

A close-up, low-angle shot of a lion's face. The lion has a thick, light brown mane. Its eyes are closed or heavily shadowed, and its mouth is slightly open, showing a bit of its tongue and teeth. The lighting is dramatic, with strong highlights on the mane and shadows in the eyes and under the chin.

# MI.ZOO

# Problématique

# Machine learning

# Machine learning

- **Constitution d'un Dataset d'image**
- **Implémentation d'algorithme de ML**
- **Expérimentations**
- **Création d'une application**

# Constitution du Dataset

- **3 classes**
- **550 images par classe**
- **Dataset étiqueté**
- **Images de 32x32 ou 16x16 pixels**

# Implémentation et utilisation du MLP

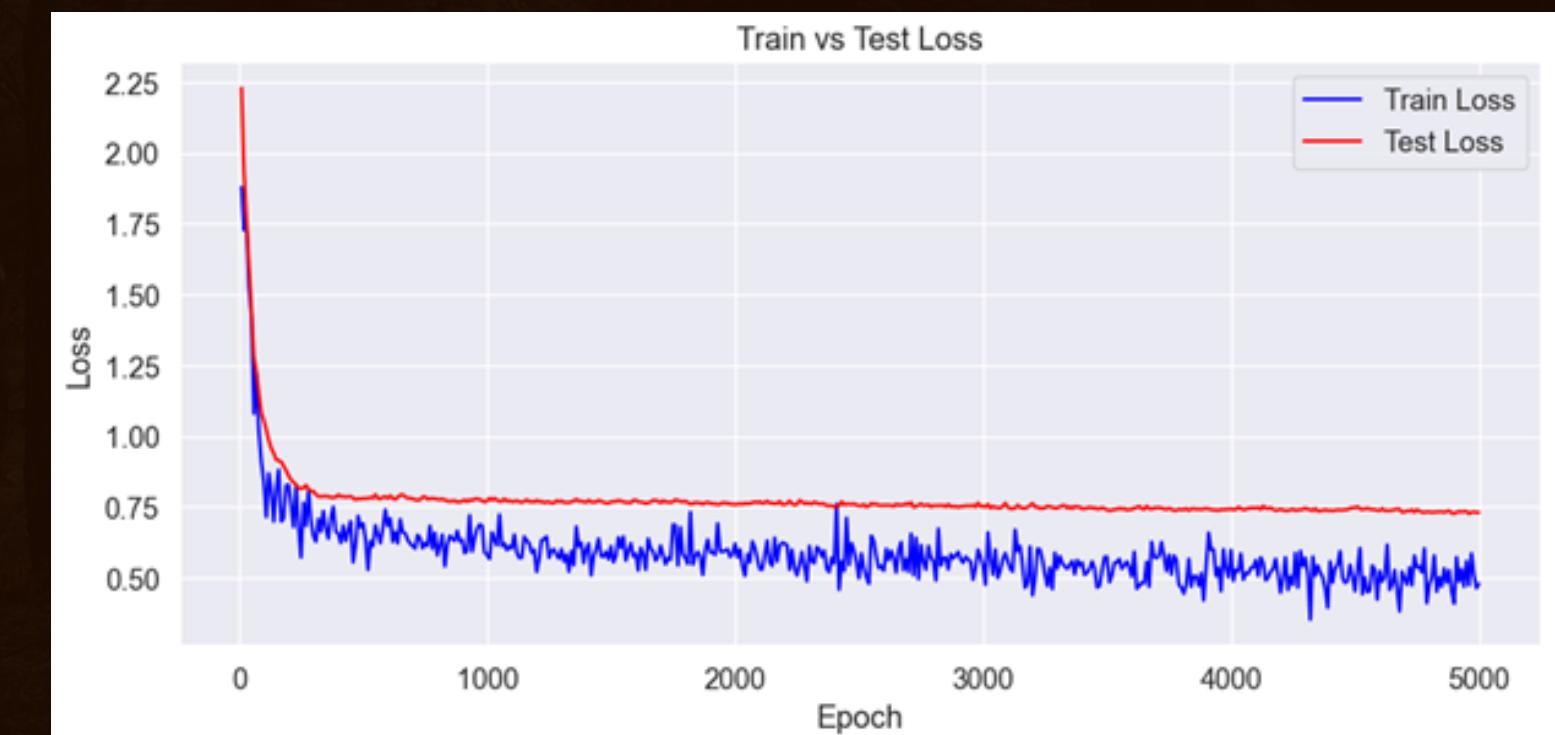
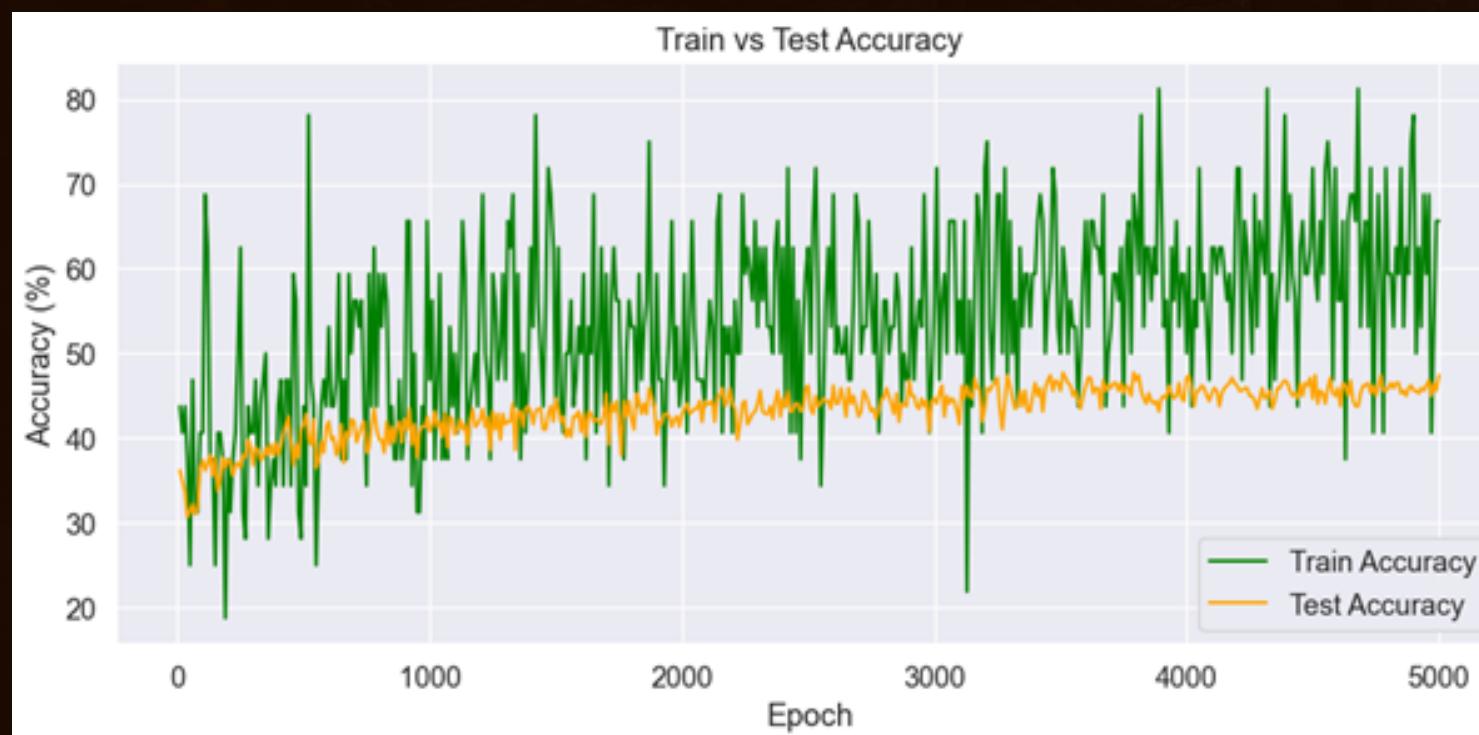
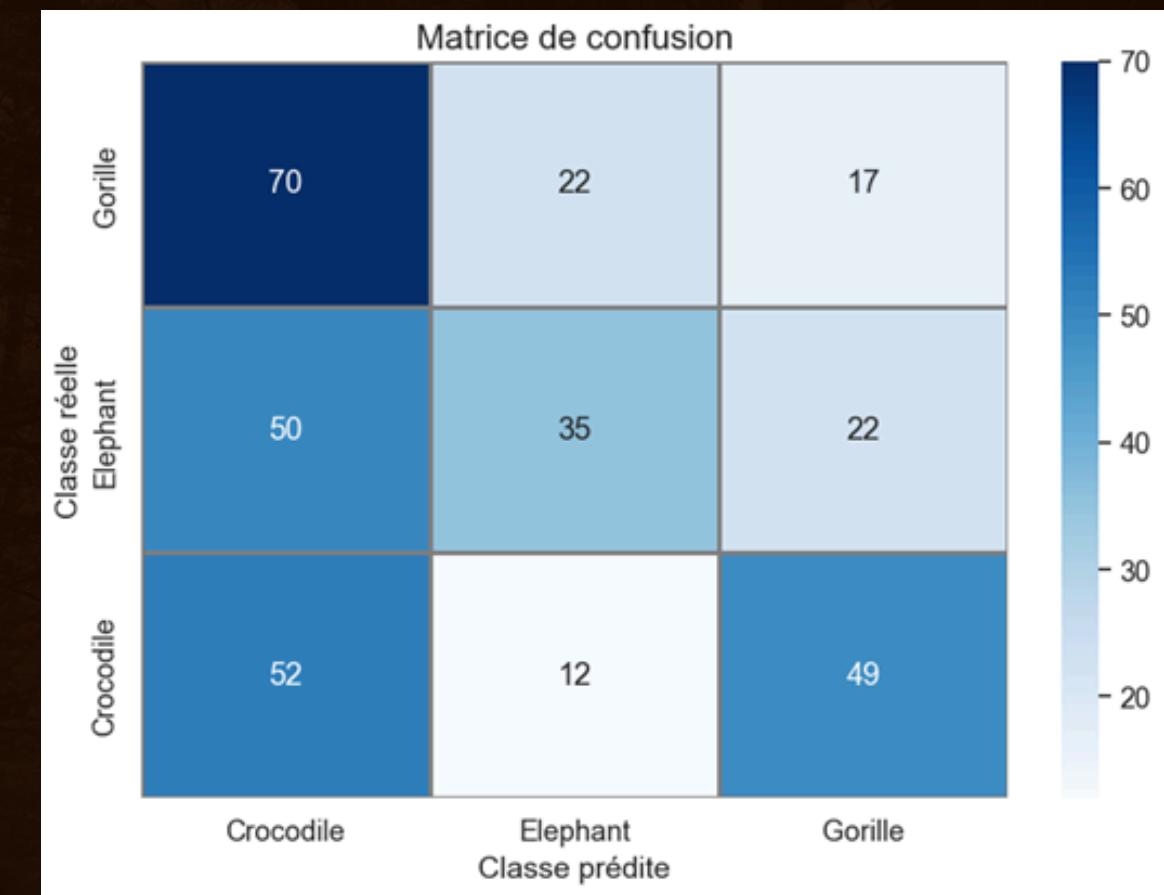
- C++
- Interopérabilité
- Logs en CSV et dans la sortie python
- Sauvegarde des meilleurs poids
- Multi-threading

