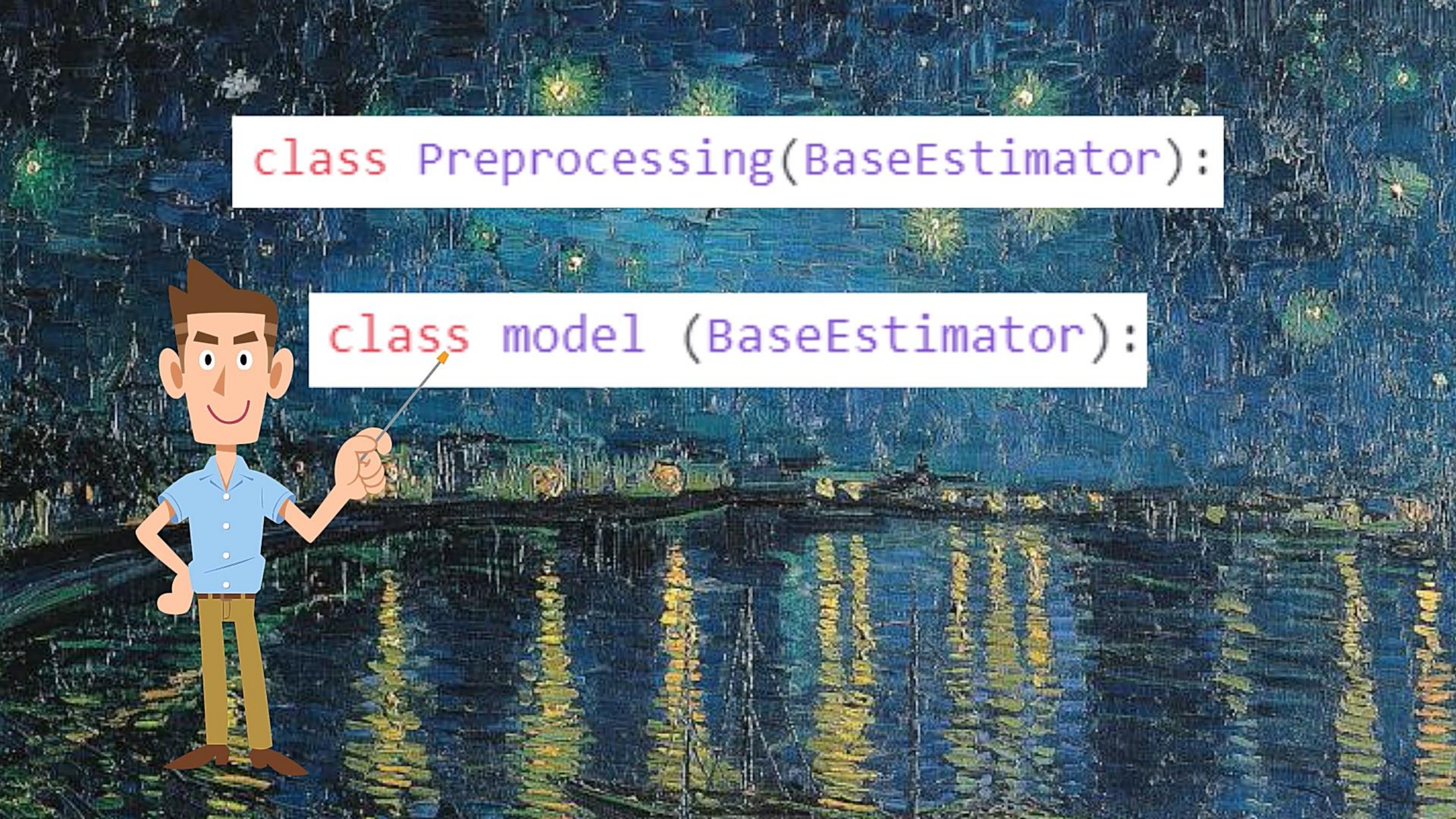
PERSODATA


class Preprocessing(BaseEstimator):
class model (BaseEstimator):

nombre d'exemples	Nombre de features	« sparsity »	Variables categorielles	Données manquantes	Dataset	Nombre d'exemples par classes(2 classes fake et real)
65856	200	0	0	0	Trainnig	Real :&32886 Fake :32970
18817	200	0	0	0	Test	Real :9485 Fake :9332
9408	200	0	0	0	Validation	Real :4670 Fake :4738

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18817	200	0	0	0	Test	Real :9485 Fake :9332
9408	200	0	0	0	Validation	Real :4670 Fake :4738

