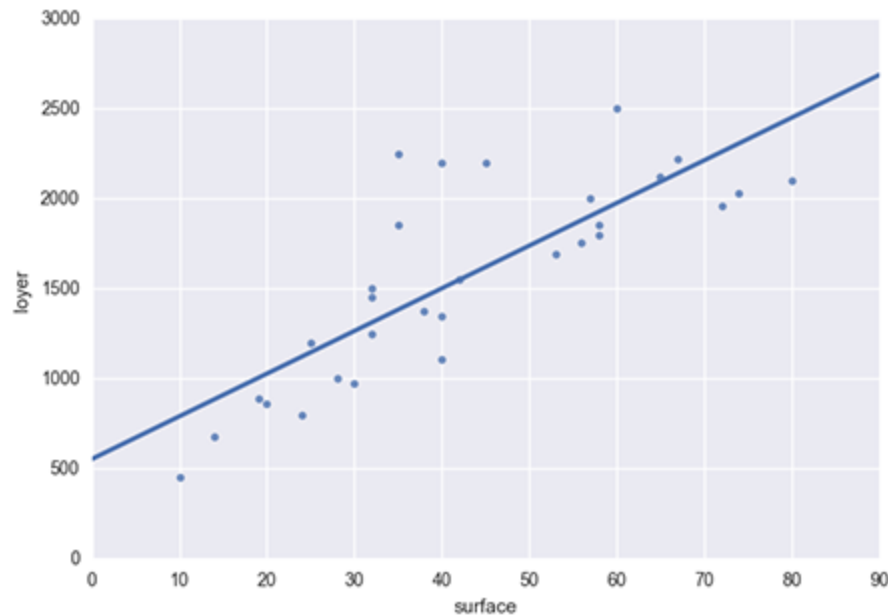
loyer mensuel (en €)	surface (en m2)
1500	32
2120	65
2500	60
...	...

Modéliser les données



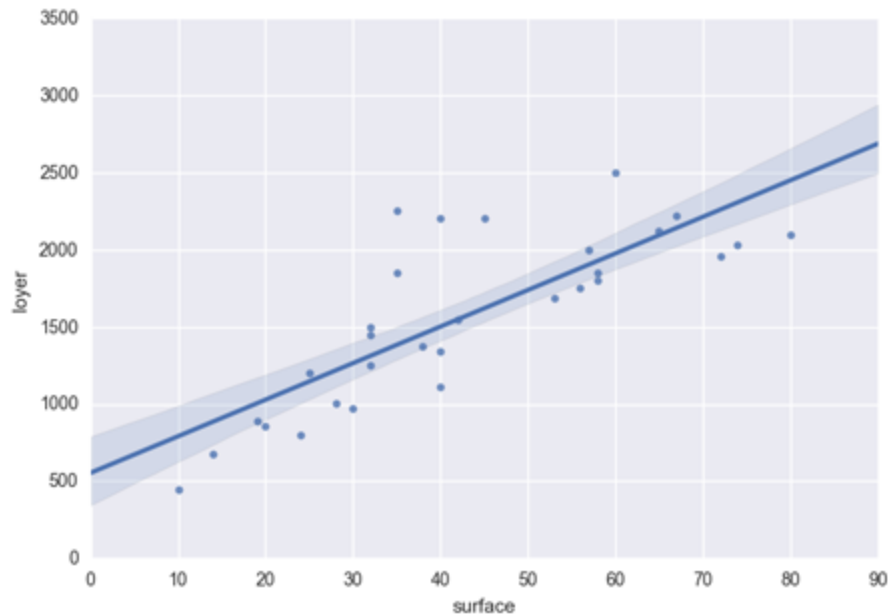
Loyer mensuel en fonction de la surface du logement

