Prédire l’avenir avec Python

PONDERING MY ORB RN

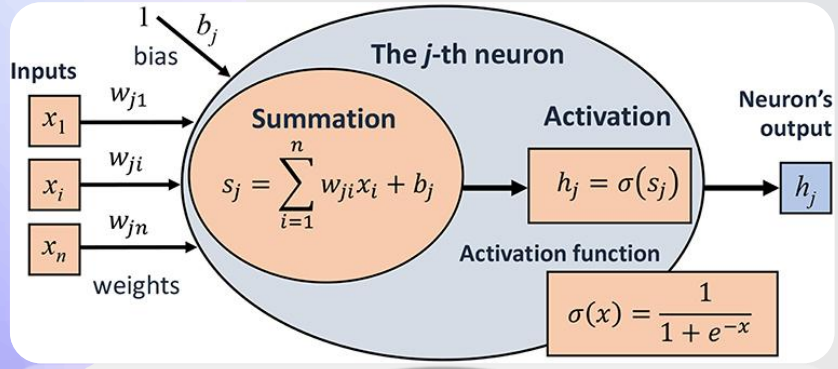
Sommaire

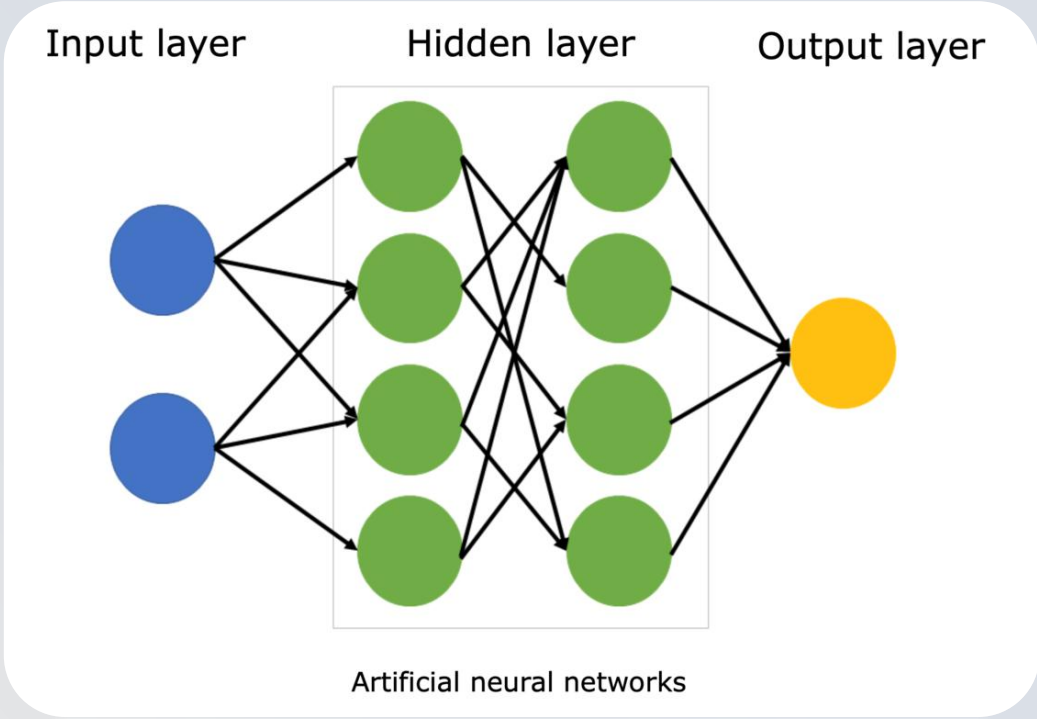
RÉSEAU DE NEURONES ???
LSTM ET TERMES TECHNIQUES
COMMENT ÇA MARCHE
GRIND LA DATA
ENTRAÎNER LE MODÈLE

