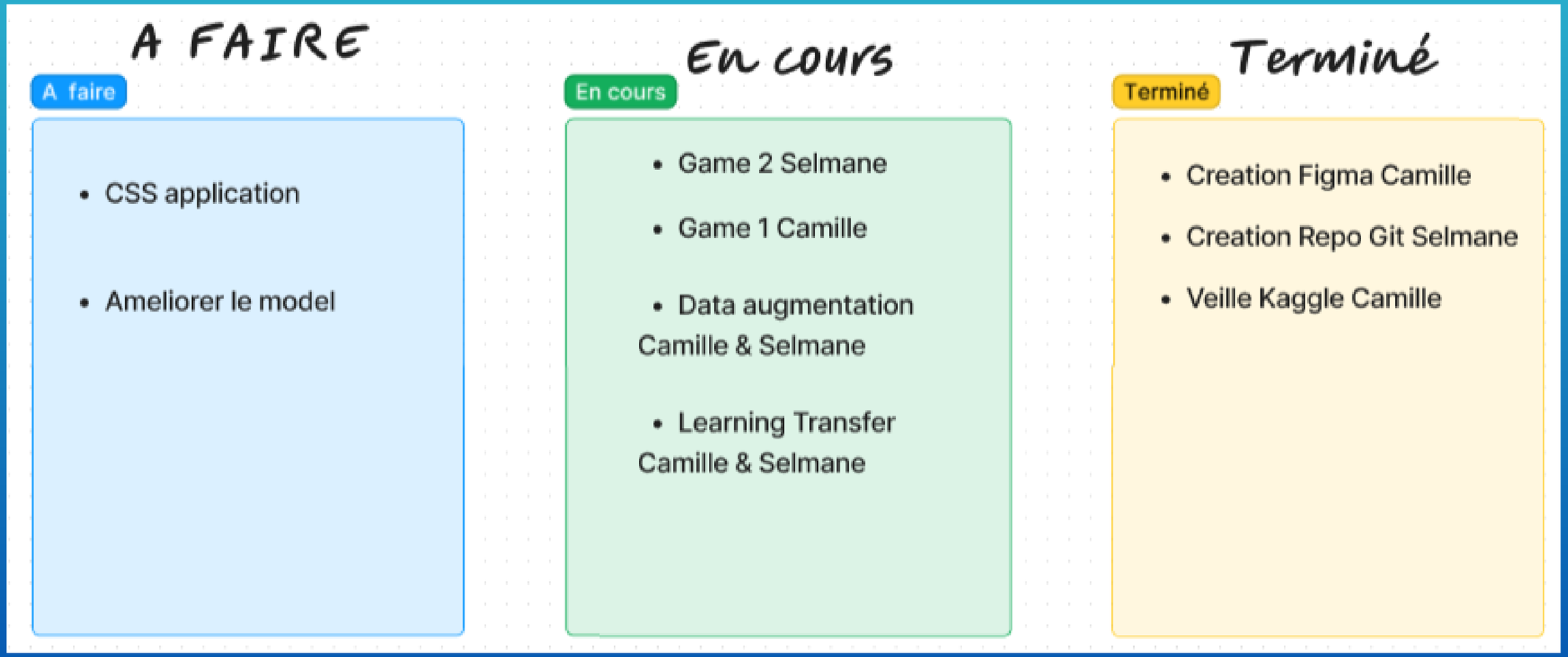
Outil de visualisation pour un réseau neuronal convolutif

Retro-planning



Model

```
DefaultConv2D = partial(Conv2D, kernel_size=3, padding="same", activation="relu",
                        kernel_initializer="he_normal")

model = Sequential([
    DefaultConv2D(filters=64, kernel_size=7, input_shape=[28, 28, 1]),
    MaxPool2D(),
    DefaultConv2D(filters=128),
    DefaultConv2D(filters=128),
    MaxPool2D(),
    DefaultConv2D(filters=256),
    DefaultConv2D(filters=256),
    MaxPool2D(),
    Flatten(),
    Dense(units=128, activation="relu", kernel_initializer="he_normal"),
    Dense(units=64, activation="relu", kernel_initializer="he_normal"),
    Dense(units=10, activation="softmax")
])
```