Preprocessing

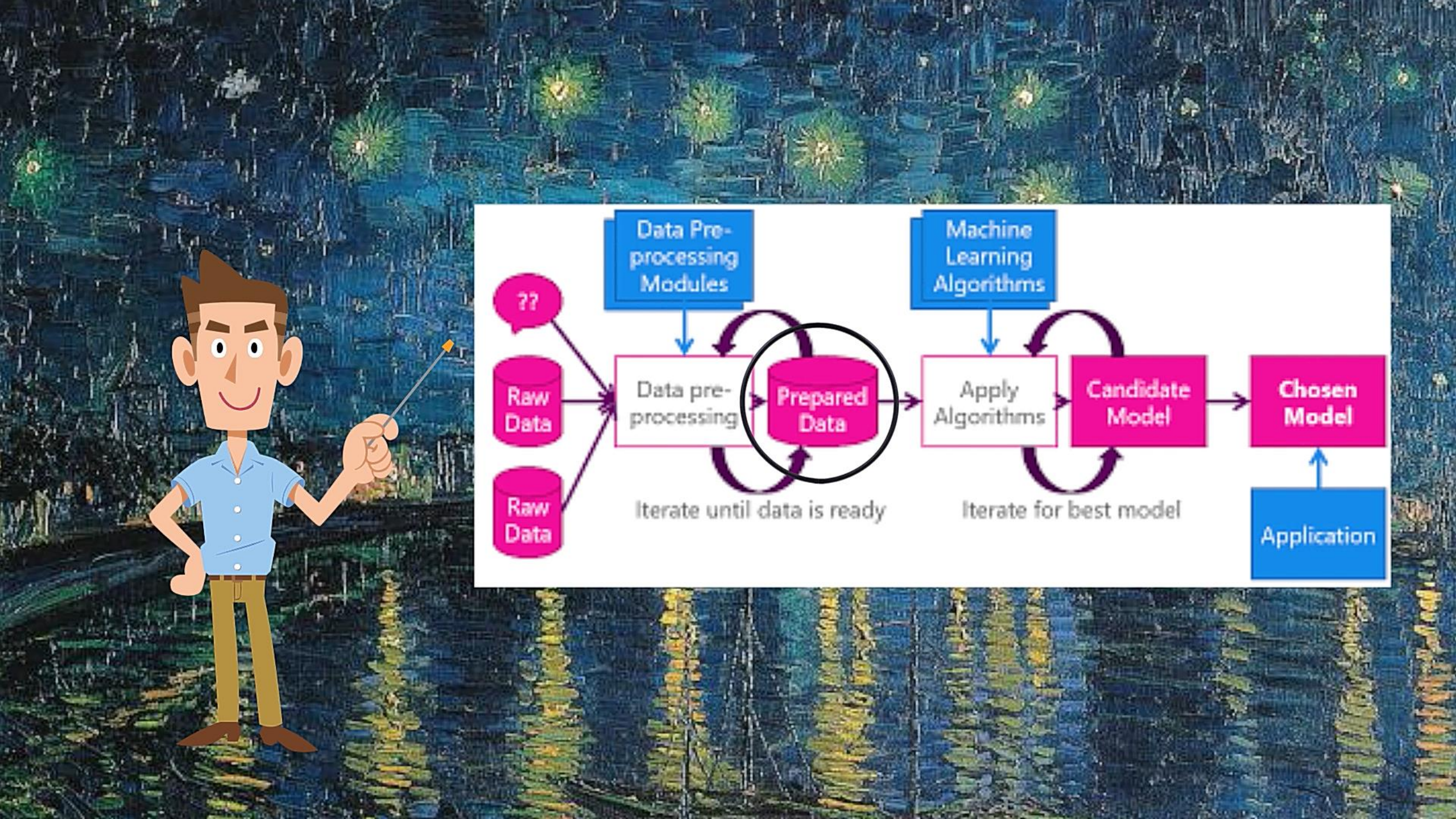
Données plus faciles à traiter

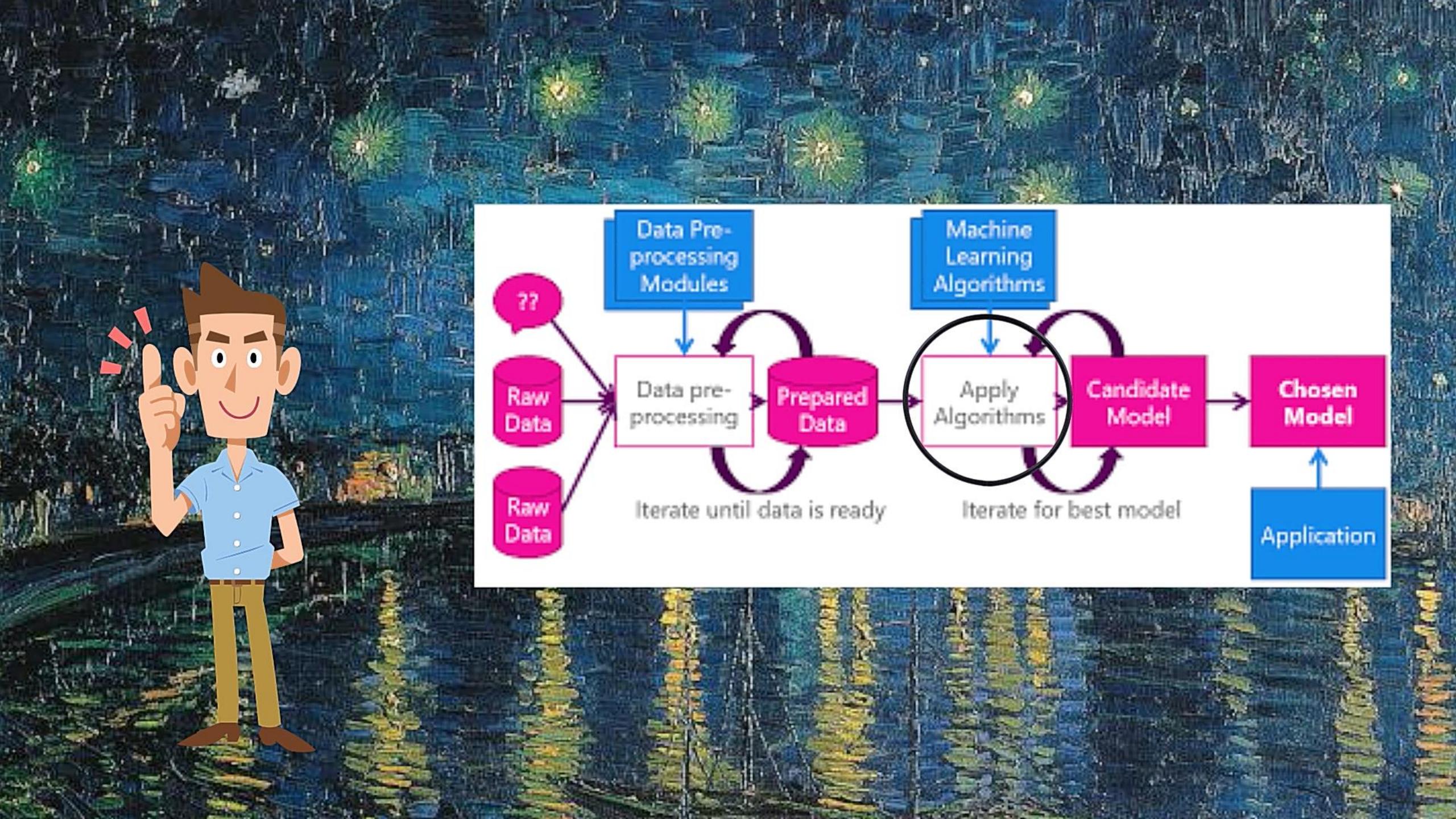
Augmente l'efficacité du classifieur

Classification

Classifieur à optimiser

Maximiser l'efficacité


Data Pre-processing Modules
Machine Learning Algorithms
??
Raw Data
Raw Data
Data pre-processing
Prepared Data
Apply Algorithms
Candidate Model
Chosen Model
Application
Iterate until data is ready
Iterate for best model


??
Raw Data
Raw Data
Data Pre-processing Modules
Data pre-processing
Prepared Data
Iterate until data is ready
Machine Learning Algorithms
Apply Algorithms
Candidate Model
Iterate for best model
Chosen Model
Application

Visualisation

Mieux comprendre les résultats

Données plus claires

Mehdi/Floriana : Preprocessing

Damien/Kevin : Prédiction

Donovan/Edouard : Visualisation

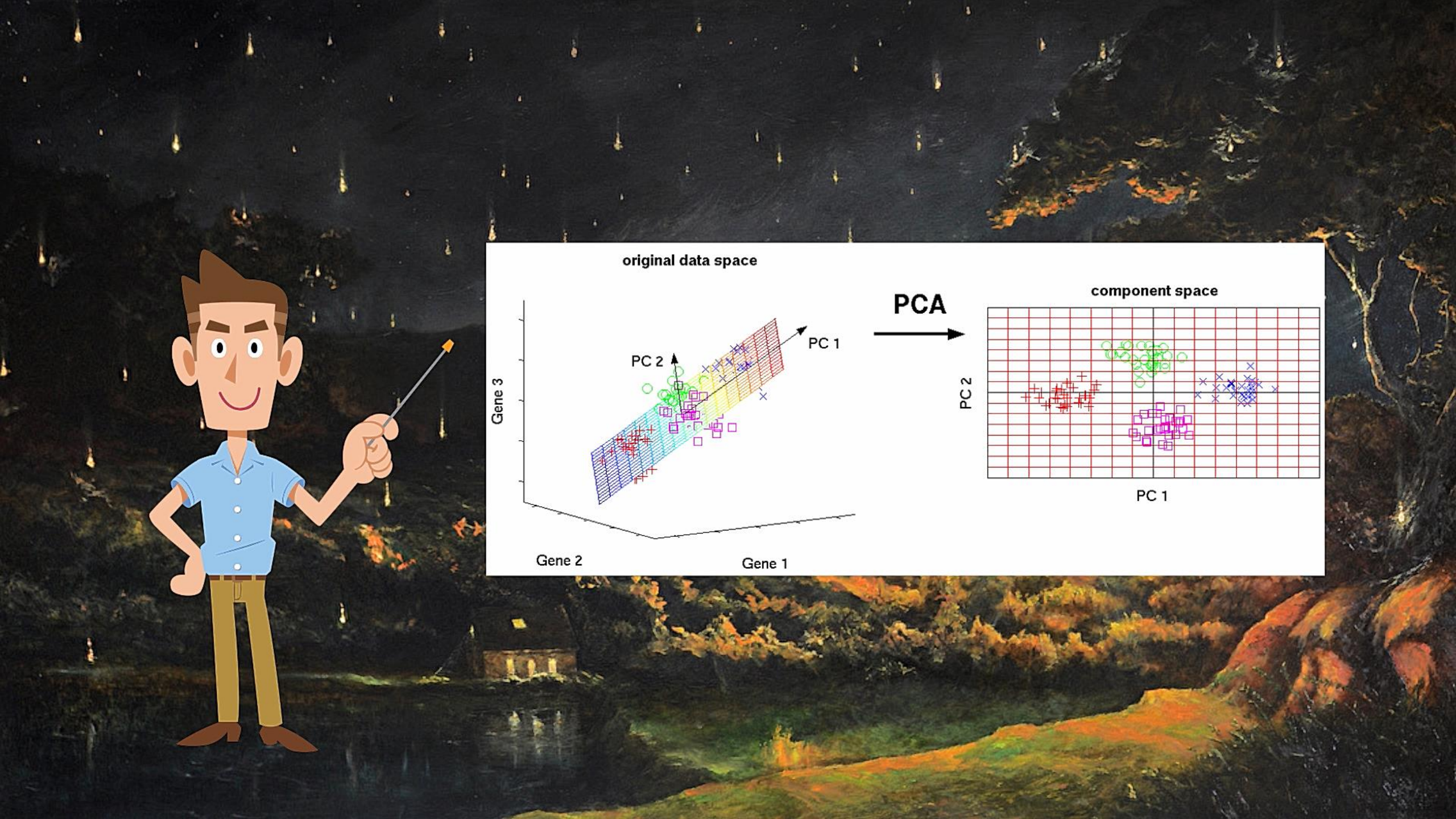
3 taches différentes :

- Preprocessing
- Prediction
- Visualisation


I- Preprocessing

On modifie les données brutes pour :

- Réduire l'overfitting
- Améliorer la précision
- Réduire le temps d'entrainement


original data space
PC 2
PC 1
Gene 3
Gene 2
Gene 1
PCA
component space
PC 2
PC 1

nombre d'exemples	Nombre de features	« sparsity »	Variables categorielles	Données manquantes	Dataset	Nombre d'exemples par classes(2 classes fake et real)
65856	[illegible]	0	0	0	Trainnig	Real :&32886 Fake :32970
18817	200	0	0	0	Test	Real :9485 Fake :9332
9408	200	0	0	0	Validation	Real :4670 Fake :4738

```python
class Preprocessing(BaseEstimator):

    def __init__(self):
        lil_clf = SVC(kernel='linear') # classifieur lineaire
        self.transformer = PCA(n_components=100) # on veut que le resultat soit compose de 100 features
        self.pipe = Pipeline(BaseEstimator)
        self.pipe
        Pipeline(memory=None, steps=[('reduction_dim',fit(self,data.data['Xtrain'],data.data['Ytrain'])), ('lil_clf', lil_clf)])

    def fit(self, Xtrain, Ytrain):
        # premiere methode de preprocessing
        X_scaled = preprocessing.scale(X_train)
        Y_scaled = preprocessing.scale(Y_train)
        Xtrain_transf=self.transformer.fit_transform(Xtrain)
        Ytrain_transf=self.transformer.fit_transform(Ytrain)
        return Xtrain_transf,Ytrain_transf

    def fit_transform(self, X, Y):
        return self.transformer.fit_transform(X,Y)

    def transform(self, X, Y):
        return self.transformer.transform(X,Y)
```

```python
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```

Standardiser

Réduire

```python
class Preprocessing(BaseEstimator):