# Expérimentations

- **Objectifs**
- **Avoir la meilleures accuracy**
- **Ne pas avoir d'overfitting ou d'underfitting**
- **Avoir une accuracy homogène pour chaque classe**

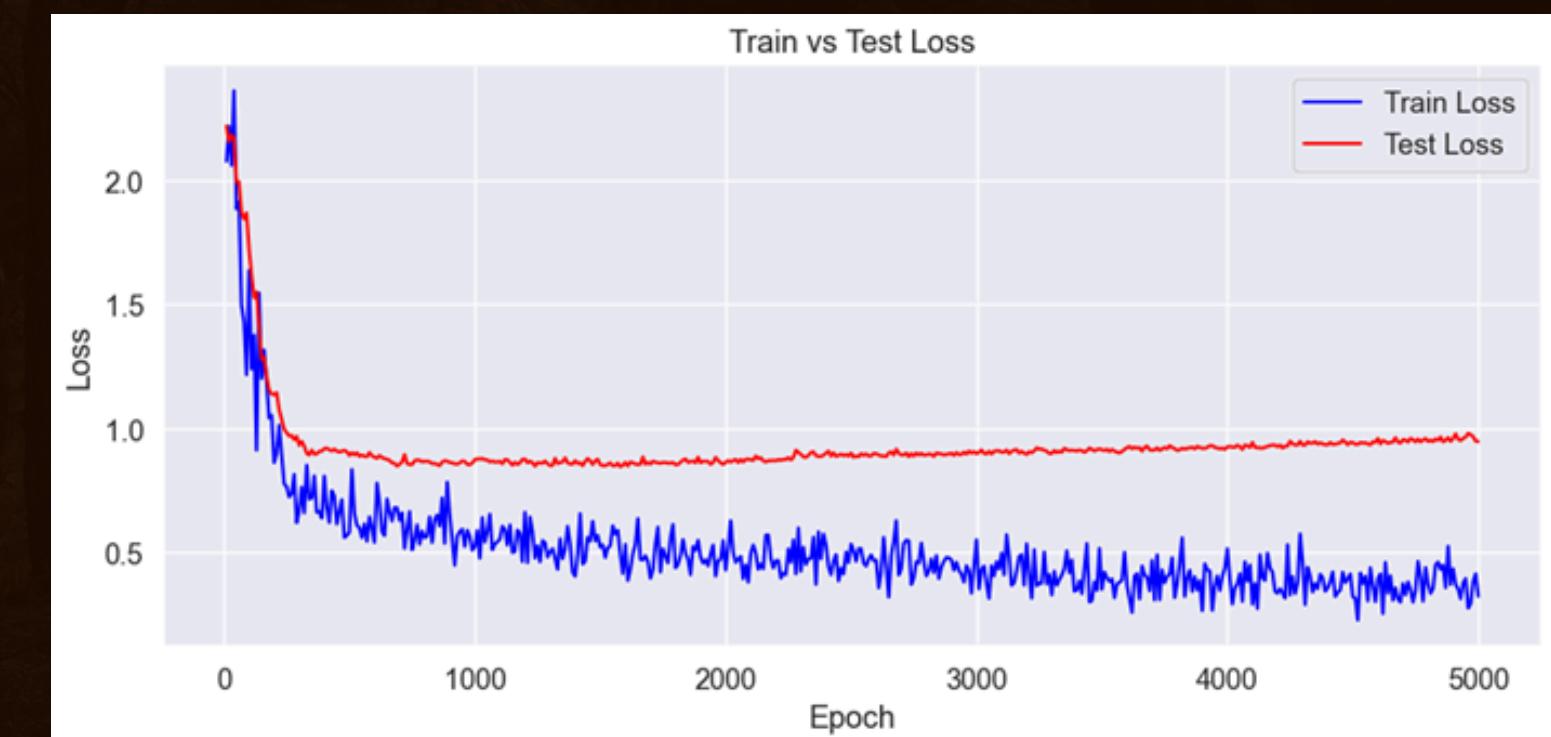