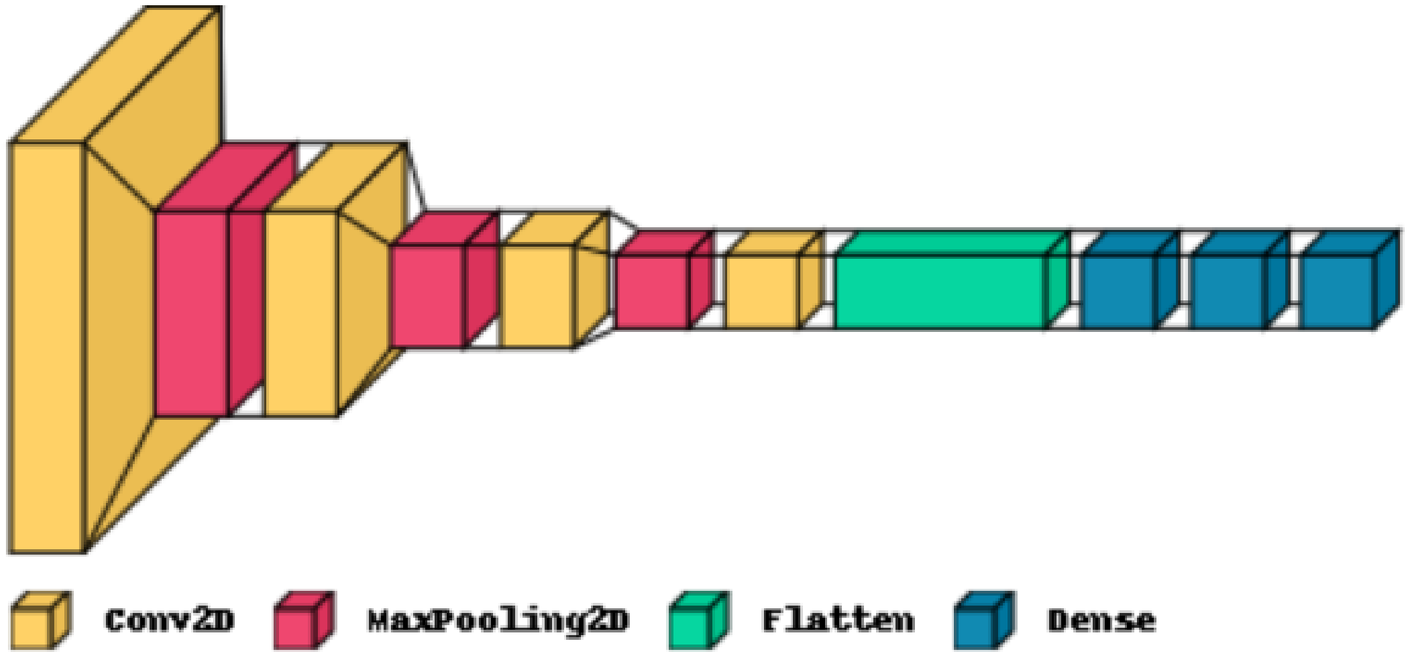
Model

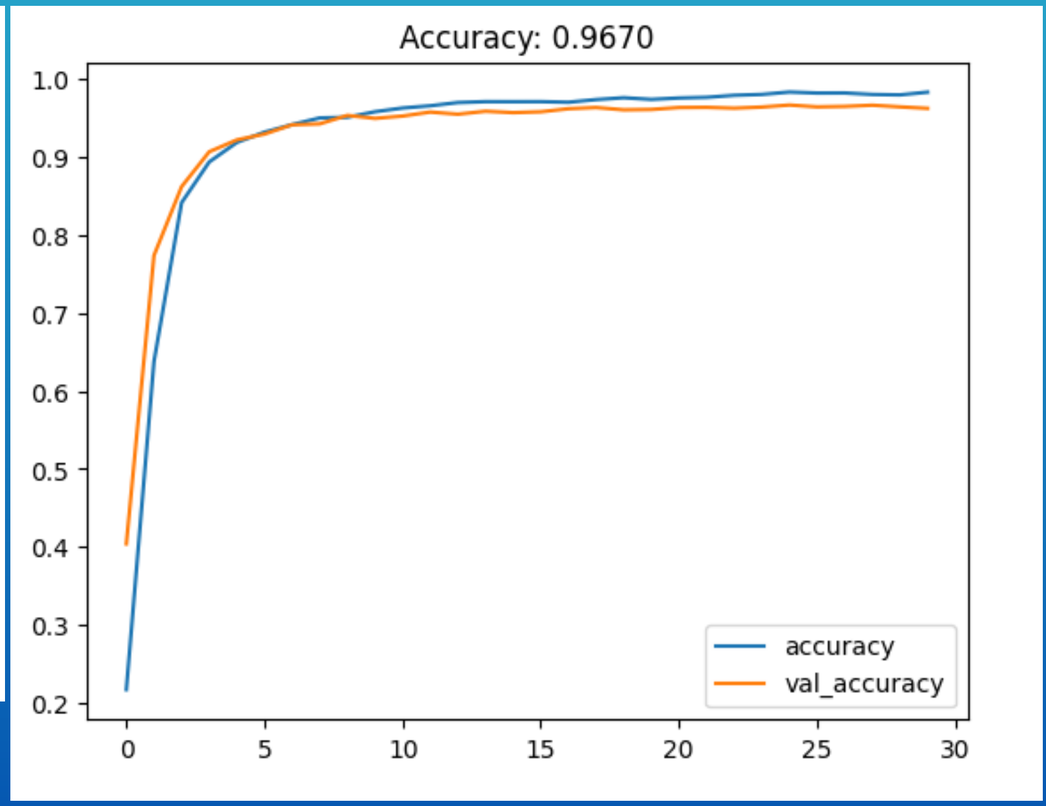
```
DefaultConv2D = partial(Conv2D, kernel_size=3, padding="same", activation="relu",
                        kernel_initializer="he_normal")

model = Sequential([
    DefaultConv2D(filters=64, kernel_size=5, input_shape=[28, 28, 1]),
    MaxPool2D(),
    DefaultConv2D(filters=128),
    MaxPool2D(),
    DefaultConv2D(filters=128),
    MaxPool2D(),
    Flatten(),
    Dense(units=128, activation="relu", kernel_initializer="he_normal"),
    Dropout(0.3),
    Dense(units=64, activation="relu", kernel_initializer="he_normal"),
    Dropout(0.3),
    Dense(units=10, activation="softmax")