Modéliser les données



La droite de régression correspondant à la modélisation du nuage de points

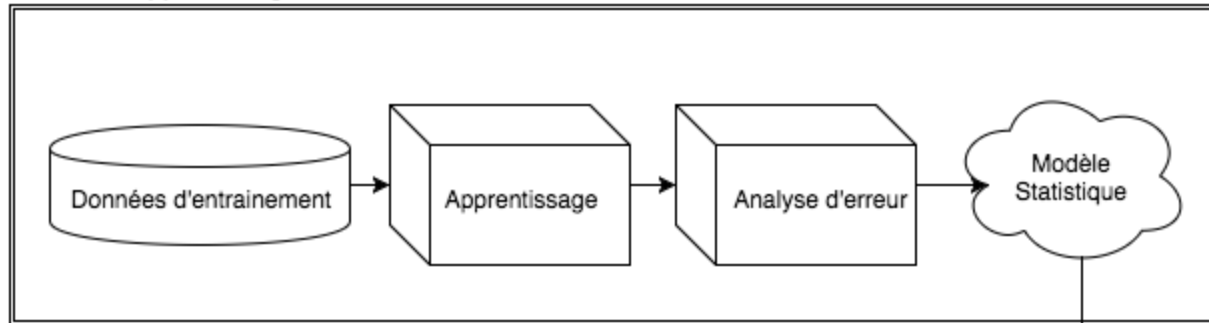
Modéliser les données



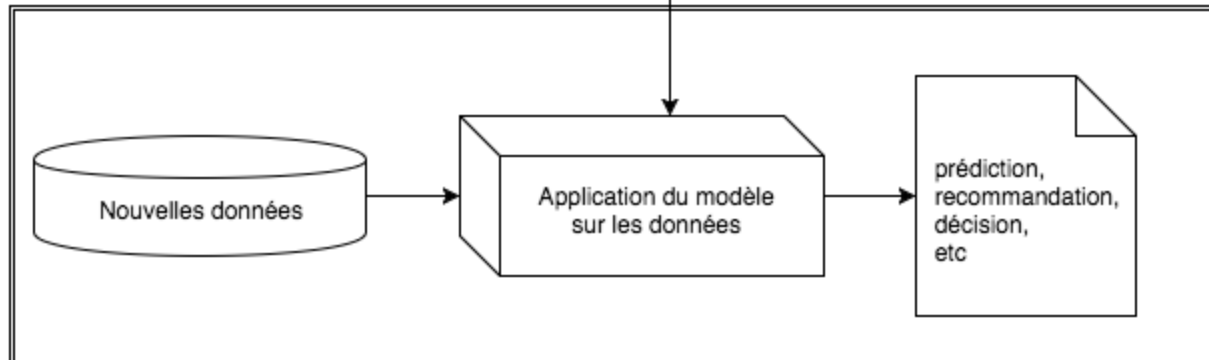
L'intervalle de confiance (à 90%)