Un cerveau dans votre PC

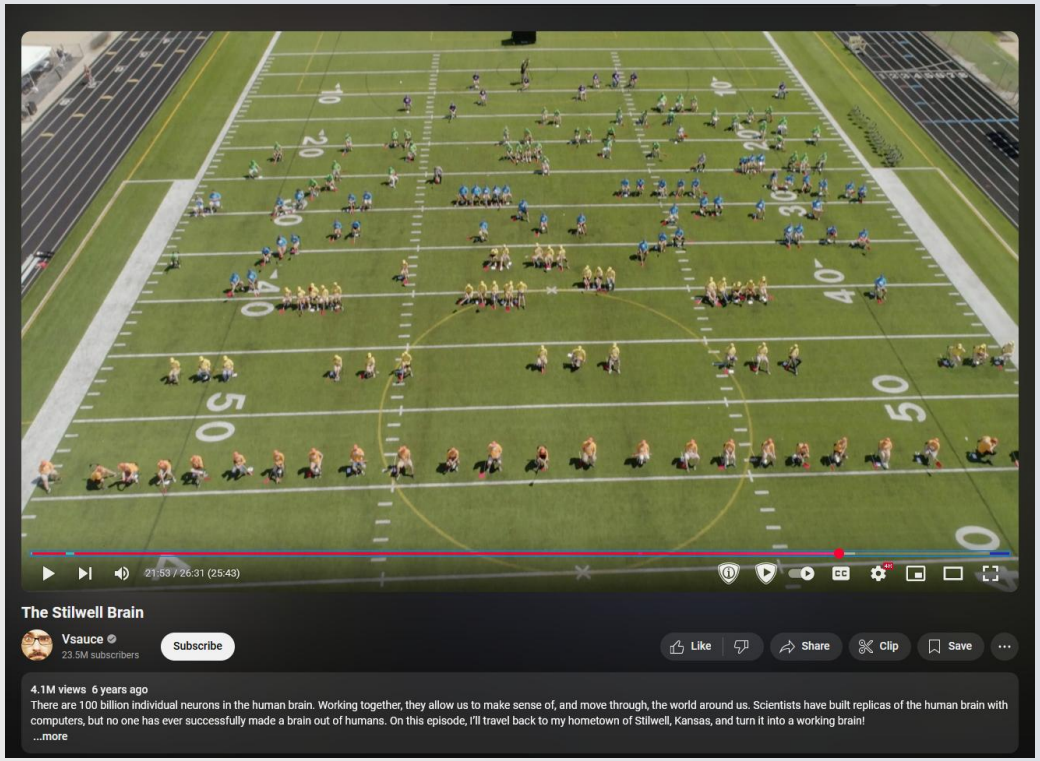
C’EST QUOI UN RÉSEAU DE NEURONES

C’est très simple (presque)





Une très bonne vidéo pour approfondir



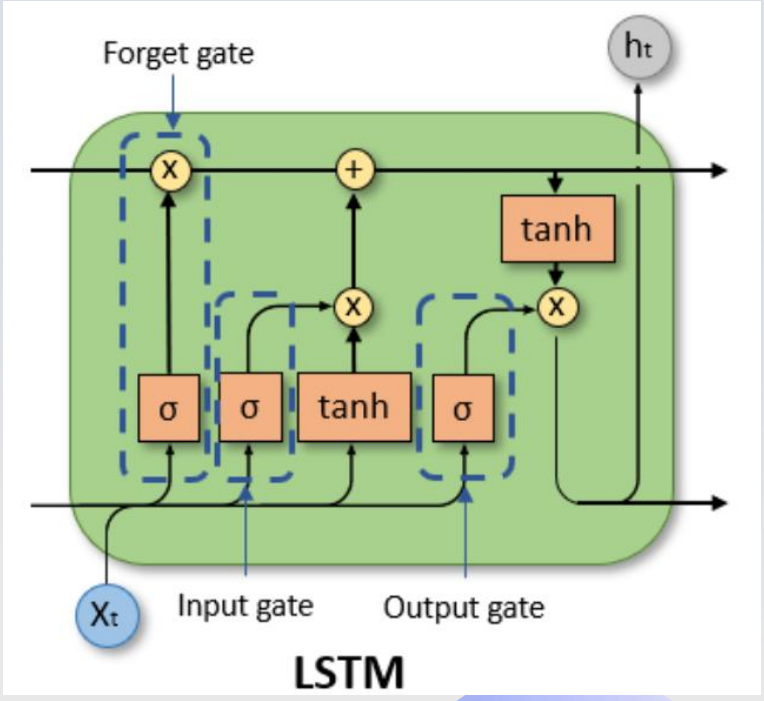
Vsauce le goat

Les réseaux LSTM

LONG SHORT TERM MEMORY

Une cellule particulière

En plus des entrées et sorties standard, une cellule LSTM ajoute des mécanismes de mémoire, notamment l'apprentissage et l'oubli



Mais comment ça marche ?