])
```

Model

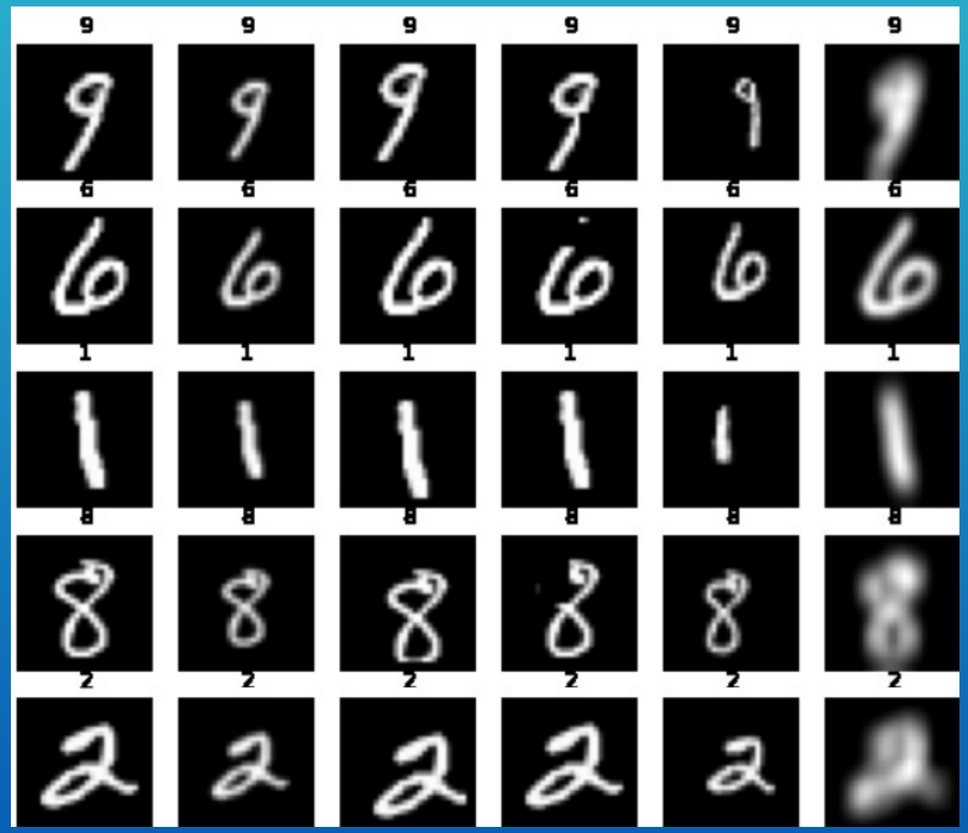
```
# model CNN
DefaultConv2D = partial(Conv2D, kernel_size=3, padding="same", activation="relu",
                        kernel_initializer="he_normal")

model = Sequential([
    DefaultConv2D(filters=8, kernel_size=5, input_shape=(28, 28, 1)),
    MaxPool2D(),
    DefaultConv2D(filters=16),
    MaxPool2D(),
    DefaultConv2D(filters=32),
    MaxPool2D(),
    DefaultConv2D(filters=64),
    Flatten(),
    Dense(units=64, activation="relu", kernel_initializer="he_normal"),
    Dense(units=32, activation="relu", kernel_initializer="he_normal"),
    Dense(units=10, activation="softmax")
])
```