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```
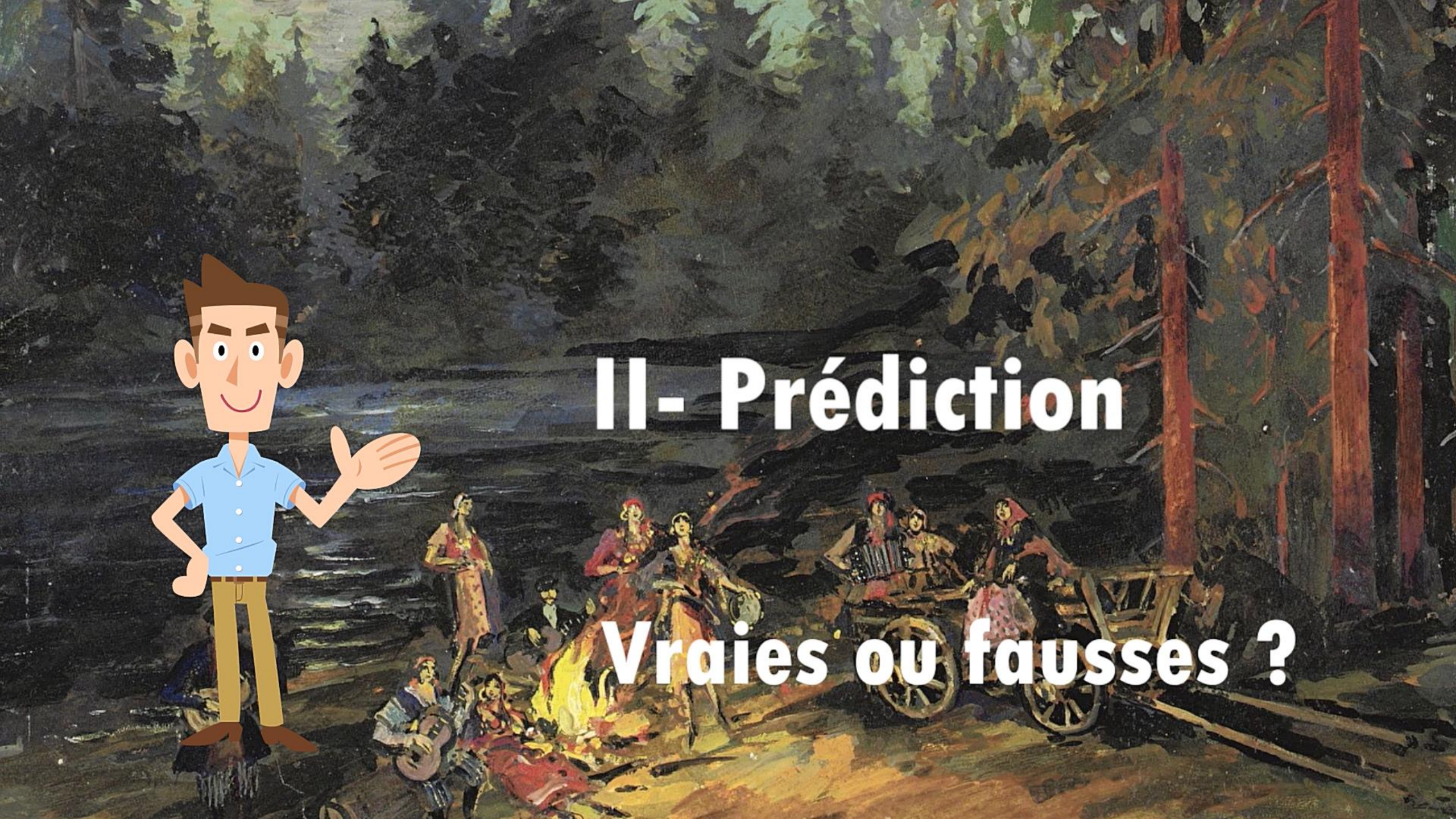
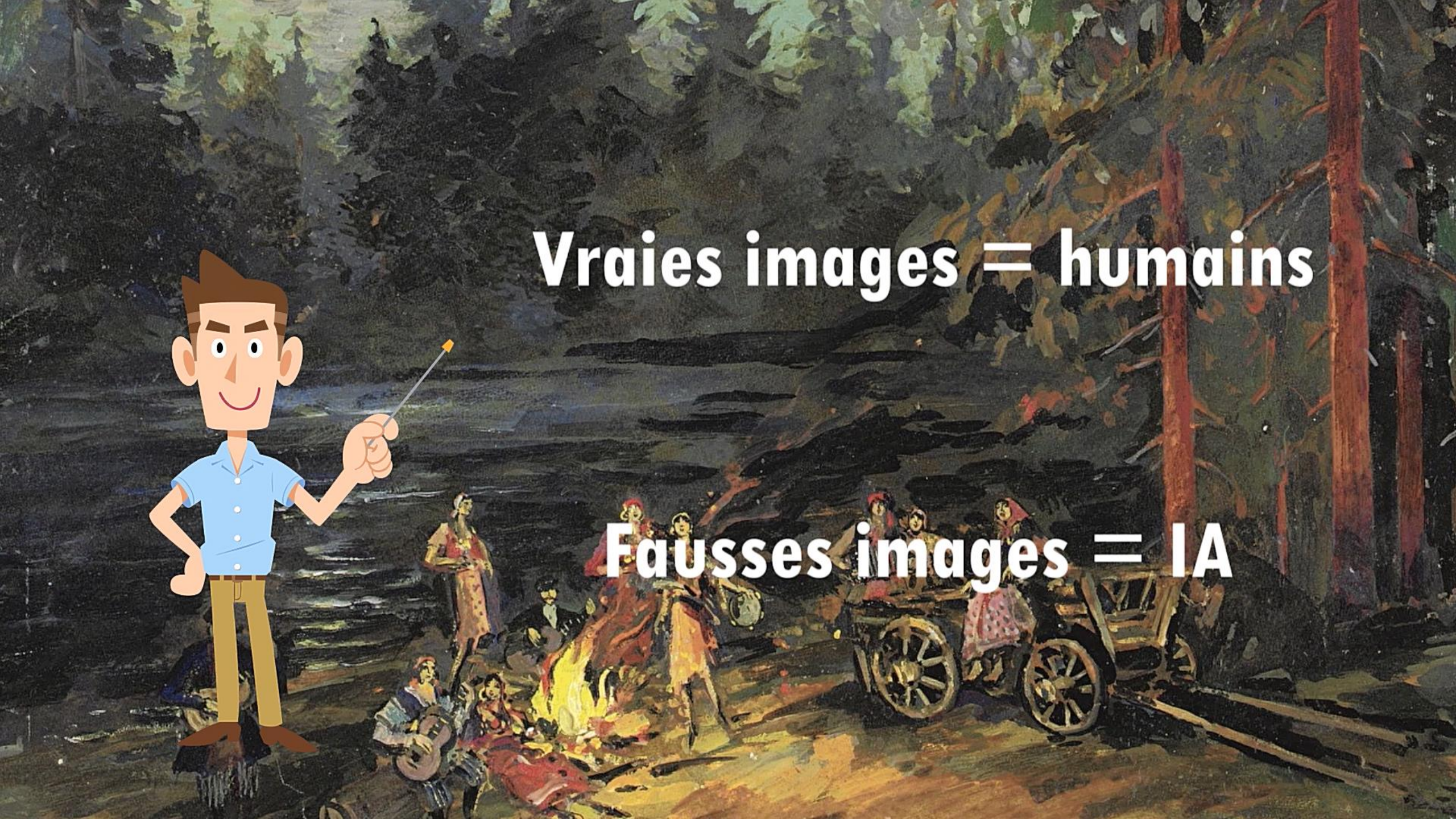
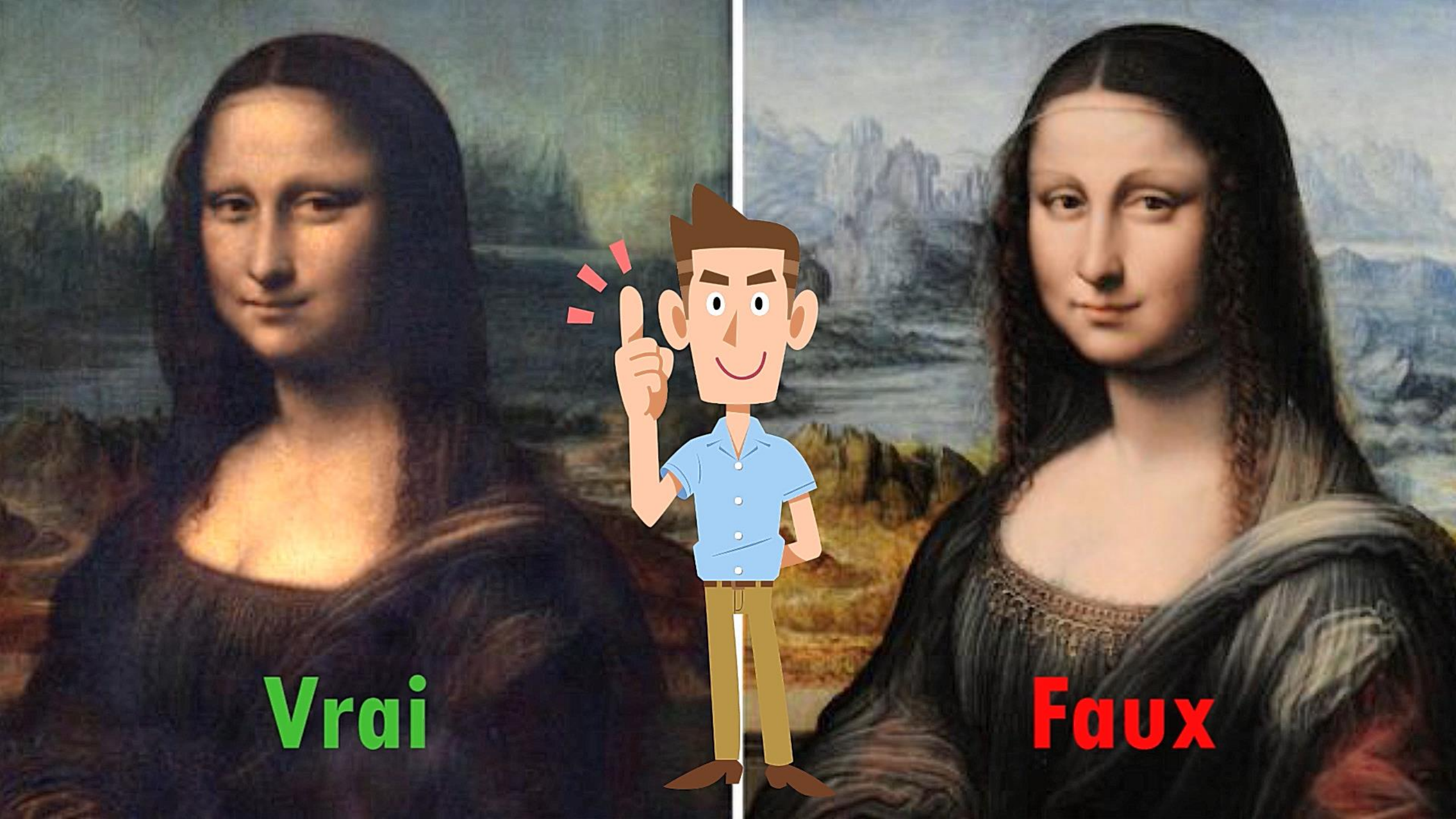
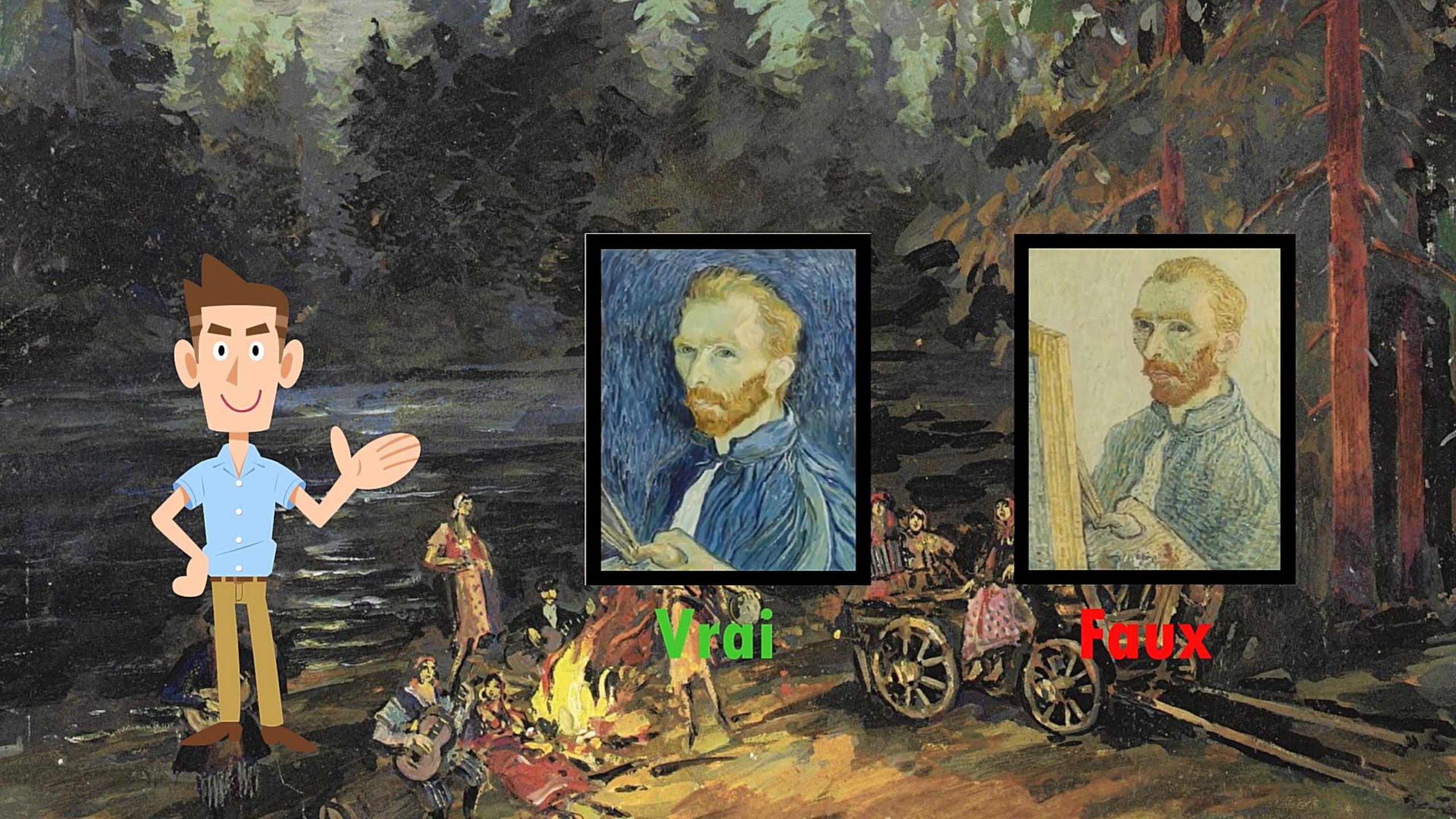
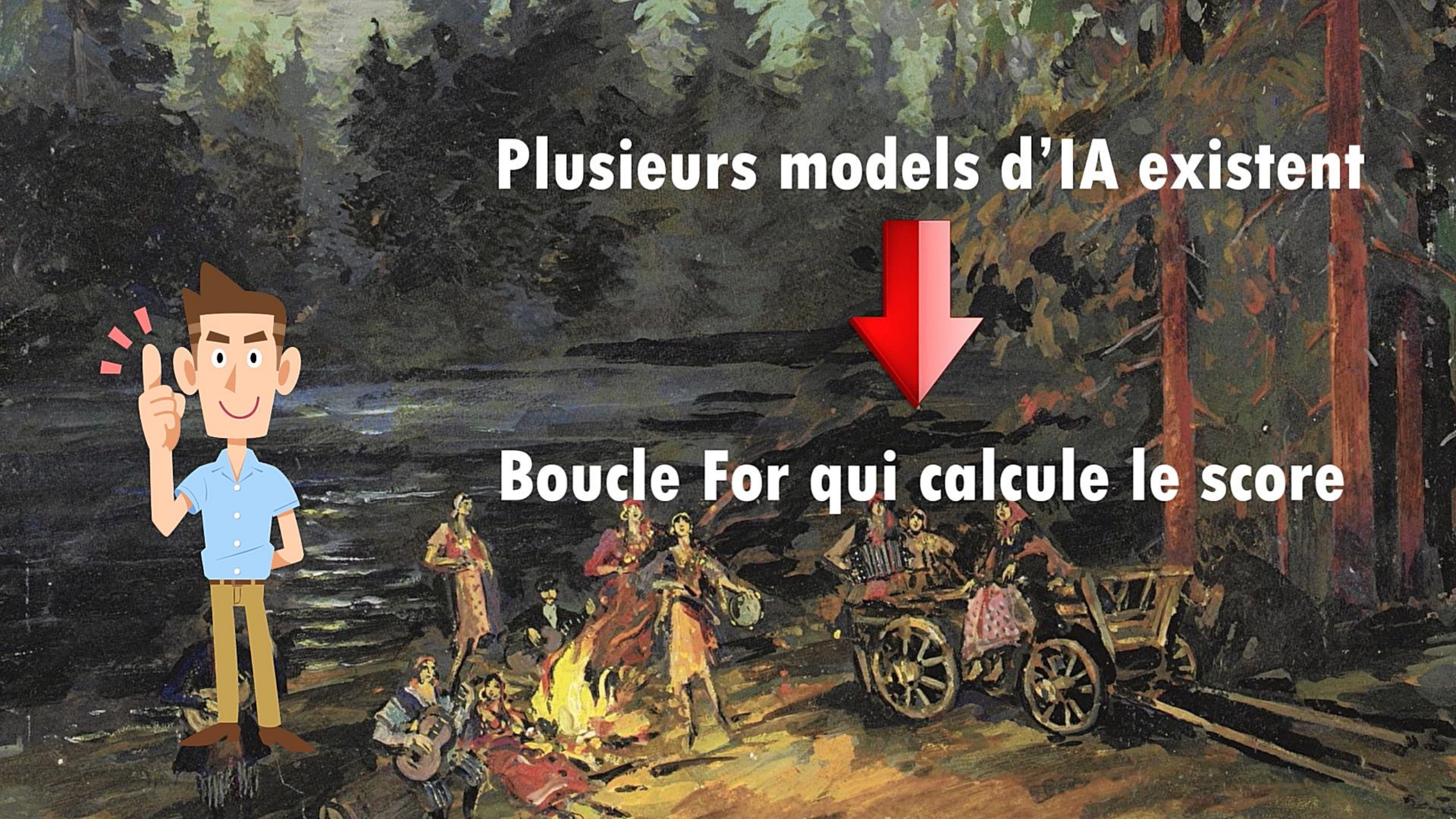