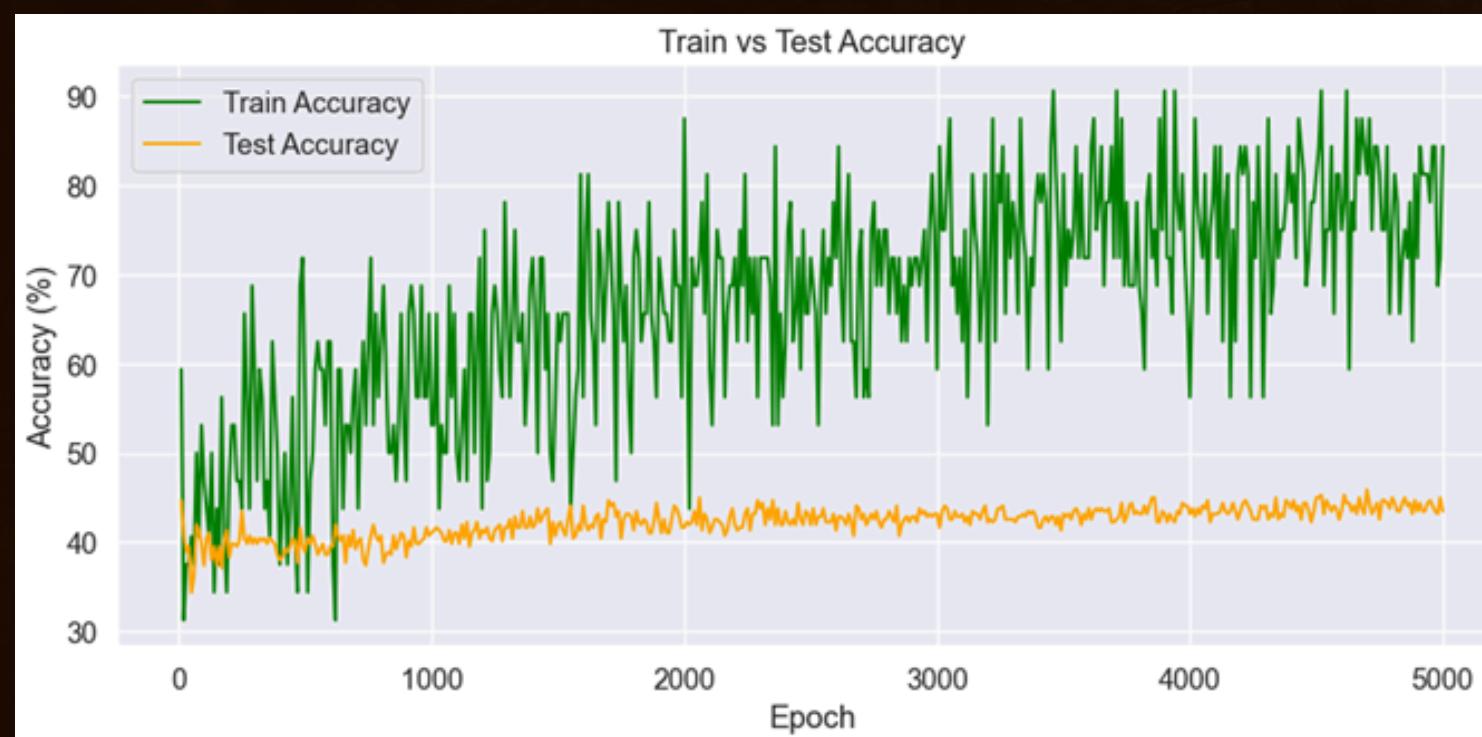
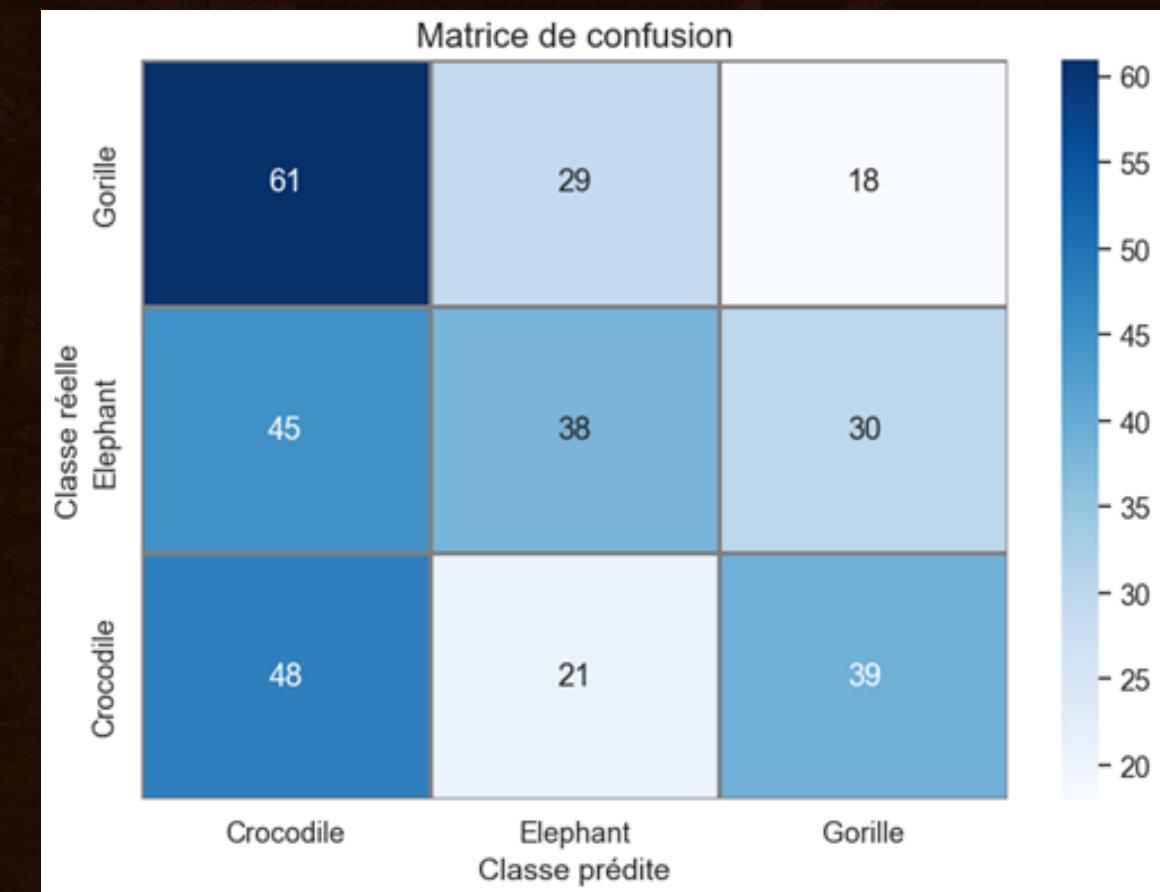
# Expérimentation 1

- Réseau de neurones = [size\*size\*3, 128, 64, 32, 3]
- Epochs = 5000
- learning rate = 0.01
- batch size = 32
- size = 32\*32