Les phases

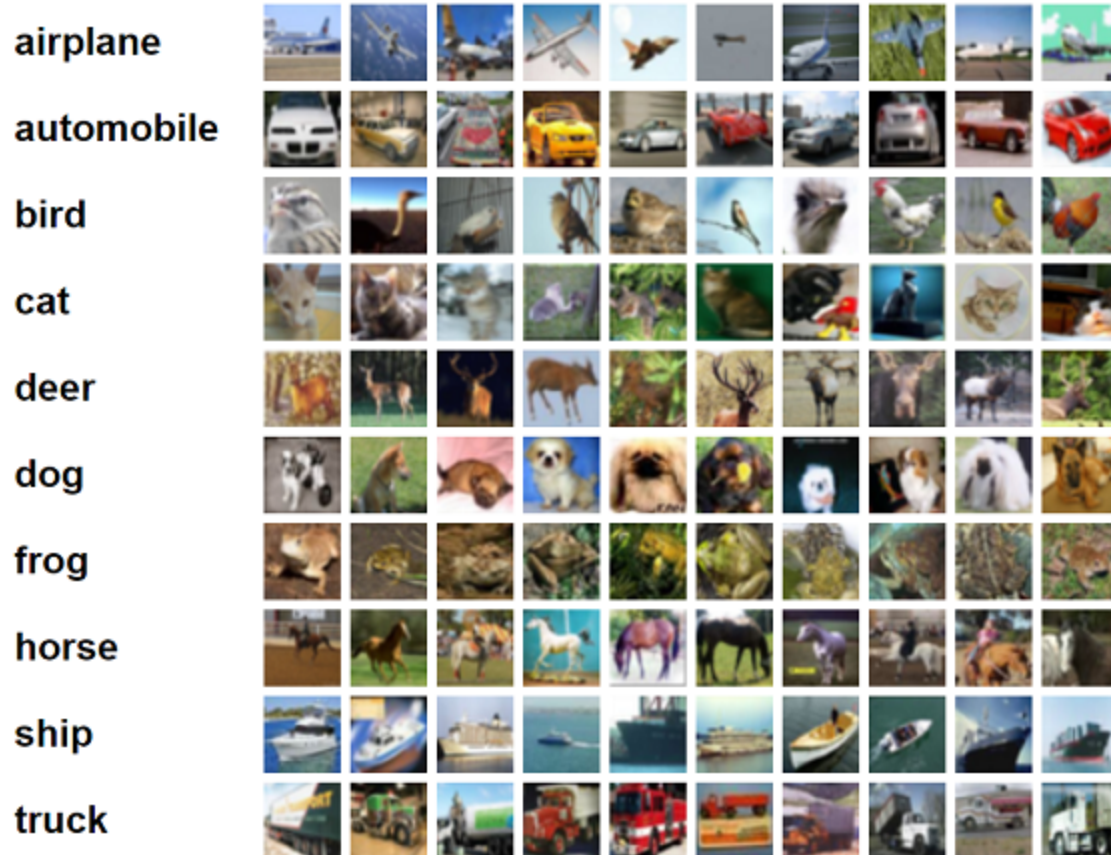
Phase 1: Apprentissage



Phase 2: Réalisation de la tâche



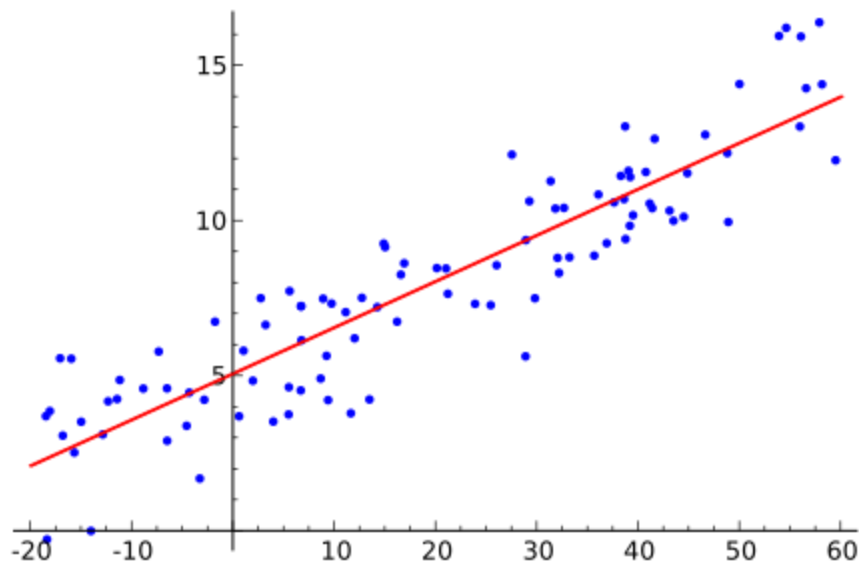
Apprentissage



Jeu de données CIFAR-10

Algorithmes d'apprentissage

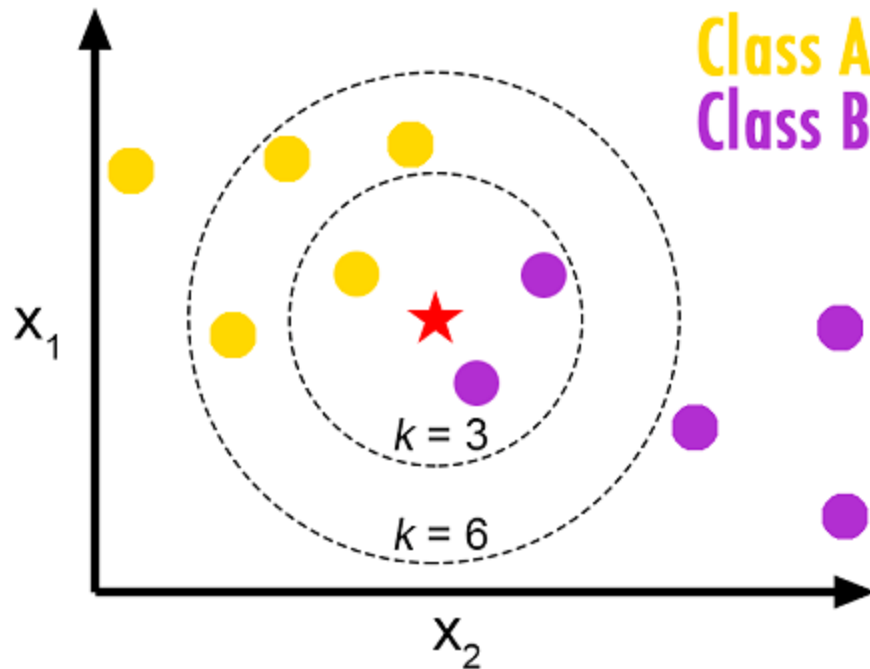
Régression linéaire



Wikipedia

Algorithmes d'apprentissage

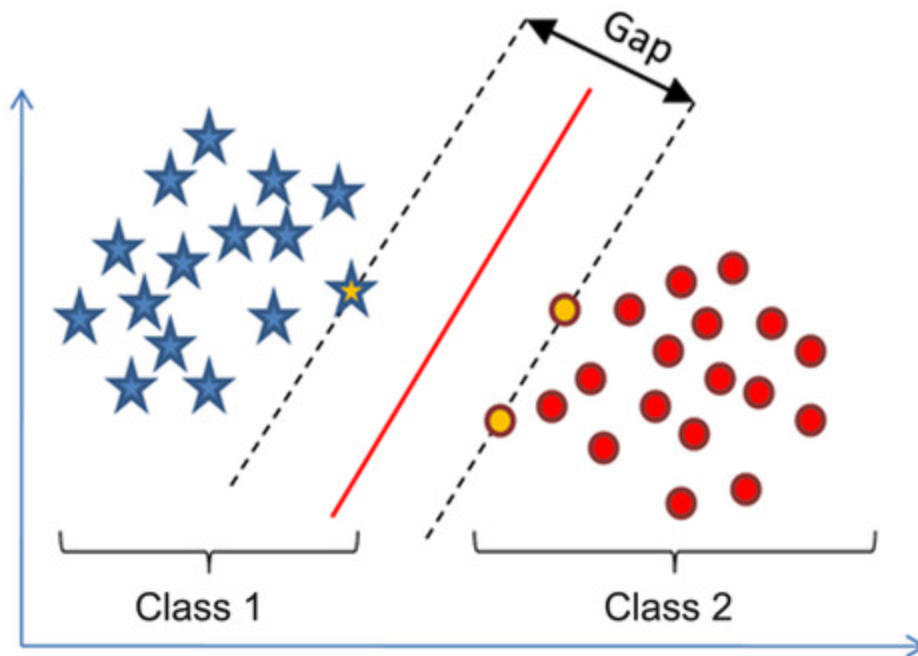
k-NN (*k-Nearest Neighbors algorithm*)