II- Prédiction
Vraies ou fausses ?

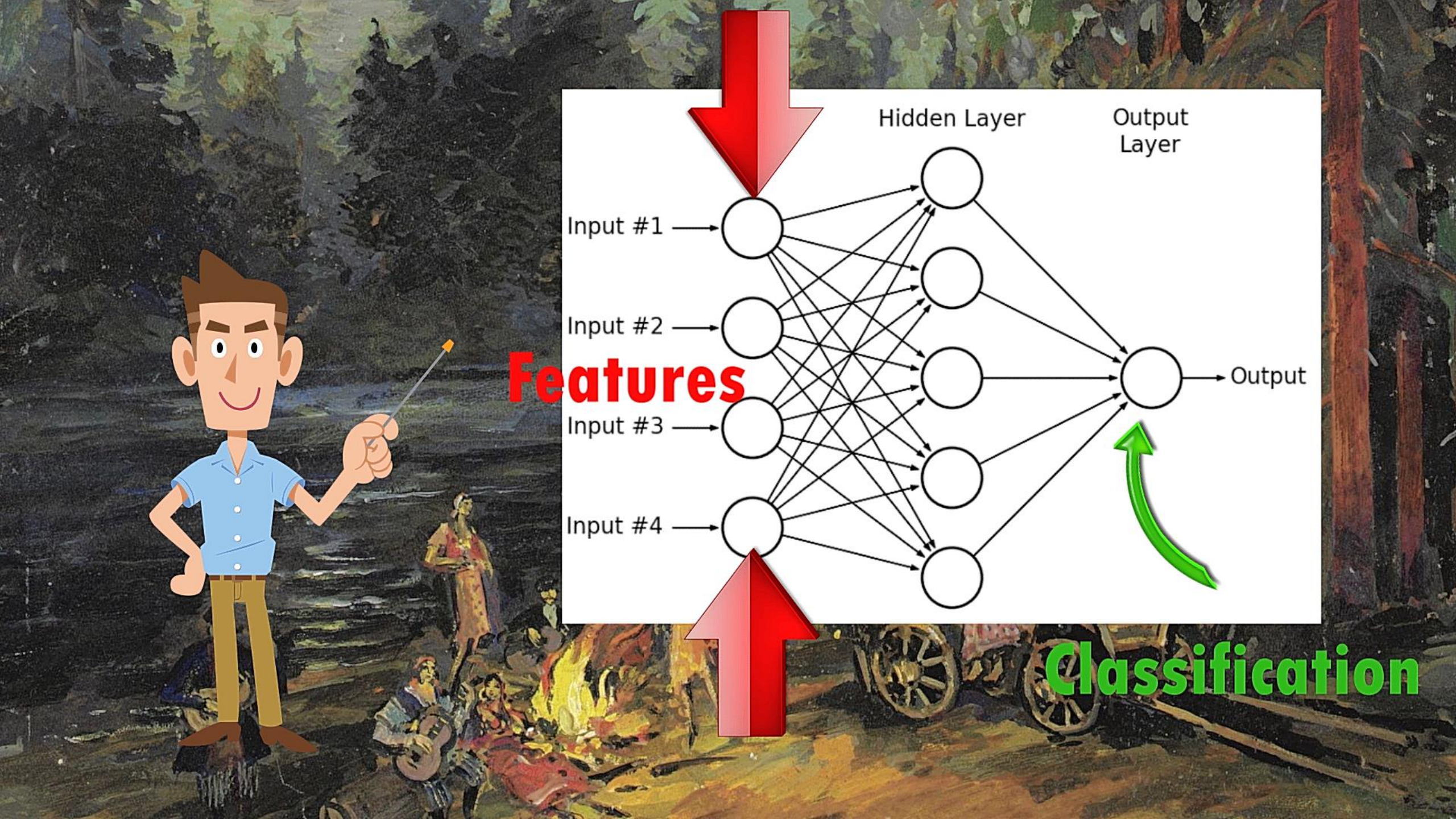

Vraies images = humains
Fausses images = IA


Vrai
Faux


Vrai
Faux


Apprends de lui même !