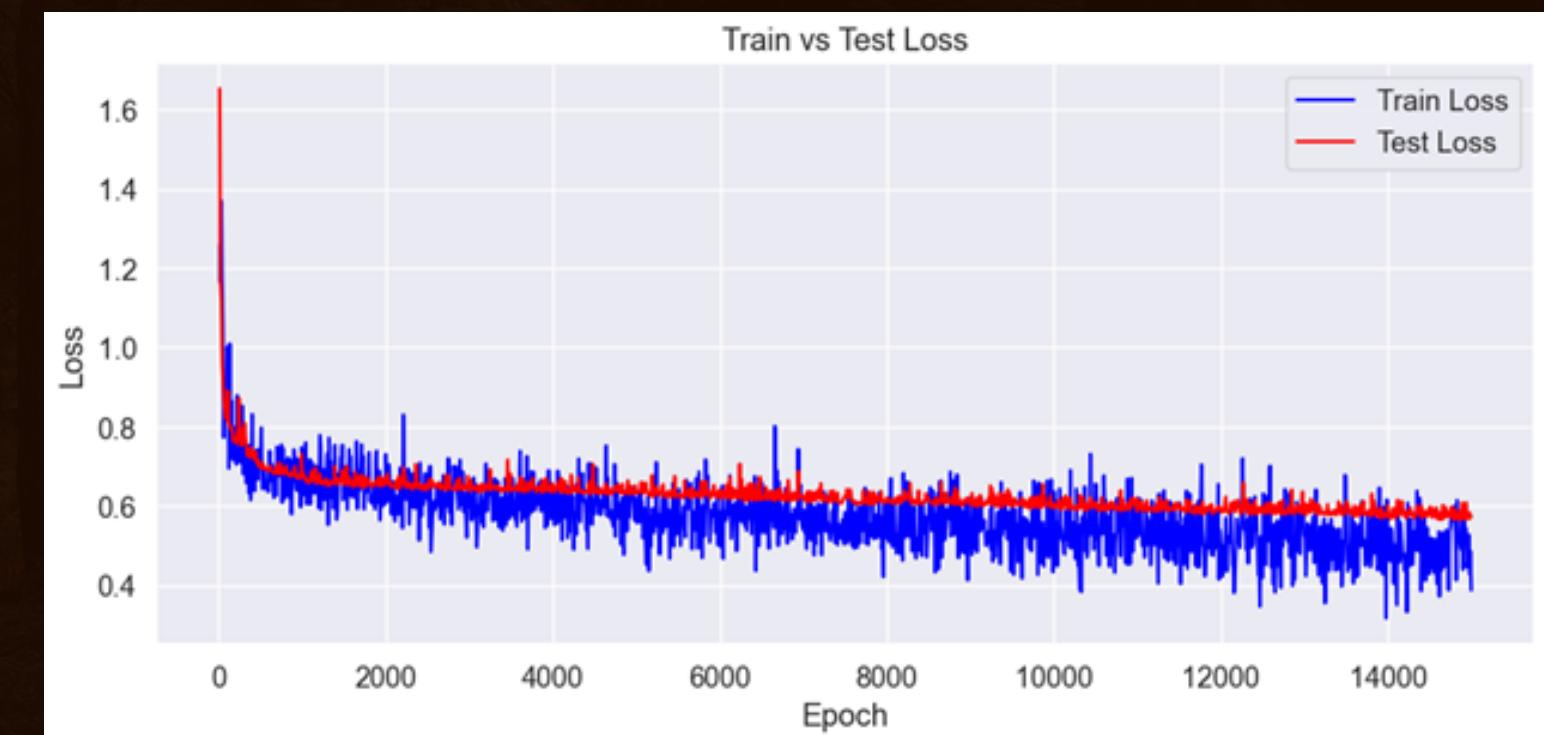
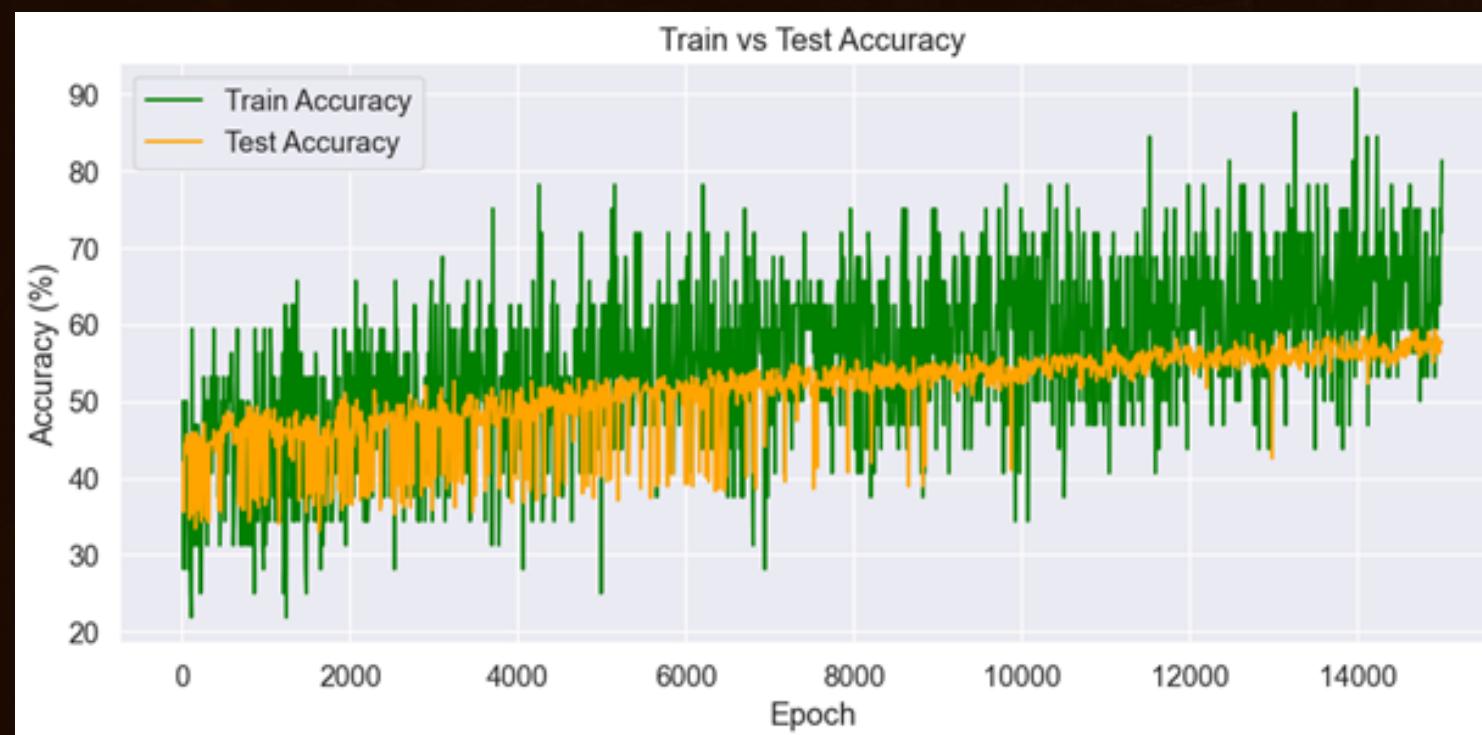
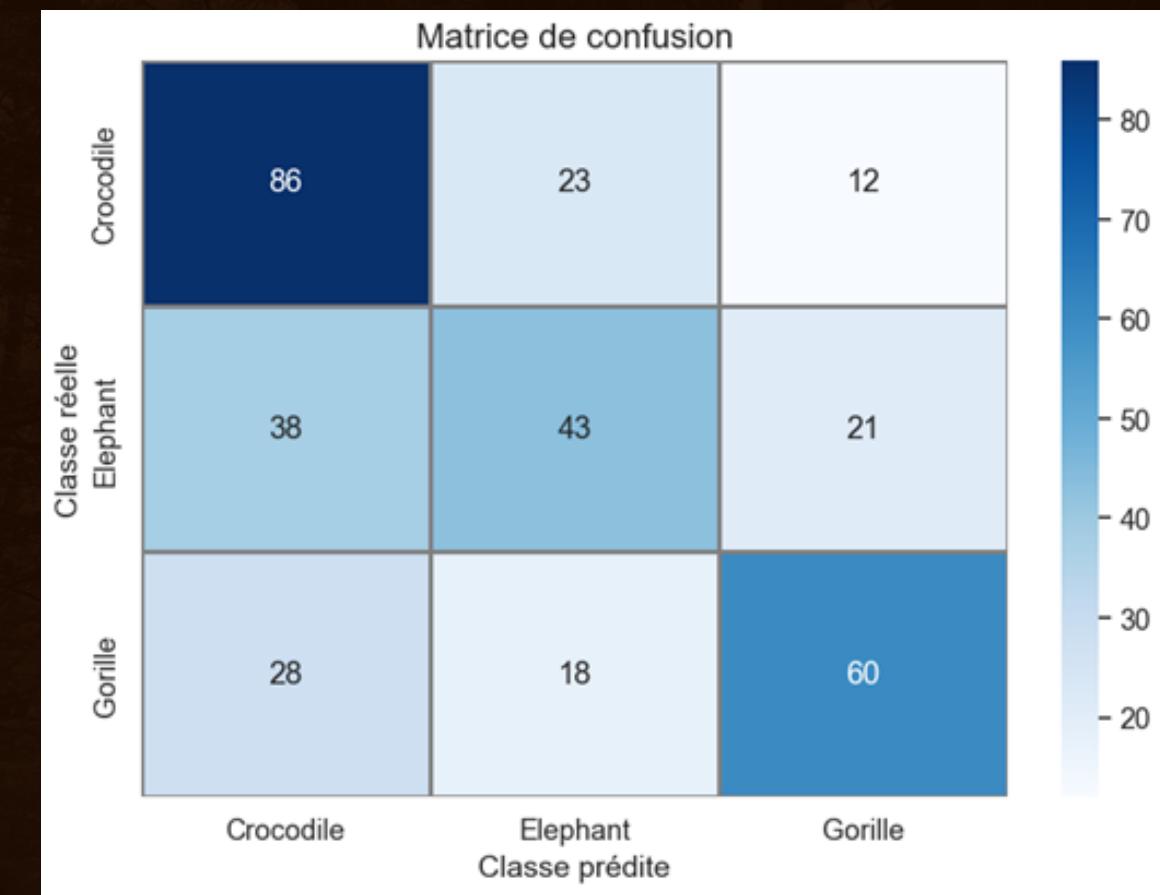
# Expérimentation 2