Classification using k-Nearest Neighbors in R

Algorithmes d'apprentissage

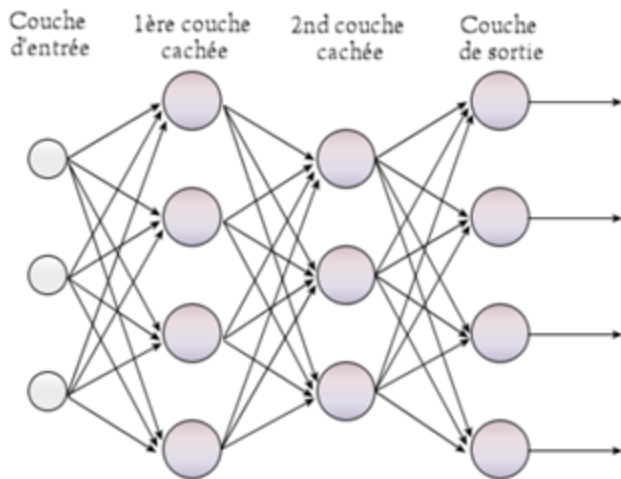
Support Vector Machine



Support Vector Machine without tears

Algorithmes d'apprentissage

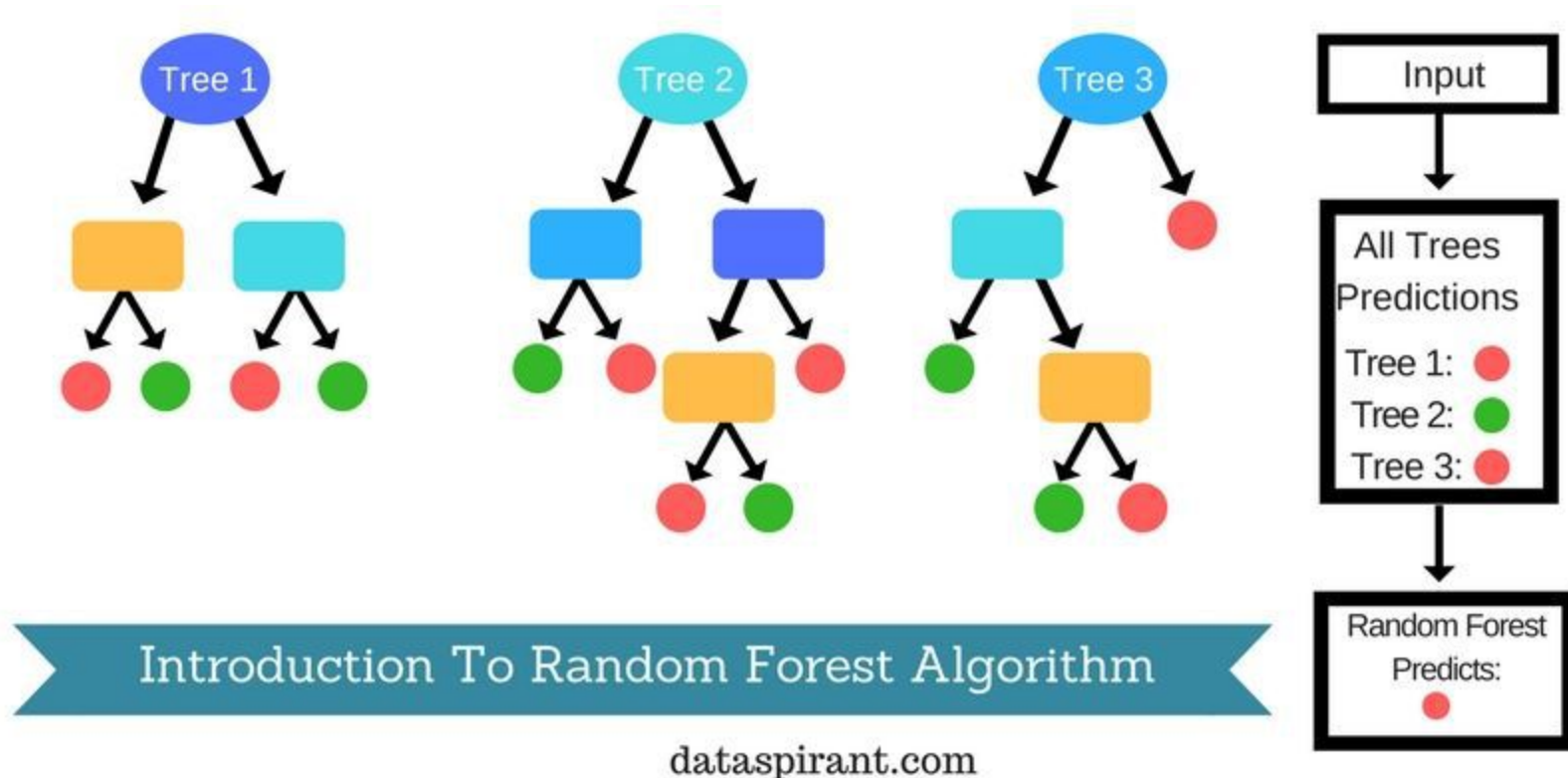
Réseaux de neurones



Une première introduction au Deep Learning

Algorithmes d'apprentissage

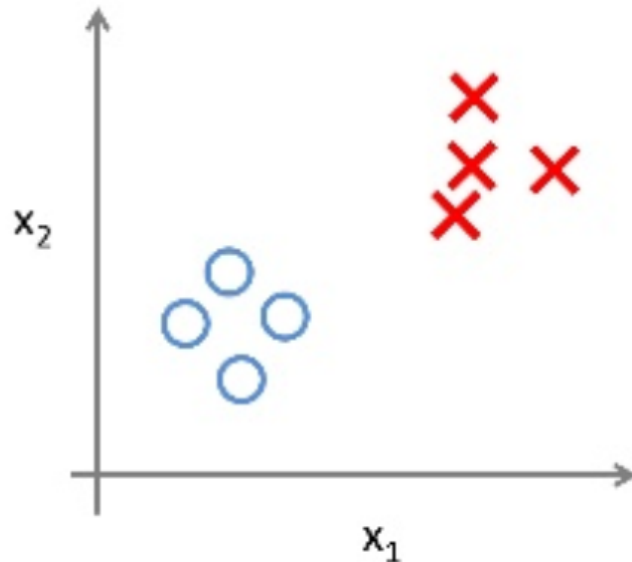
Random Forest



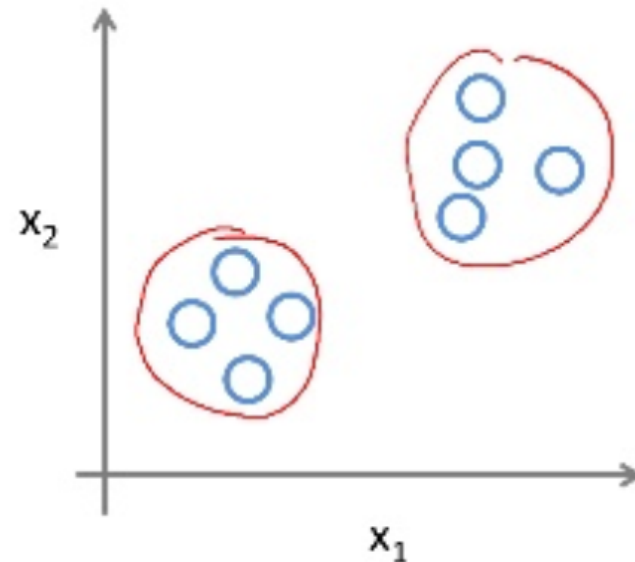