Plusieurs models d'IA existent
Boucle For qui calcule le score


Hidden Layer
Output Layer
Input #1
Input #2
Input #3
Input #4
Output
Features
Classification

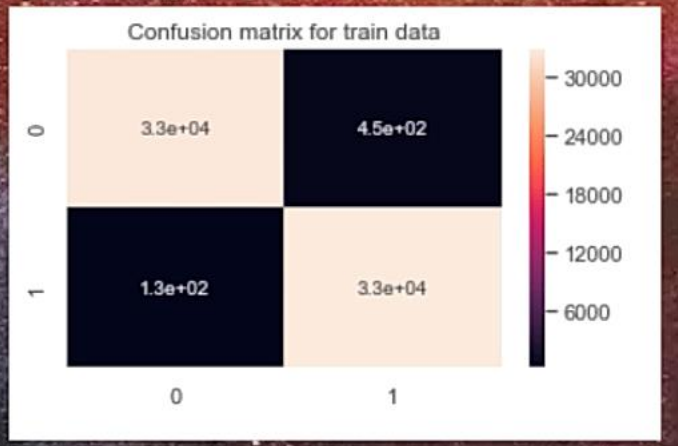
Selection des hyperparamètres

Dichotomie

5 itérations car code long a faire tourner

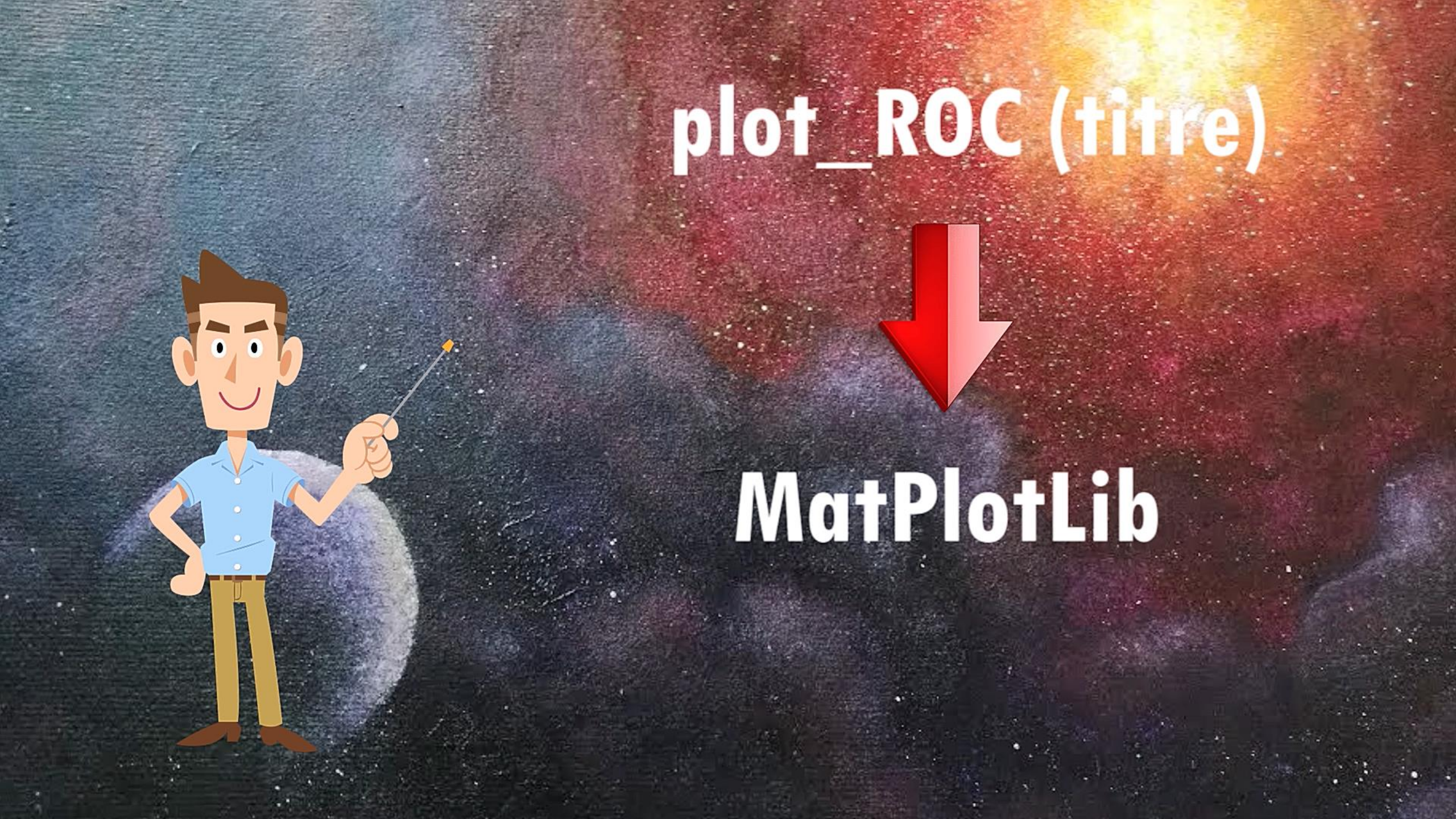

III- La Visualitation
Rendre les resultats claires

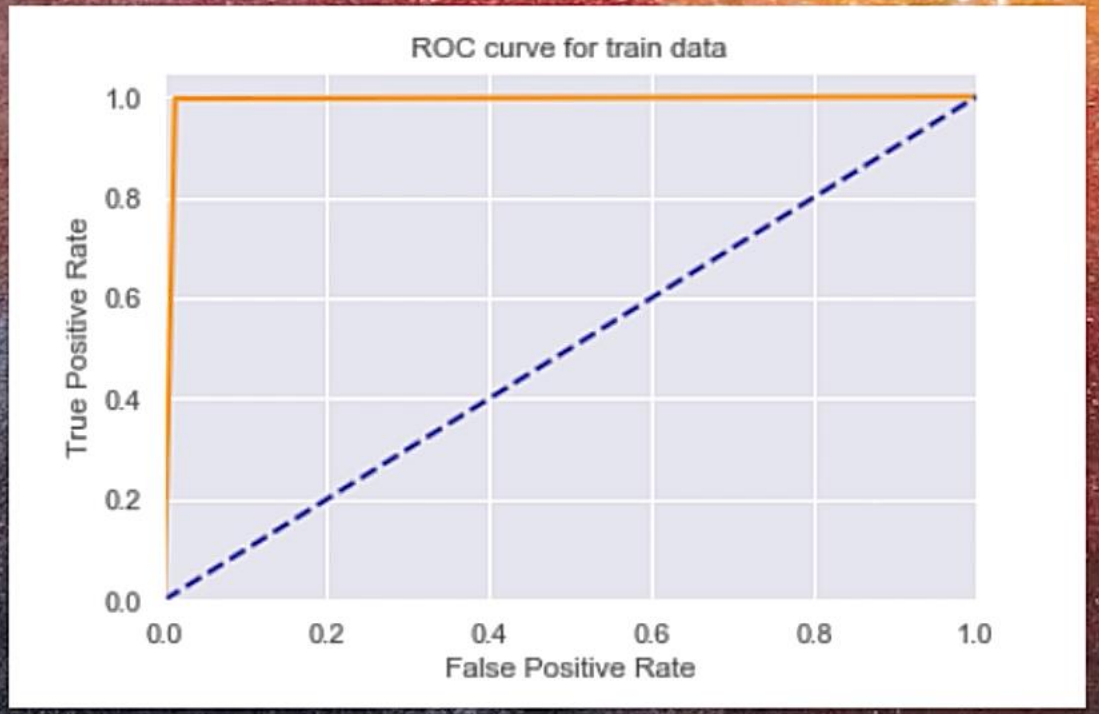

ROC curve for train data
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0


Confusion matrix for train data
3.3e+04
4.5e+02
1.3e+02
3.3e+04
0
1
30000
24000
18000
12000
6000