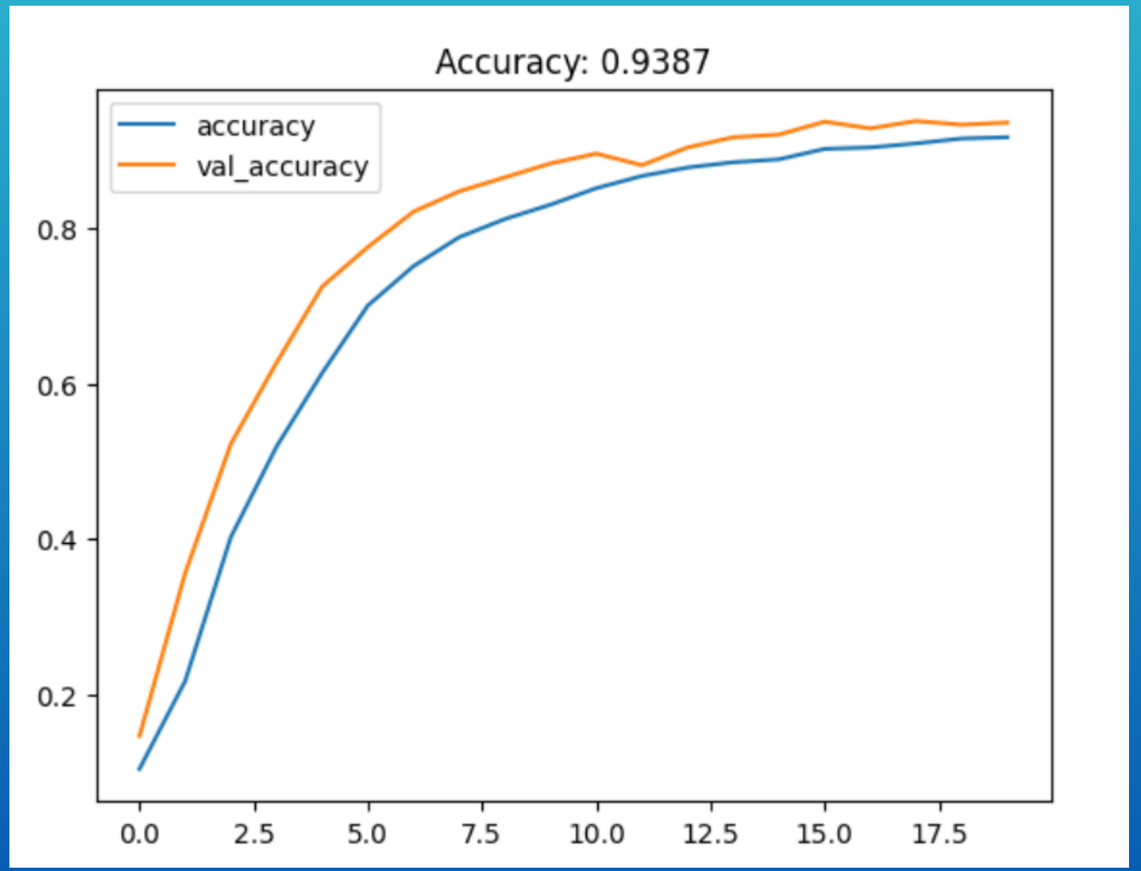
Model


Conv2D
MaxPooling2D
Flatten
Dense

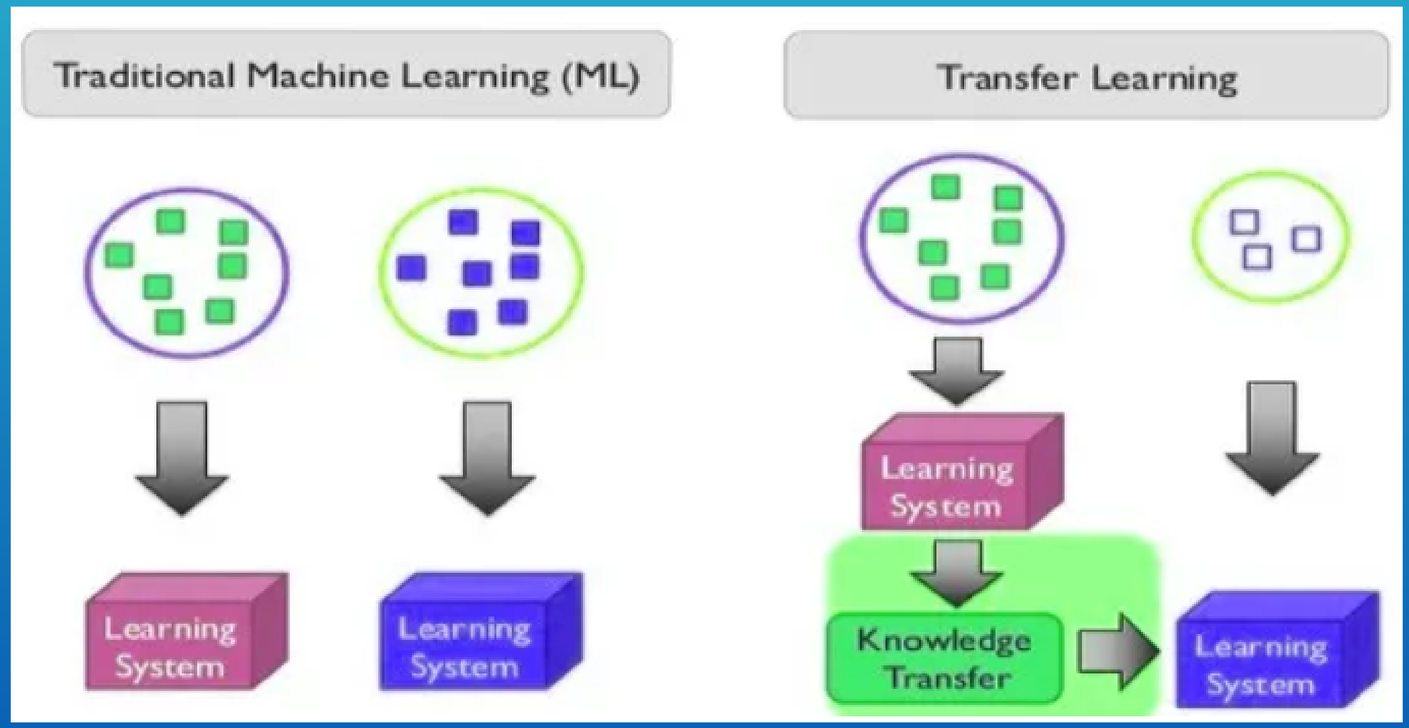

Accuracy: 0.9670
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0
5
10
15
20
25
30
accuracy
val_accuracy

Data Augmentation





Perspective



Transfer learning

Merci