Dataaspirant

Apprentissage supervisé et non-supervisé

Supervised Learning

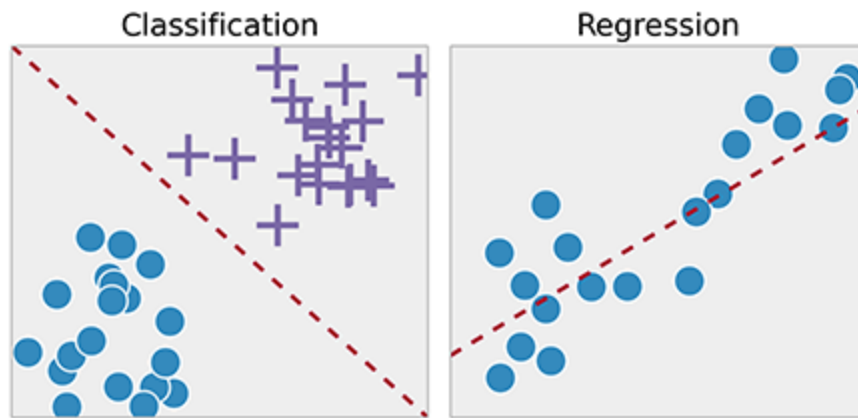


Unsupervised Learning




























Intro au Big Data & Machine Learning


























Régression vs Classification



Petit test

Petit test

Exemples

- Scoring client
- Rentabilité d'une campagne
- Affecter une catégorie à un produit
- Ségmenter les visiteurs d'un site
- ...