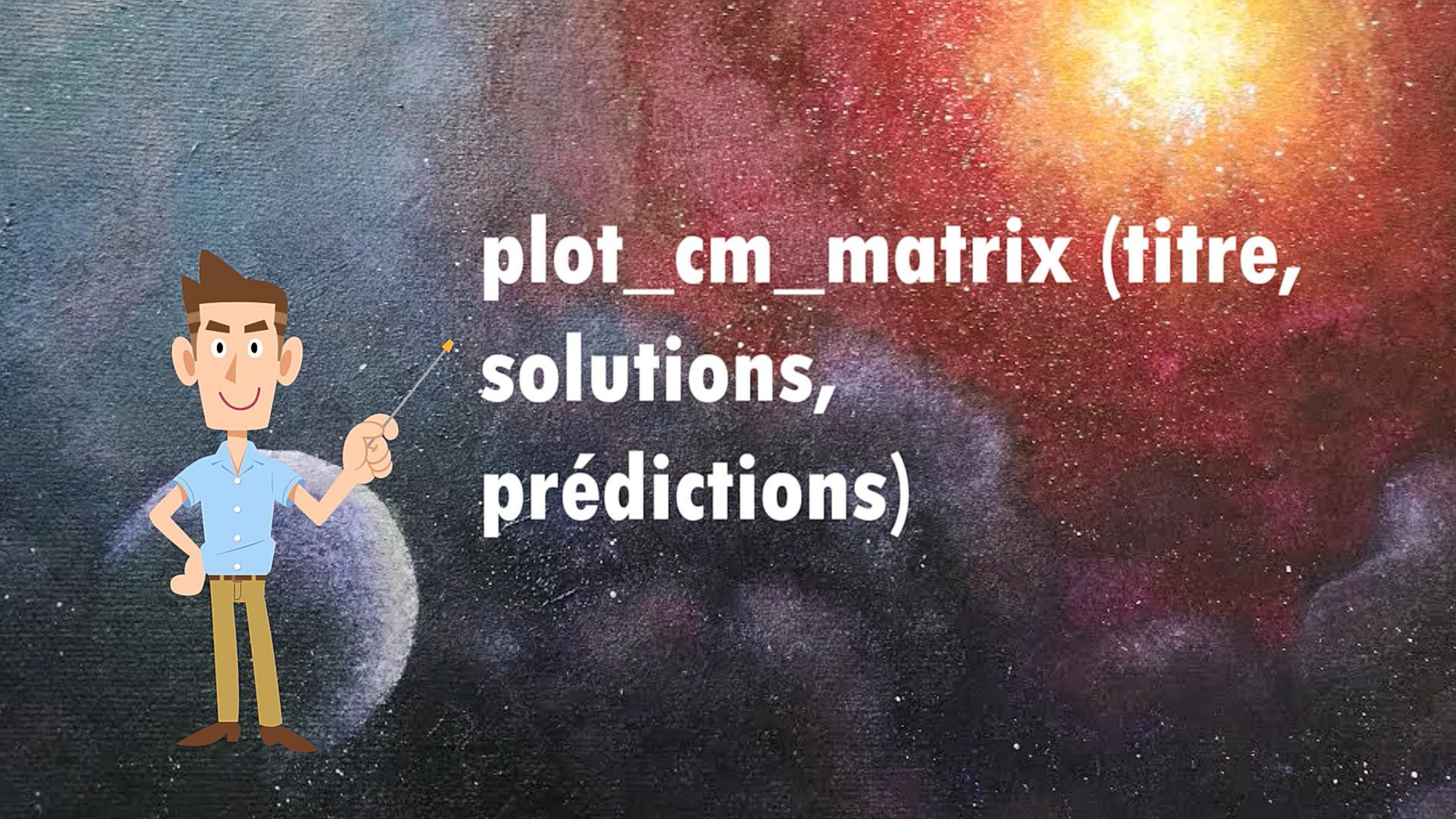
plot_ROC

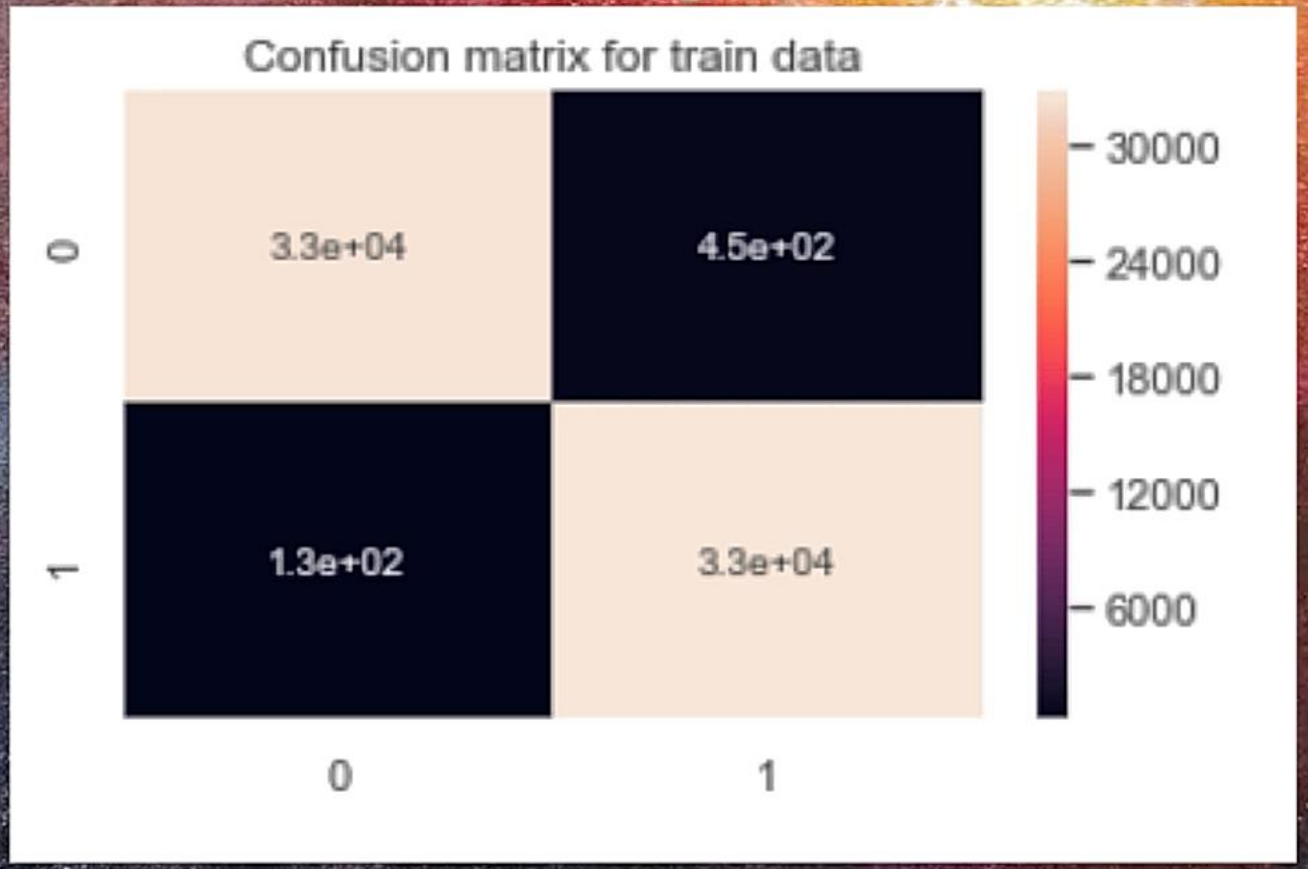
plot_cm_matrix


plot_ROC (titre)
MatPlotLib

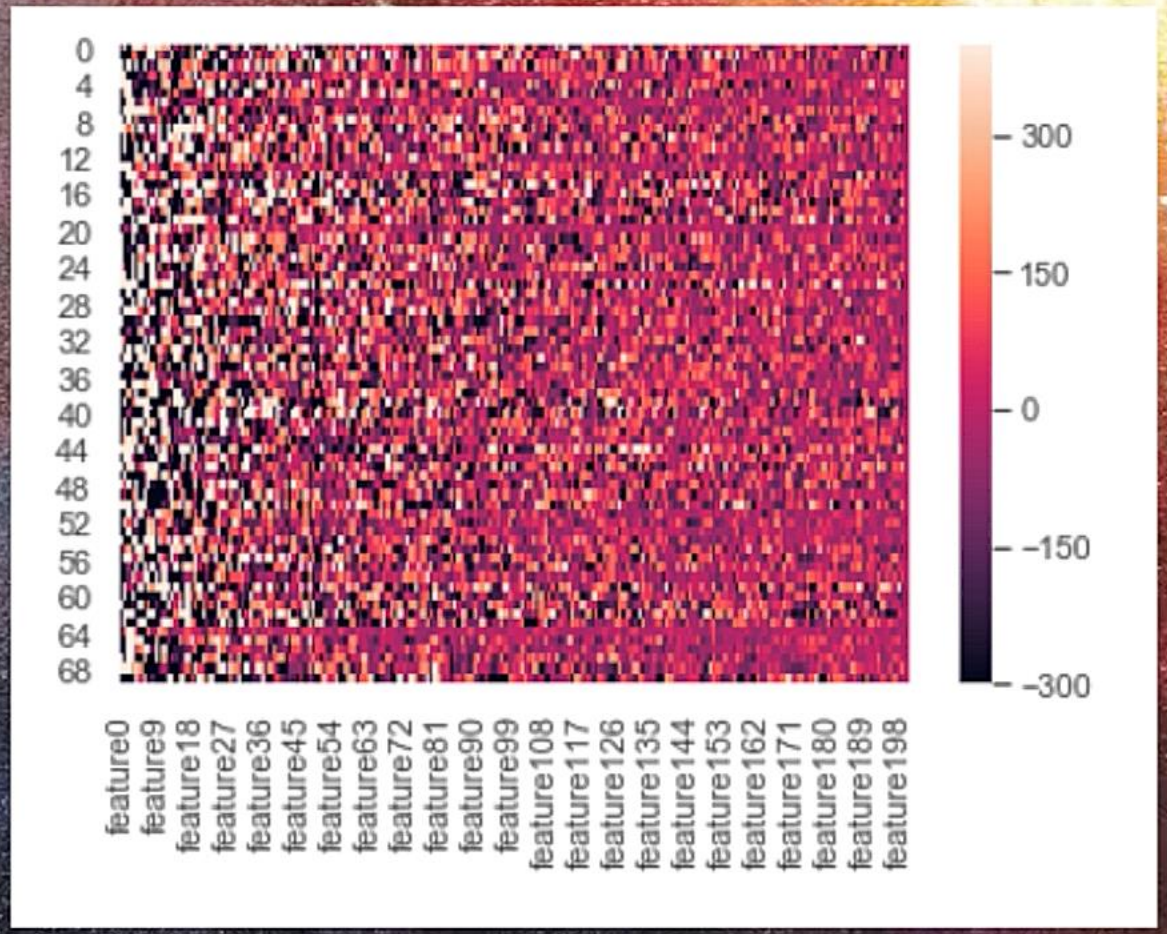

ROC curve for train data
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0

plt.show()


plot_cm_matrix (titre,
solutions,
prédictions)


Confusion matrix for train data
3.3e+04
4.5e+02
1.3e+02
3.3e+04
0
1
0
1
30000
24000
18000
12000
6000