TRÈS BONNE QUESTION !

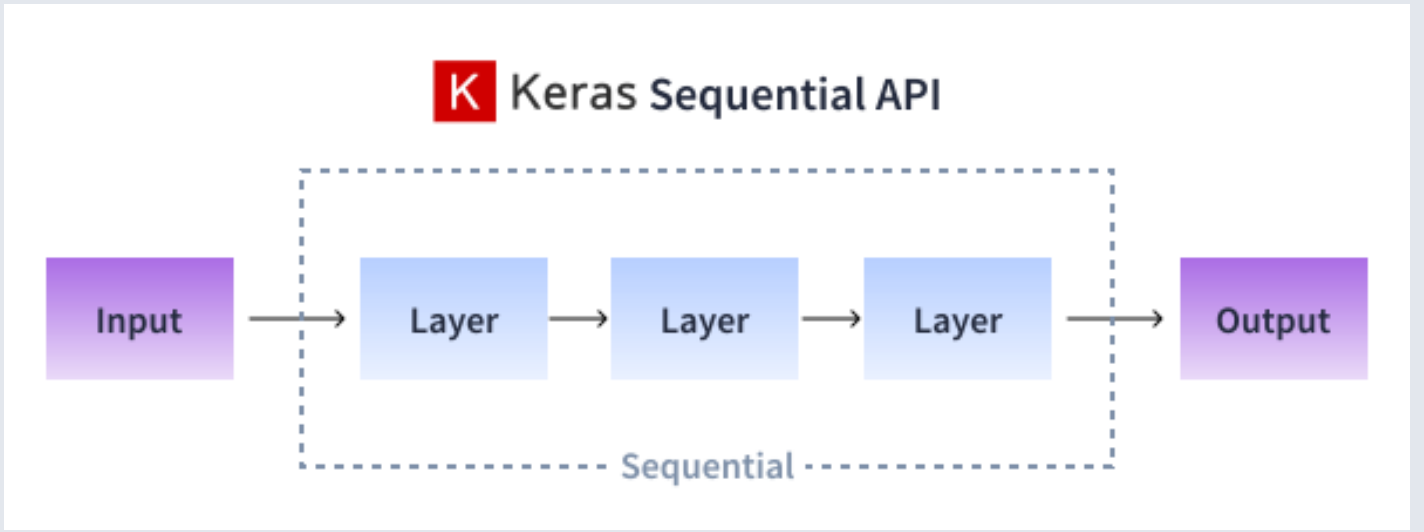
La magie Tensorflow

- Développé par Google depuis le début des années 2010
- Abstractions de haut niveau pour du machine learning
- Possibilité de “fabriquer” ses modèles brique par brique

Fabriquer des modèles ?

- Les deux couches LSTM traitent la séquence de données pour en extraire progressivement l'essentiel.
- La première LSTM gère la séquence complète et renvoie un ensemble de vecteurs, la seconde condense ensuite cela en un unique vecteur de taille 32.
- Enfin, la couche Dense transforme ce vecteur en un seul nombre (sortie du modèle).

```
model = tf.keras.Sequential([
    tf.keras.layers.LSTM(64, return_sequences=True, input_shape=(window_length, len(features))),
    tf.keras.layers.LSTM(32),
    tf.keras.layers.Dense(1)
])
```