Deep Learning

The evolution of Artificial Intelligence

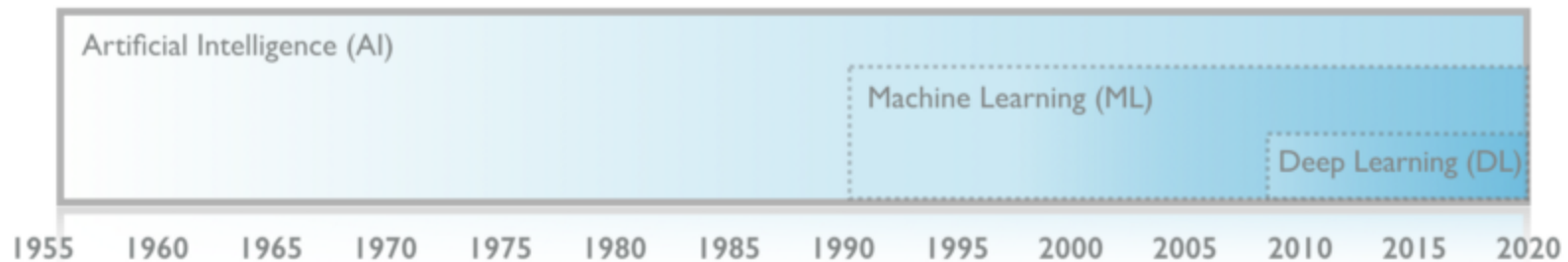
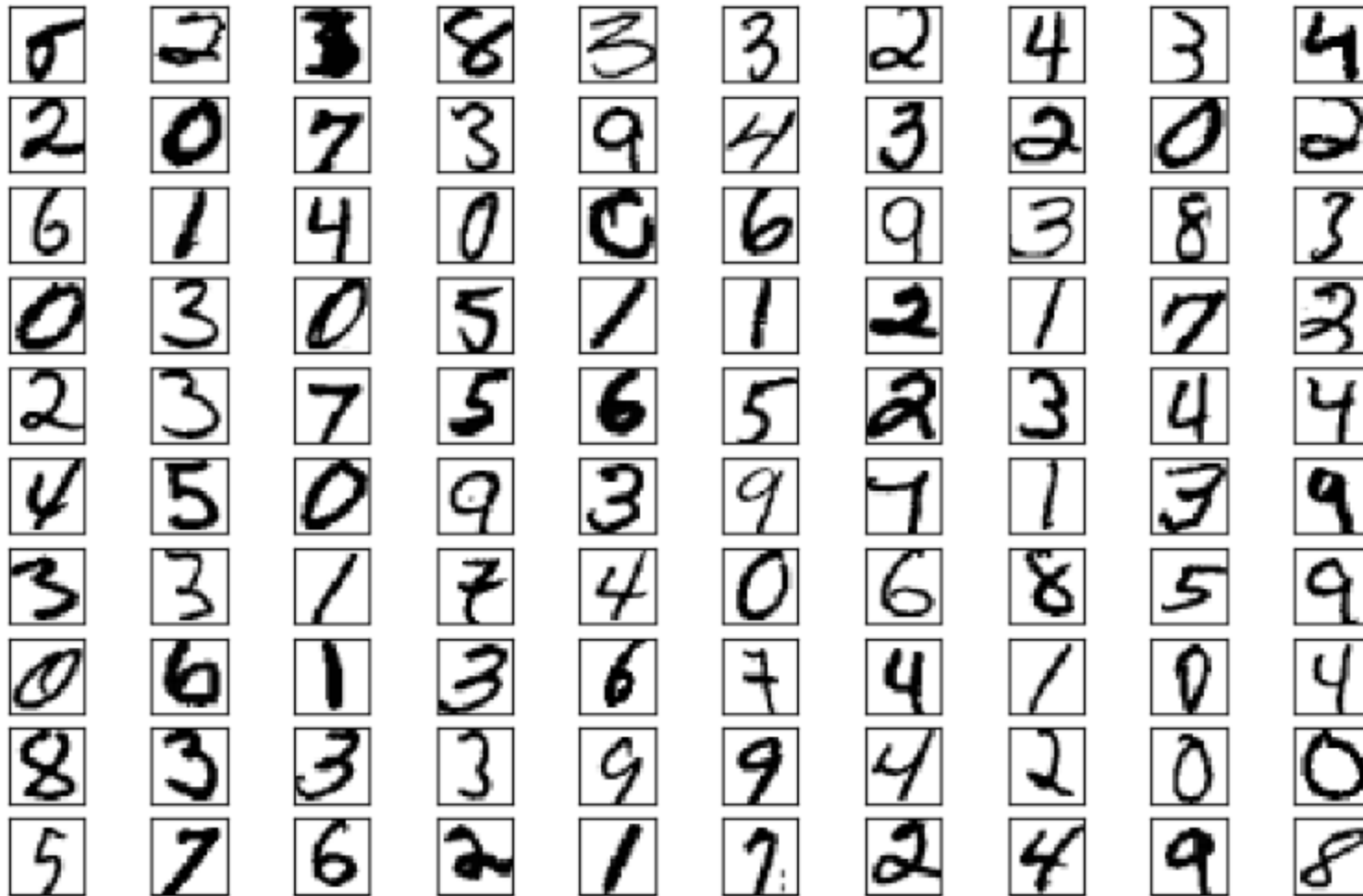
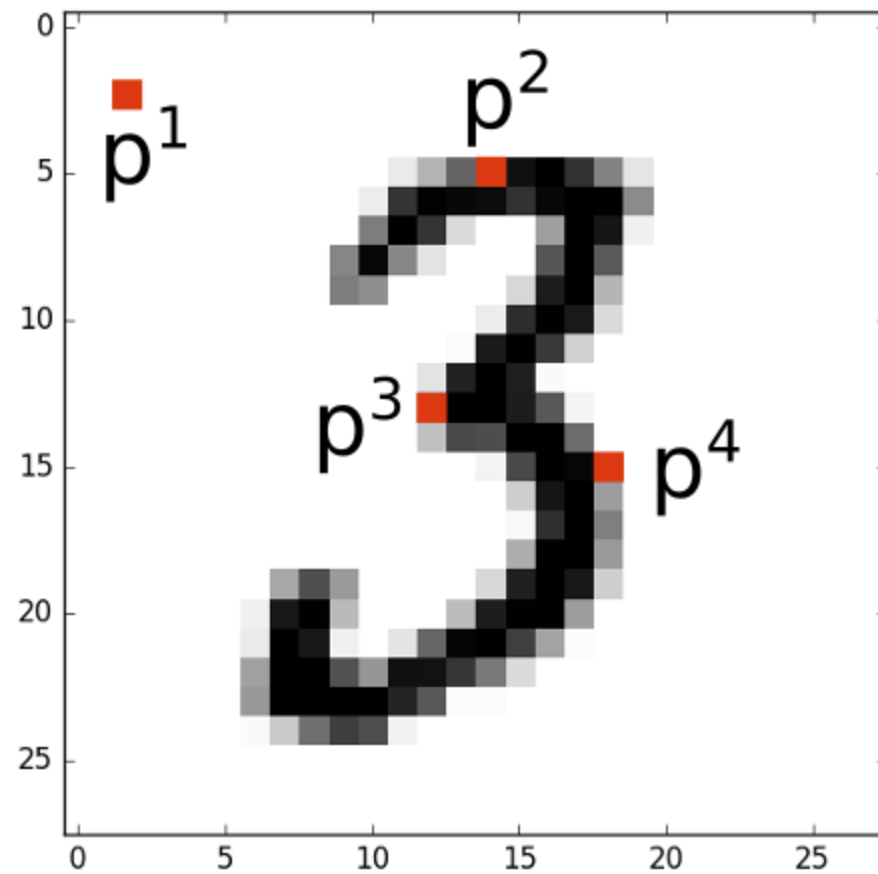