- Réseau de neurones = [size\*size\*3, 256, 128, 64, 3]
- Epochs = 5000
- learning rate = 0.01
- batch size = 32
- size = 32\*32



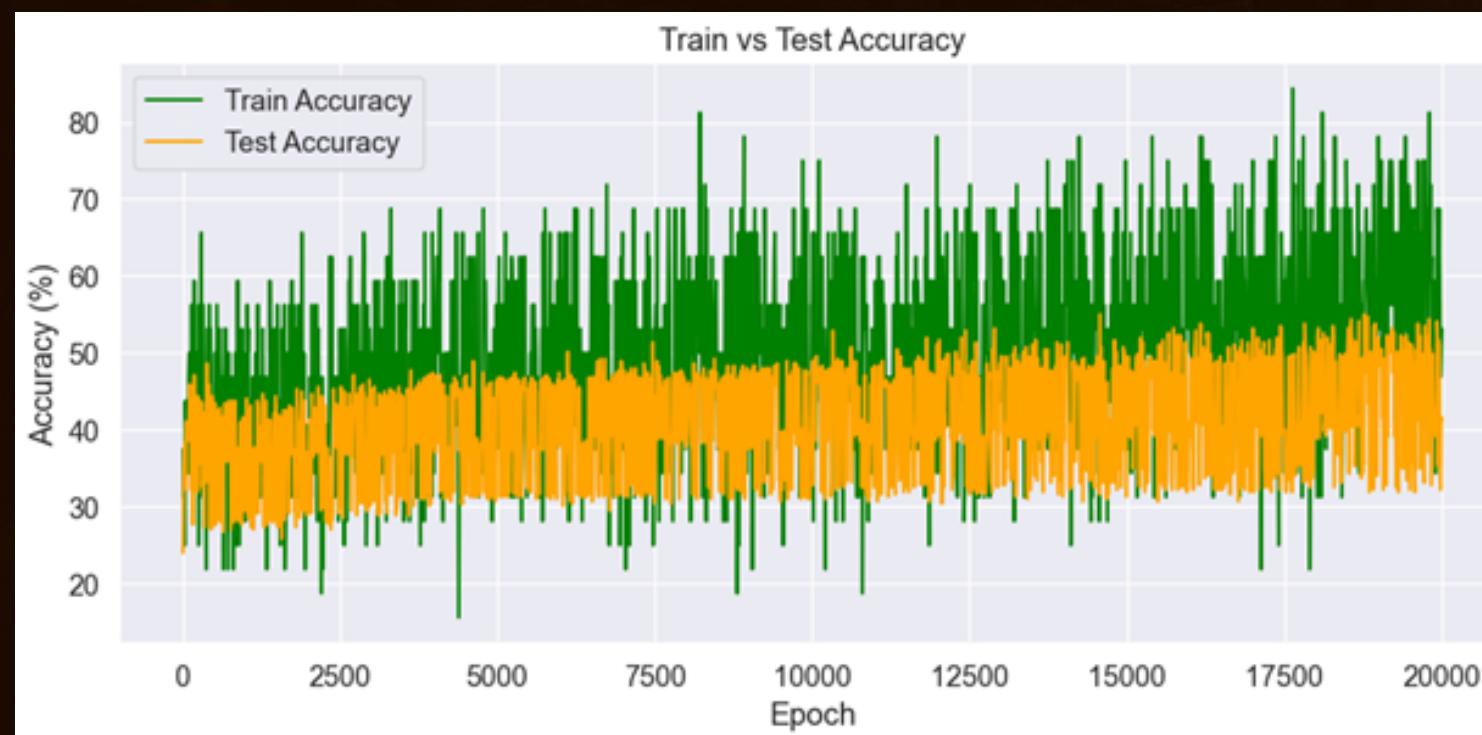
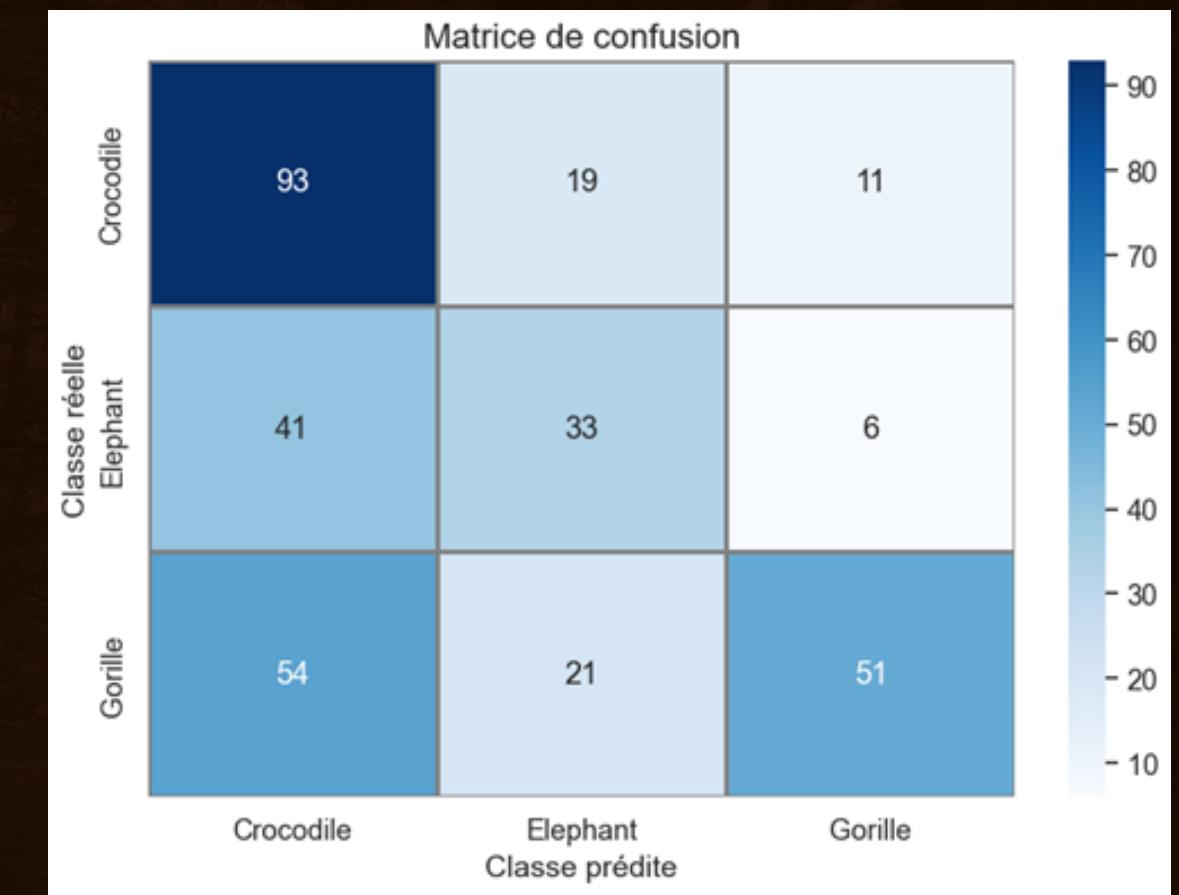
# Expérimentation 3