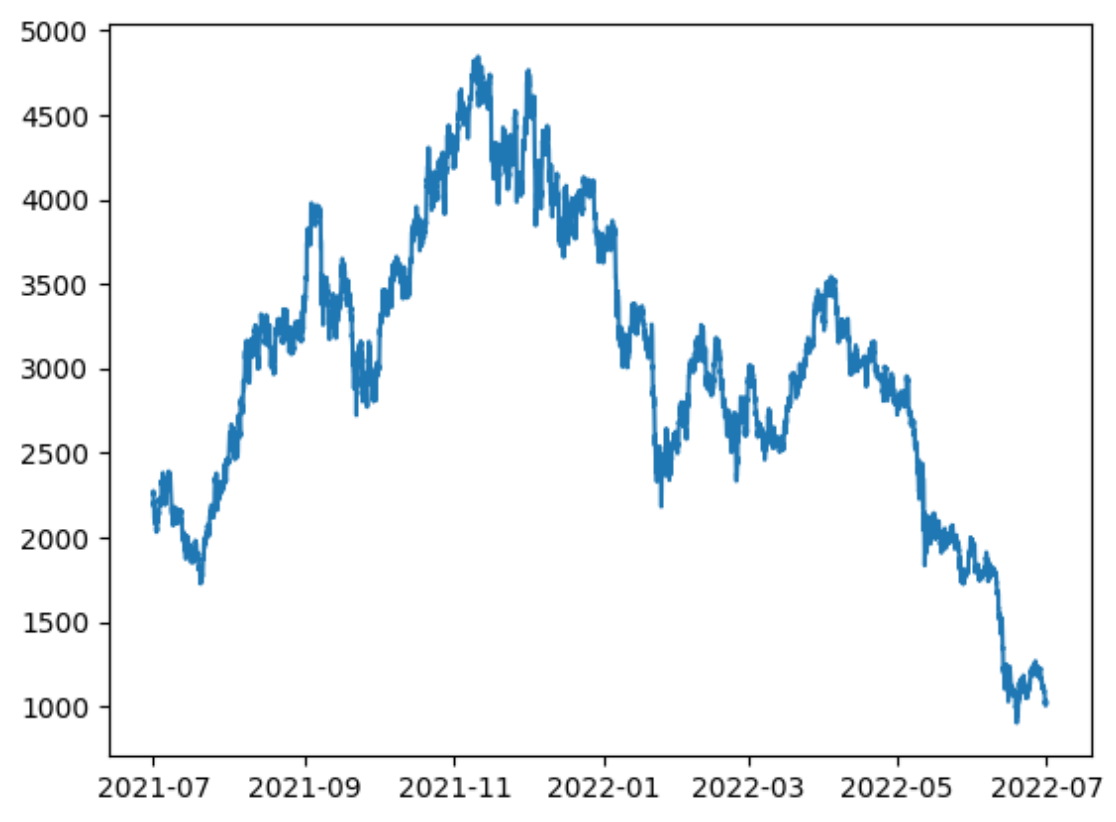


Les données

(important)

Ethereum Juillet 2021 – Juillet 2022

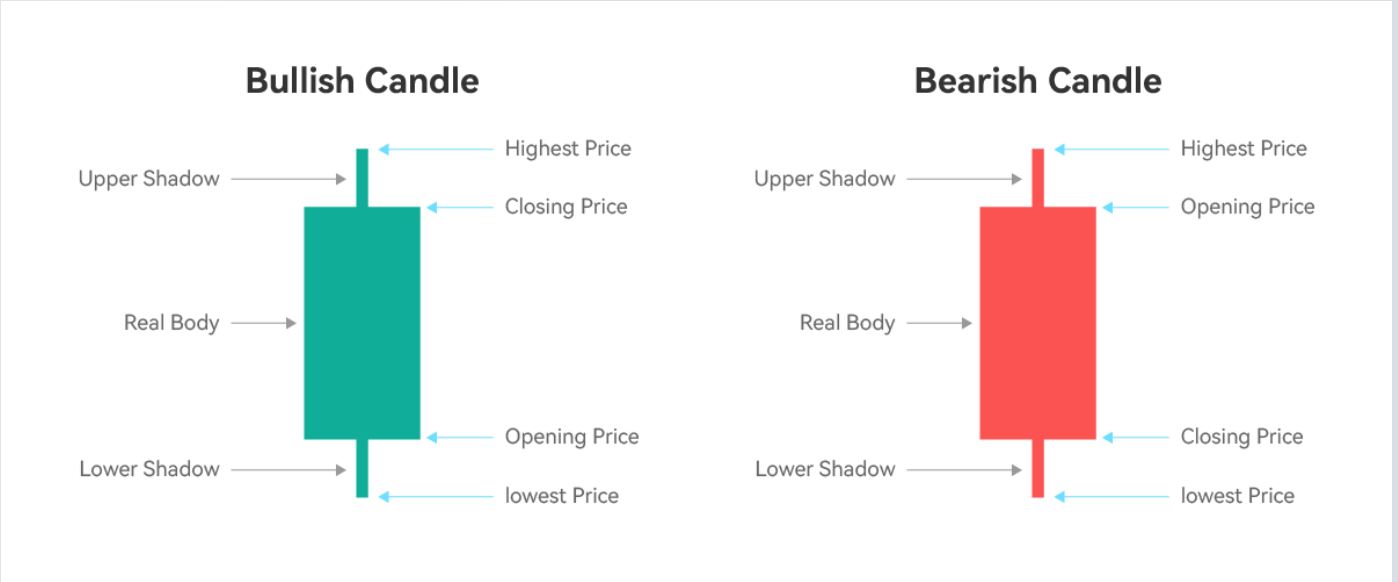
Pas zinzin pour la performance financière, mais parfait pour nous