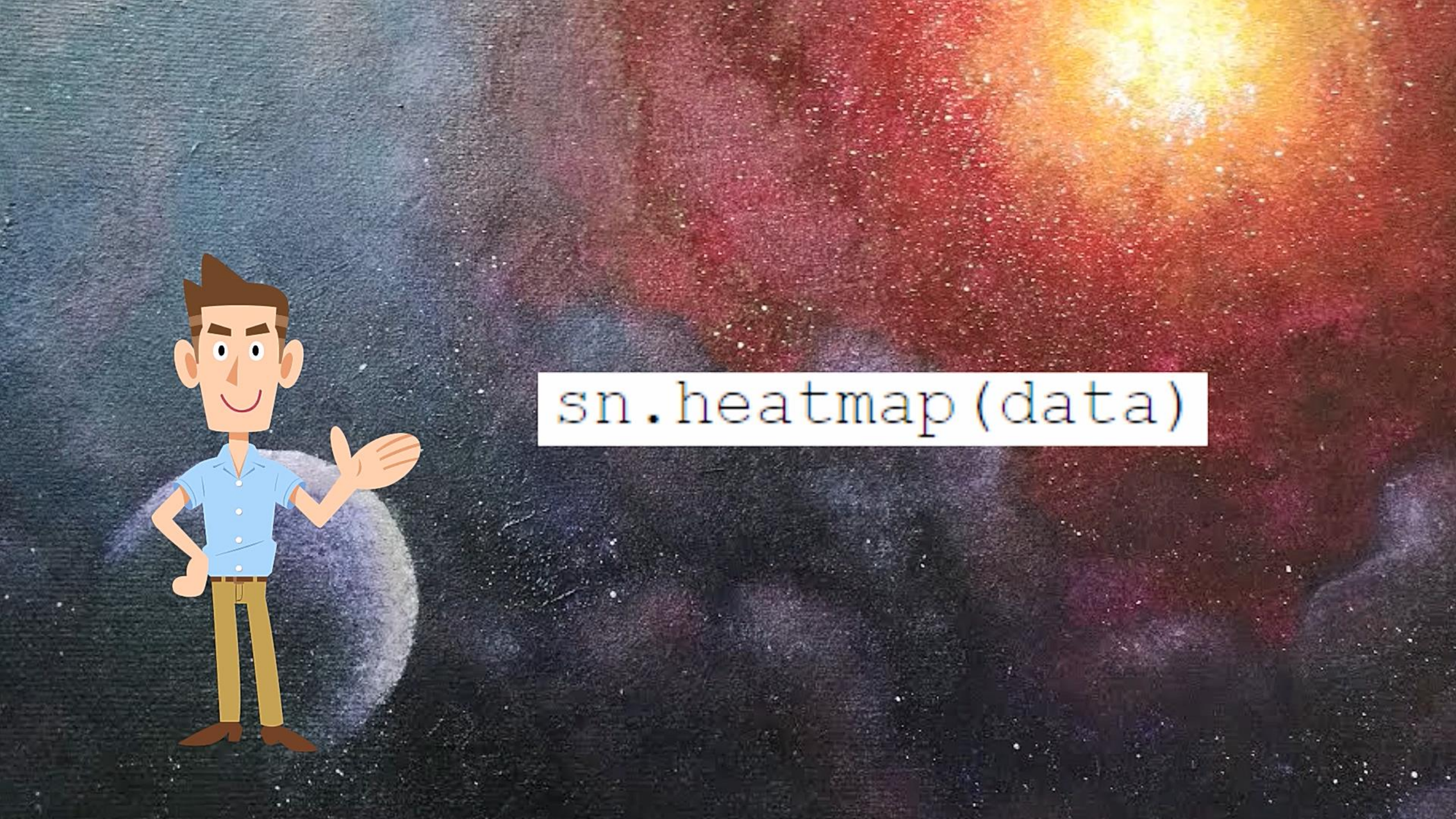
MatPlotLib



Seaborn MatPlotLib

HeatMap basique

"Data"

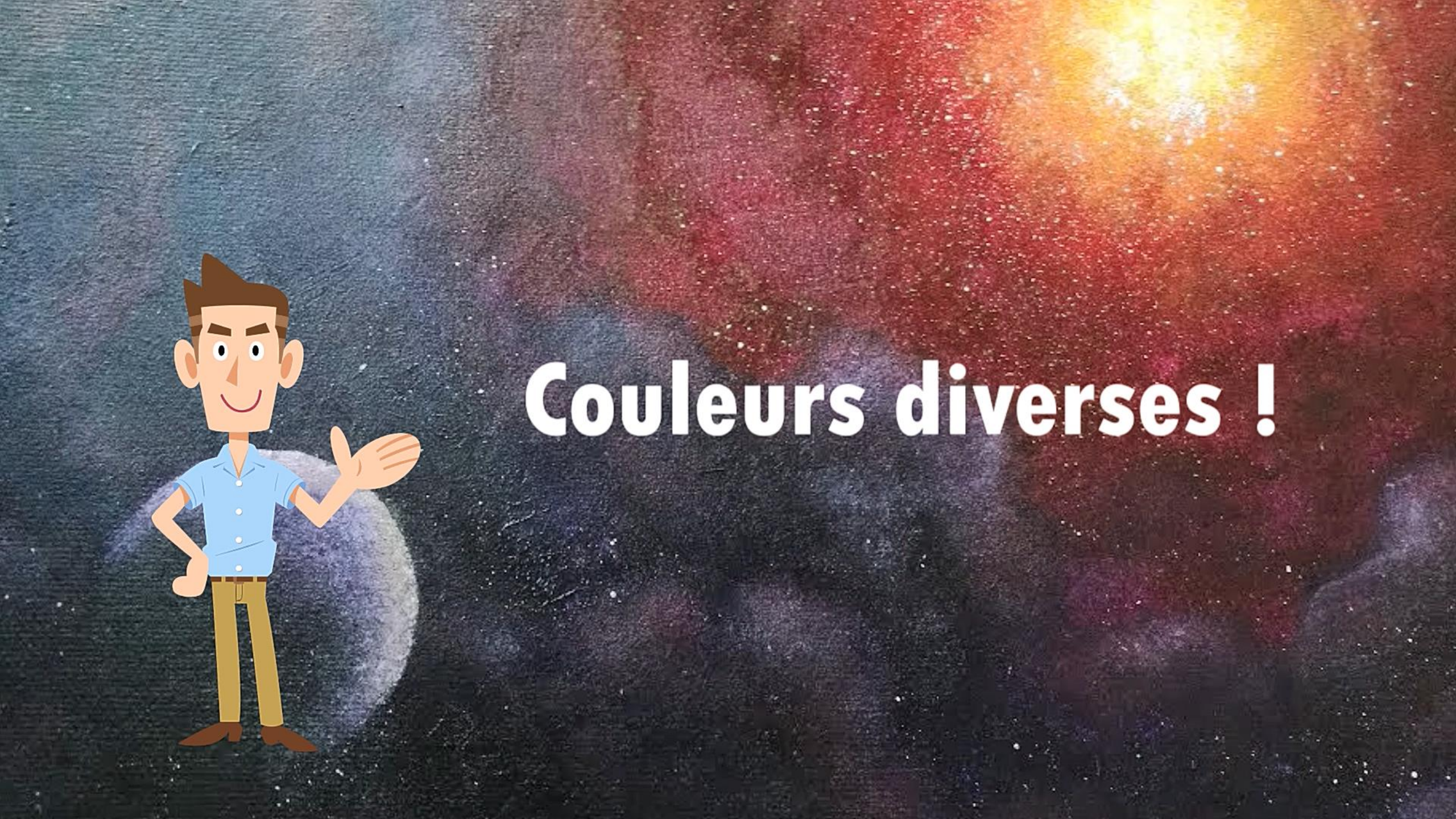

sn.heatmap(data)

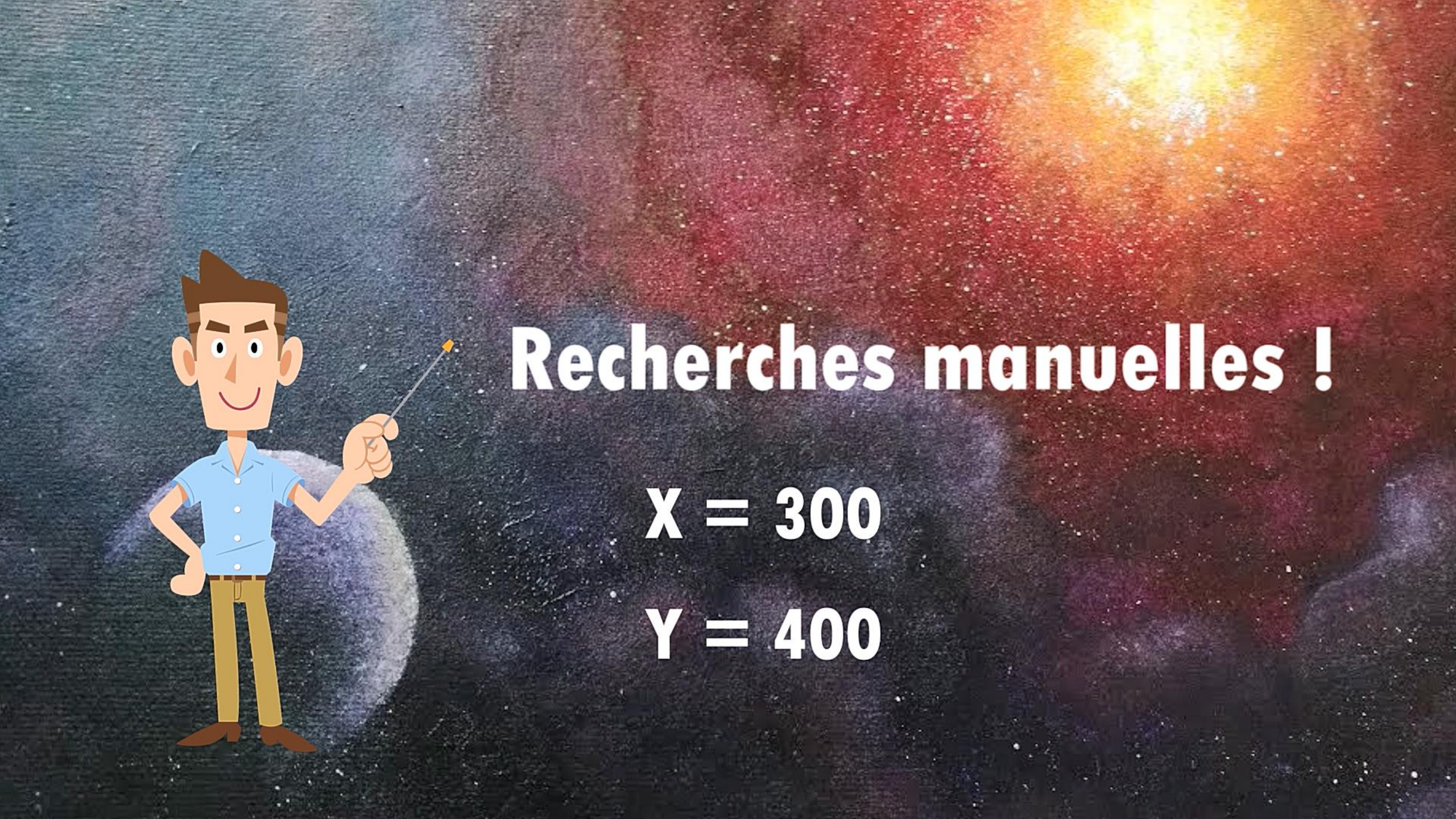
Data en Float !!