- Réseau de neurones = [size\*size\*3, 256, 128, 3]
- Epochs = 15000
- learning rate = 0.005
- batch size = 32
- size = 32\*32



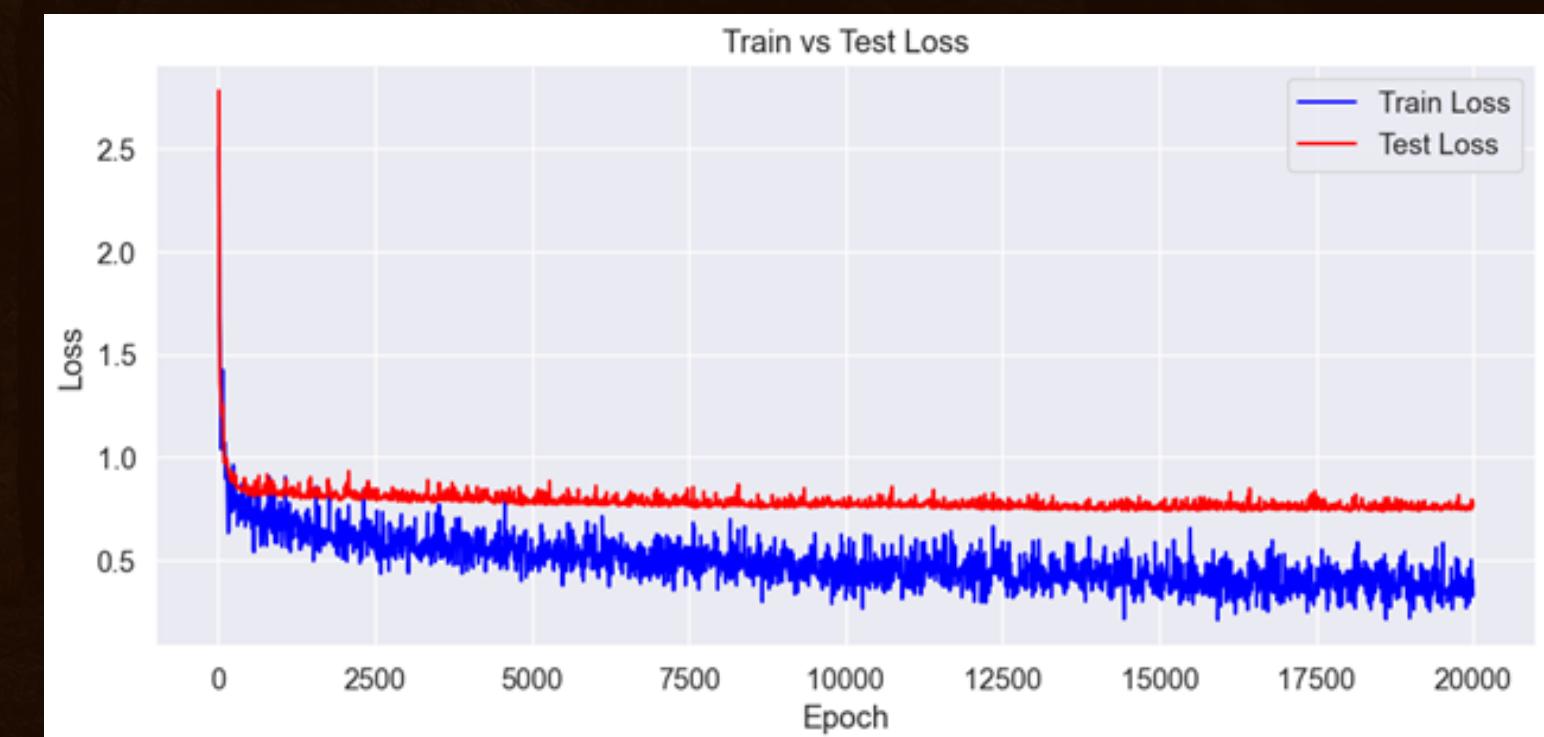
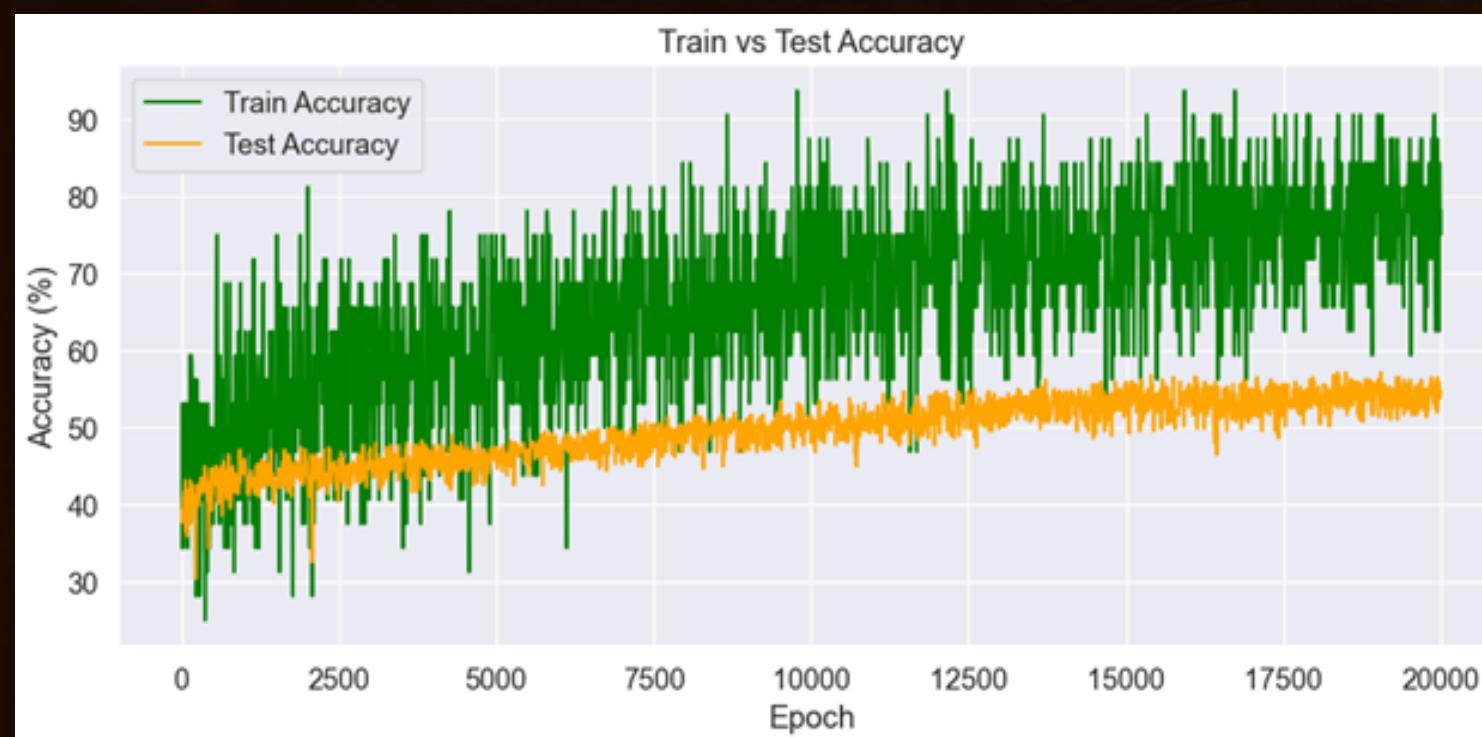
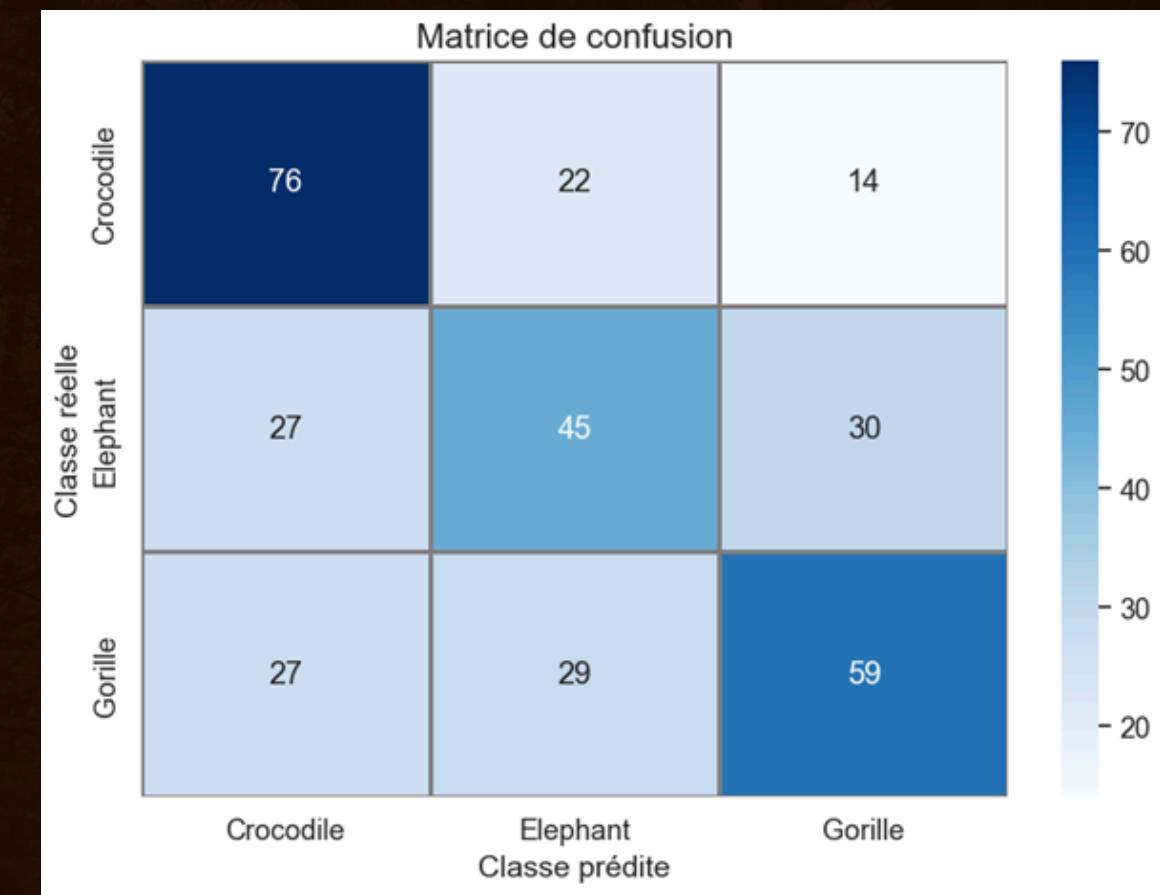
# Expérimentation 4