Le trading pour les nuls

Bullish = ça monte

Bearish = tu perds tes sous mon pote



Pratique pour les humains, moins pour le code

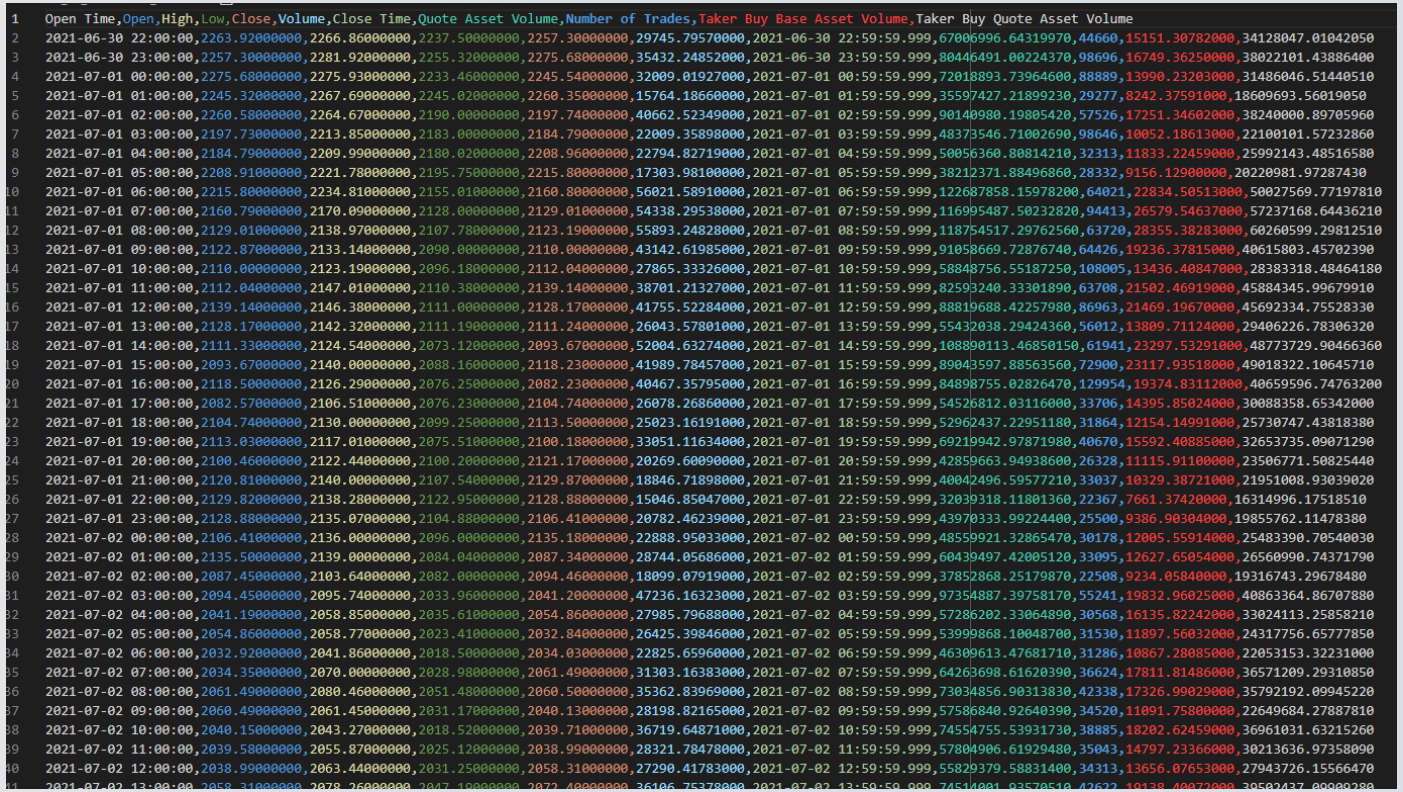
Si seulement on pouvait trouver un format facilement lisible par une machine…