data = data[data.columns].astype(float)

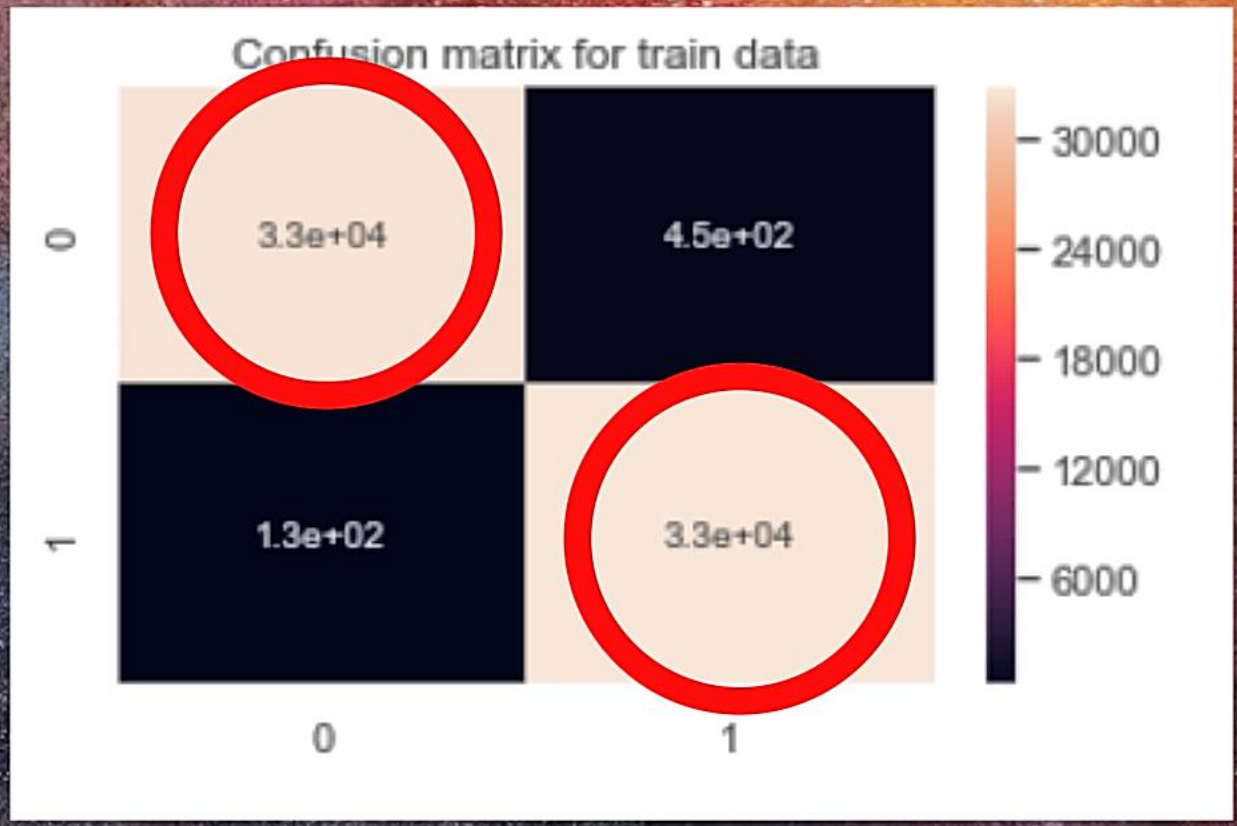
Problème de l'échelle

Nombre peu élevé


Couleurs diverses !

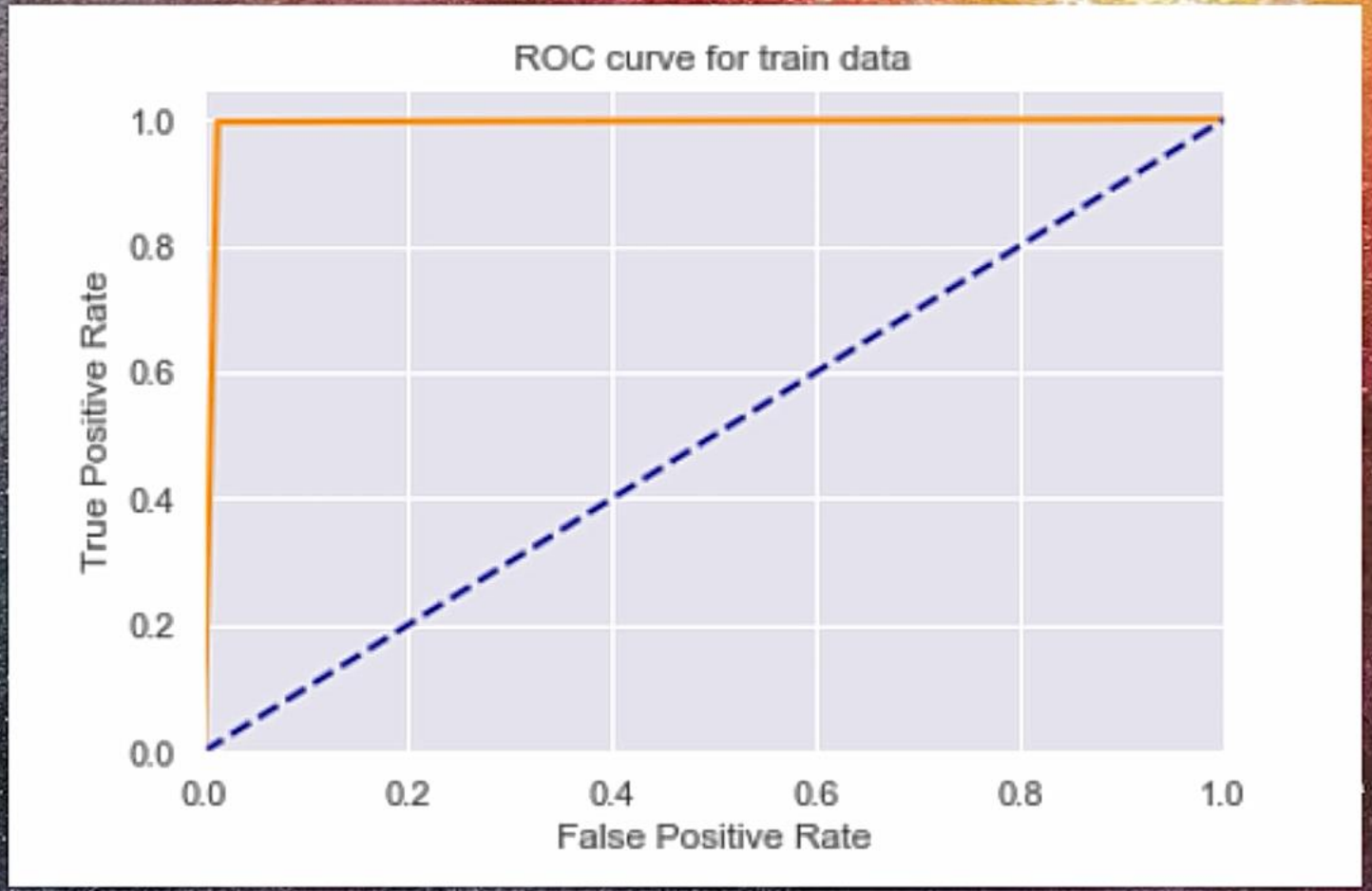

Recherches manuelles !
X = 300
Y = 400

```
#HeatMap avec Seaborn
data = data[data.columns].astype(float)
sn.heatmap(data, vmin = -300, vmax = 400)
```


Confusion matrix for train data
3.3e+04
4.5e+02
1.3e+02
3.3e+04
0
1
0
1
30000
24000
18000
12000
6000


Confusion matrix for train data
3.3e+04
4.5e+02
1.3e+02
3.3e+04
0
1
0
1
30000
24000
18000
12000
6000


Erreurs de l’ordre de quelques pourcents


ROC curve for train data
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0

Résultats :

RESULTS

#	User	Entries	Date of Last Entry	Prediction score ▲	Duration ▲	Detailed Results
1	reference2	1	01/24/19	0.9467 (1)	0.00 (1)	View
2	Yanis47S	5	03/01/19	0.8702 (2)	0.00 (1)	View
3	mokakill	10	03/03/19	0.8674 (3)	0.00 (1)	View
4	Kahlo	3	03/03/19	0.8593 (4)	0.00 (1)	View
5	picasso	11	03/20/19	0.8581 (5)	0.00 (1)	View
6	vinci	16	03/20/19	0.8137 (6)	0.00 (1)	View

0.8137

Quelques conseils :

- Bien s'organiser
- Travailler en groupe
- Etre autonome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DE VOTRE ATTENTION
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BON COURAGE