Figure 4

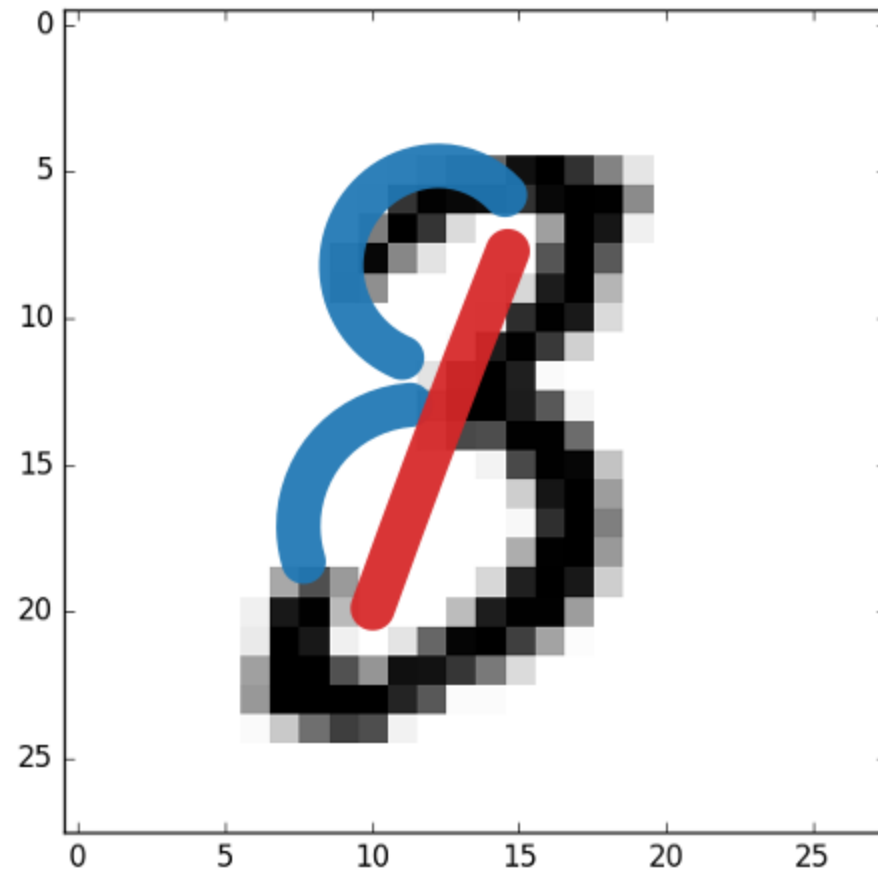
Exemple - Base de données MNIST



Par pixel

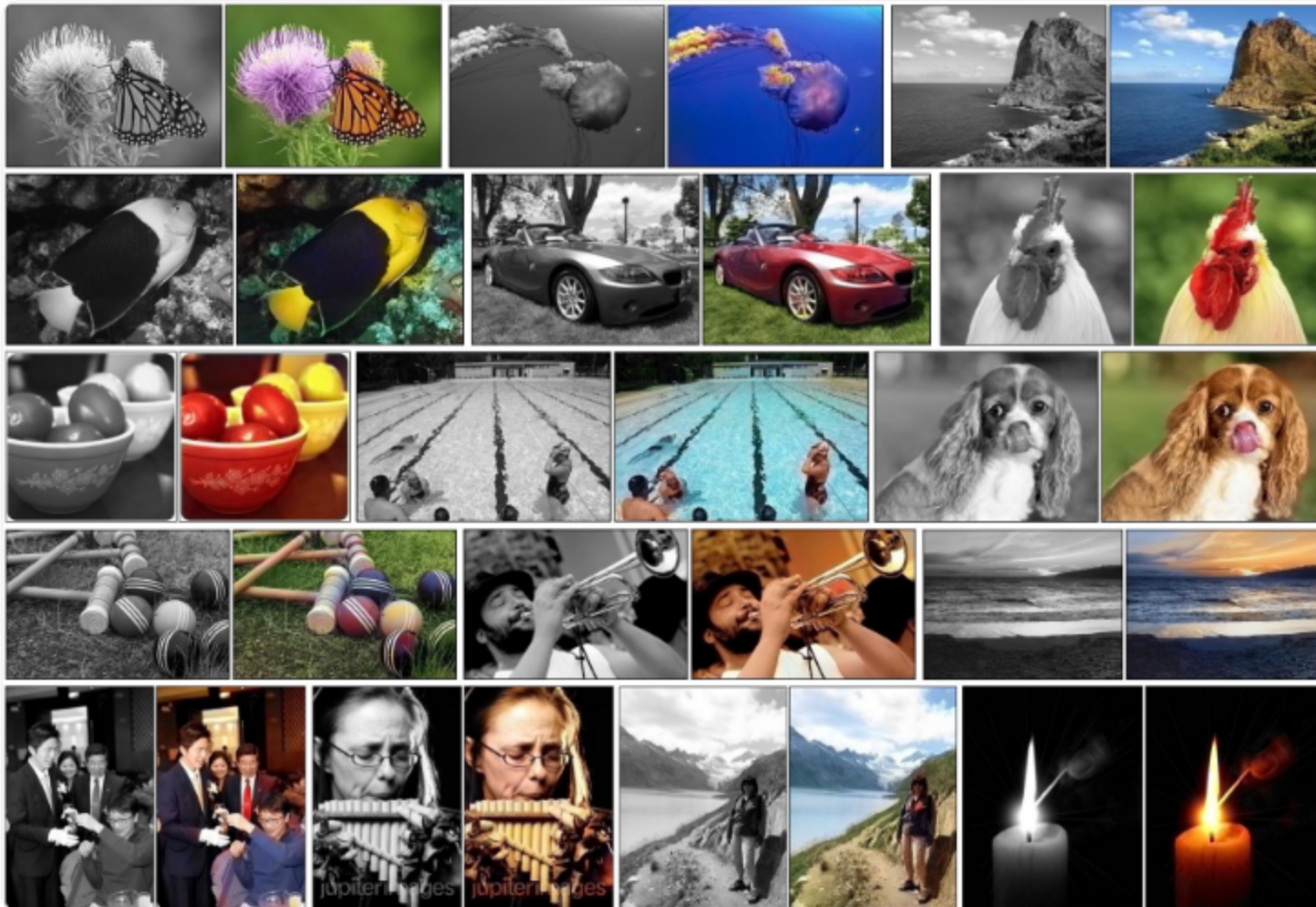


Par groupe



Exemples d'usage

Coloration d'images en N&B



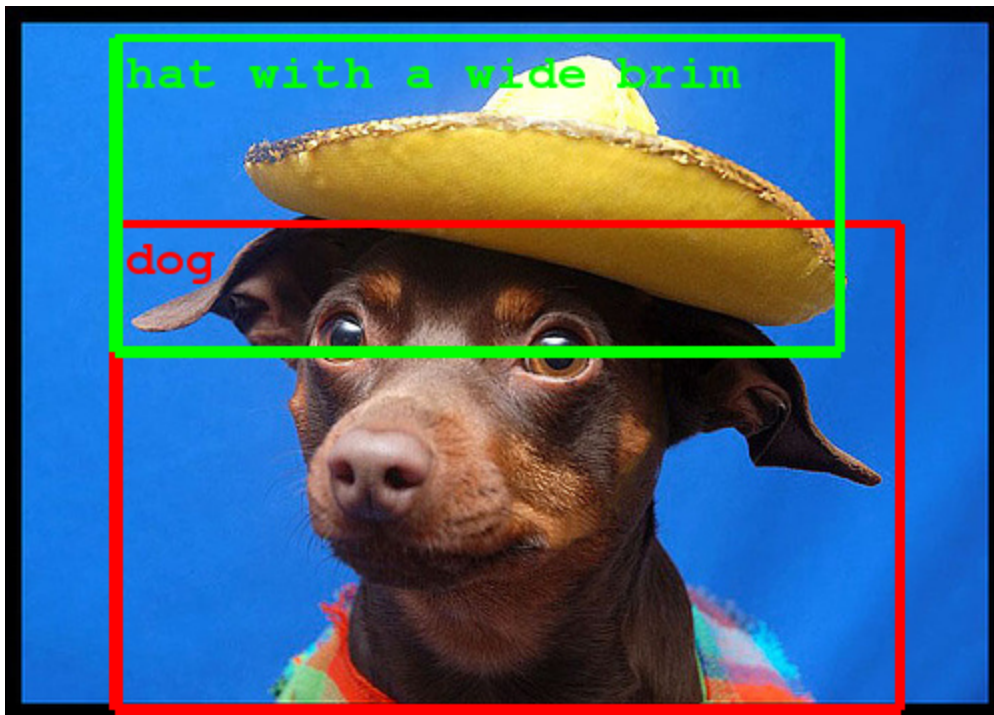
Exemples d'usage

Traduction automatique



Exemples d'usage

Reconnaissance d'objets



Exemples d'usage

Génération d'écriture manuscrite

Machine learning Mastery

Machine Learning Mastery

MACHINE Learning Mastery

Exemples d'usage

Rédaction de textes

PANDARUS:

Alas, I think he shall be come approached and the day
When little srain would be attain'd into being never fed,
And who is but a chain and subjects of his death,
I should not sleep.

Second Senator:

They are away this miseries, produced upon my soul,
Breaking and strongly should be buried, when I perish
The earth and thoughts of many states.

DUKE VINCENTIO:

Well, your wit is in the care of side and that.

Second Lord:

They would be ruled after this chamber, and
my fair nues begun out of the fact, to be conveyed,
Whose noble souls I'll have the heart of the wars.

Clown:

Come, sir, I will make did behold your worship.

VIOLA:

I'll drink it.

D'autres exemples

8 Inspirational Applications of Deep Learning