Fichiers CSV sortis droit de chez Binance

Mêmes composants que les bougies Kline :

- Open
- High
- Low
- Close

Et même un peu plus de données utiles...



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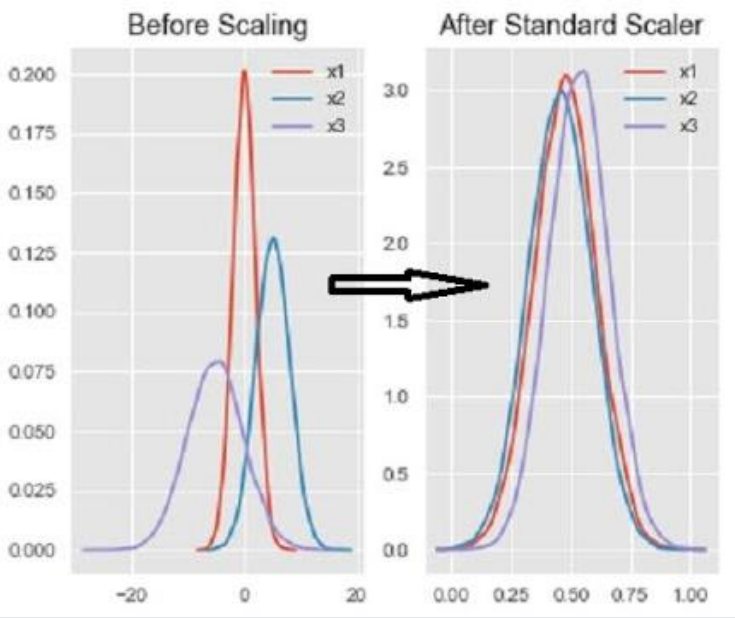
```

Pandas (pd pour les intimes)

```
data = pd.read_csv('ethusdt.csv')
```

Le scaling ?



- Mise à l'échelle des données
- Réduction de l'importance des "outliers"
- Facilité d'interprétation pour notre modèle

Création des time series

```
train_dataset = tf.keras.preprocessing.timeseries_dataset_from_array(
    data=train_data,
    targets=train_targets,
    sequence_length=window_length,
    sequence_stride=1,
    shuffle=True,
    batch_size=batch_size,
)

test_dataset = tf.keras.preprocessing.timeseries_dataset_from_array(
    data=test_data,
    targets=test_targets,
    sequence_length=window_length,
    sequence_stride=1,
    shuffle=False,
    batch_size=batch_size,
)
```

- Utilisation des builtins tensorflow
- Création de “fenêtres” de données
- Association des “fenêtres” avec le résultat correspondant

Et maintenant...

FAITES CHAUFFER LES CARTES GRAPHIQUES !

github.com/TEK-STUFF/workshop-lstm

TEK-STUFF/
workshop-lstm

Comment utiliser python, tensorflow et les time series pour prédire l'avenir. Ce workshop va vous permettre de découvrir les bases...

1 Contributor 0 Issues 0 Stars 0 Forks