- Réseau de neurones = [size\*size\*3, 512, 3)]
- Epochs = 20000
- learning rate = 0.005
- batch size = 32
- size = 32\*32



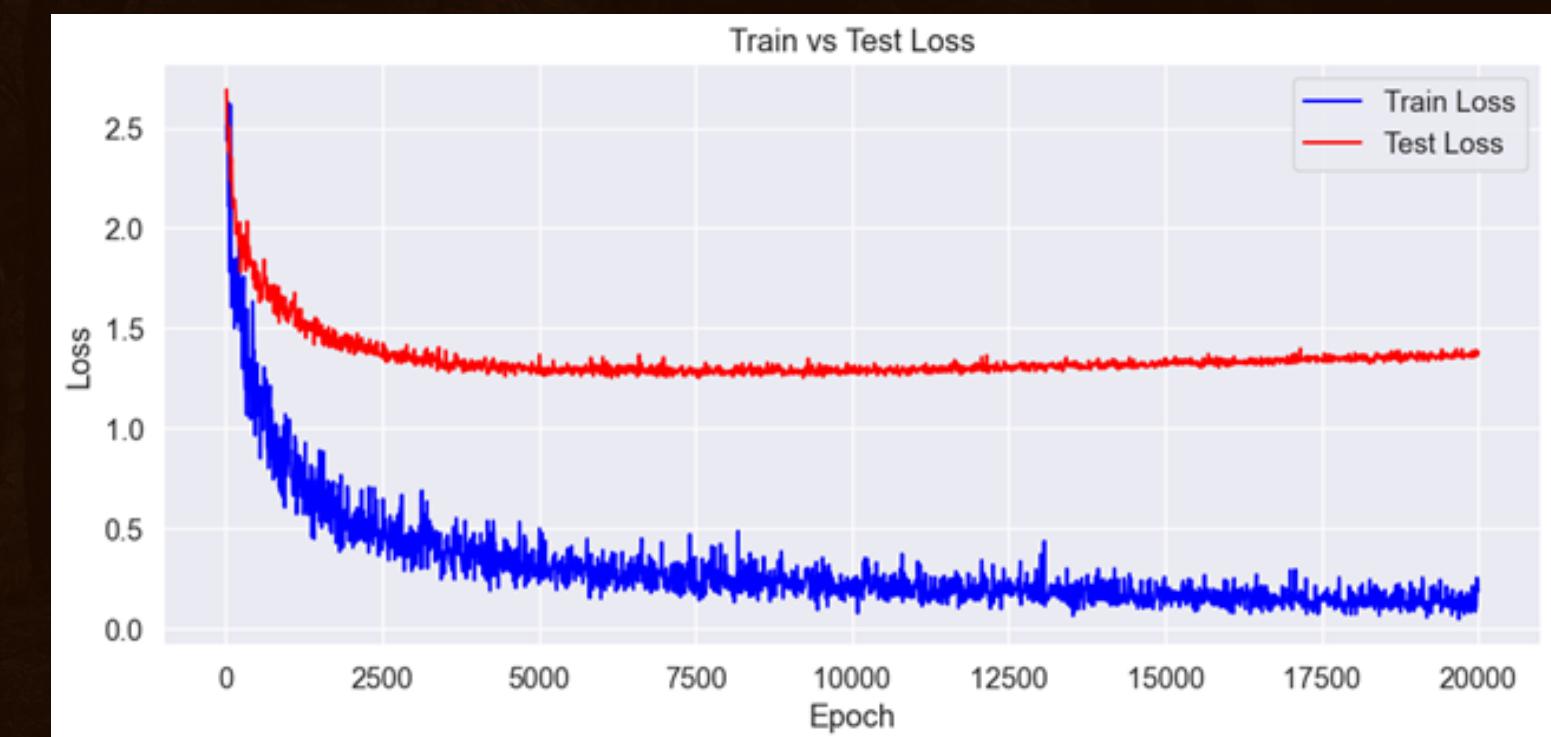
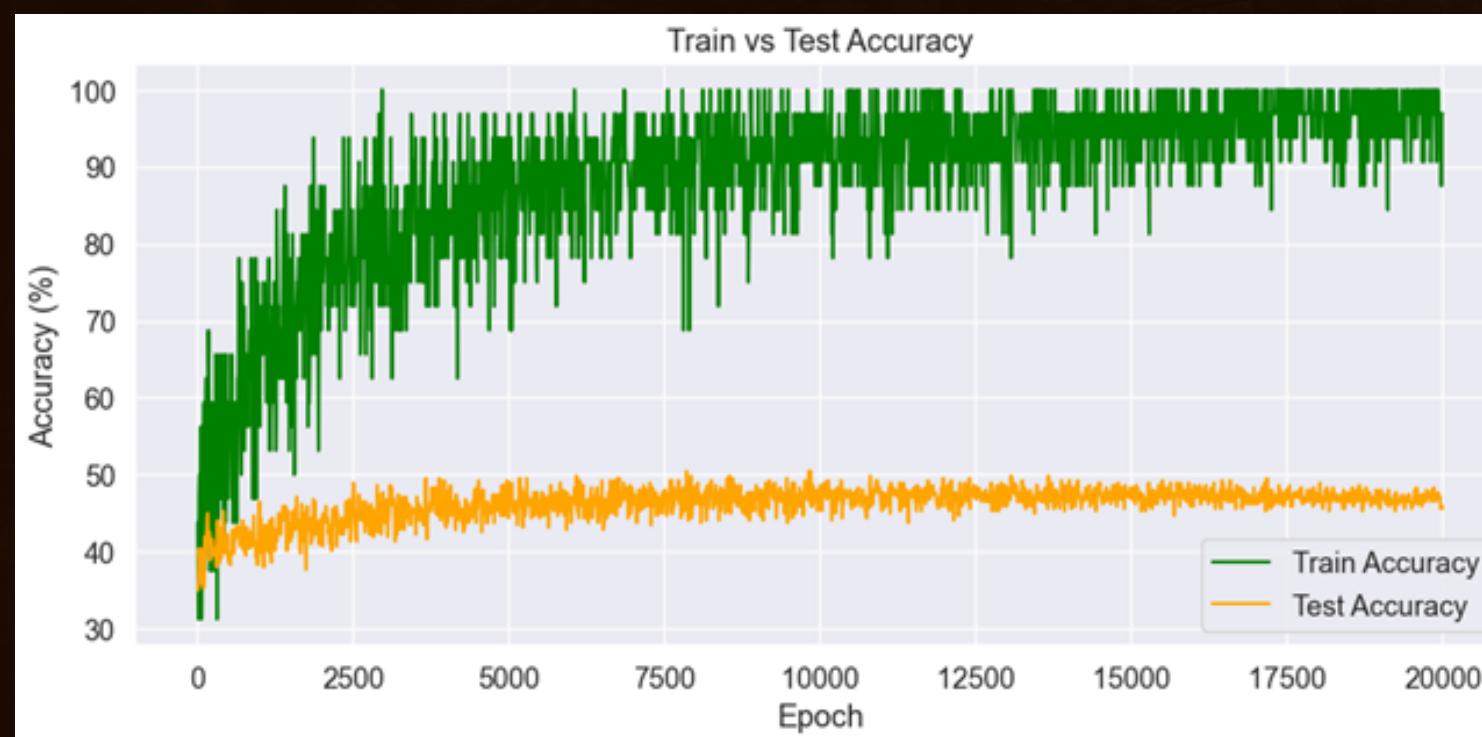
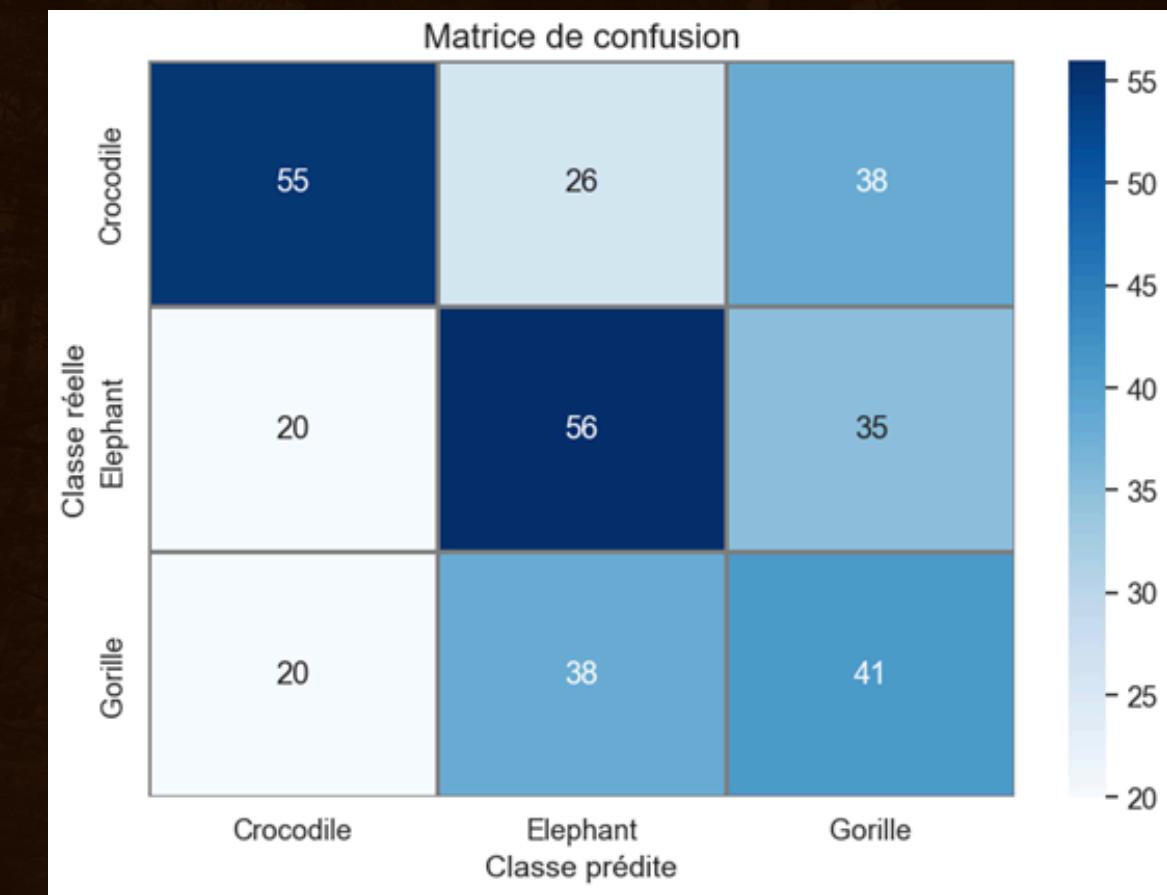
# Expérimentation 5

- Réseau de neurones = [size\*size\*512, 256, 3])
- Epochs = 20000
- learning rate = 0.005
- batch size = 32
- size = 32\*32



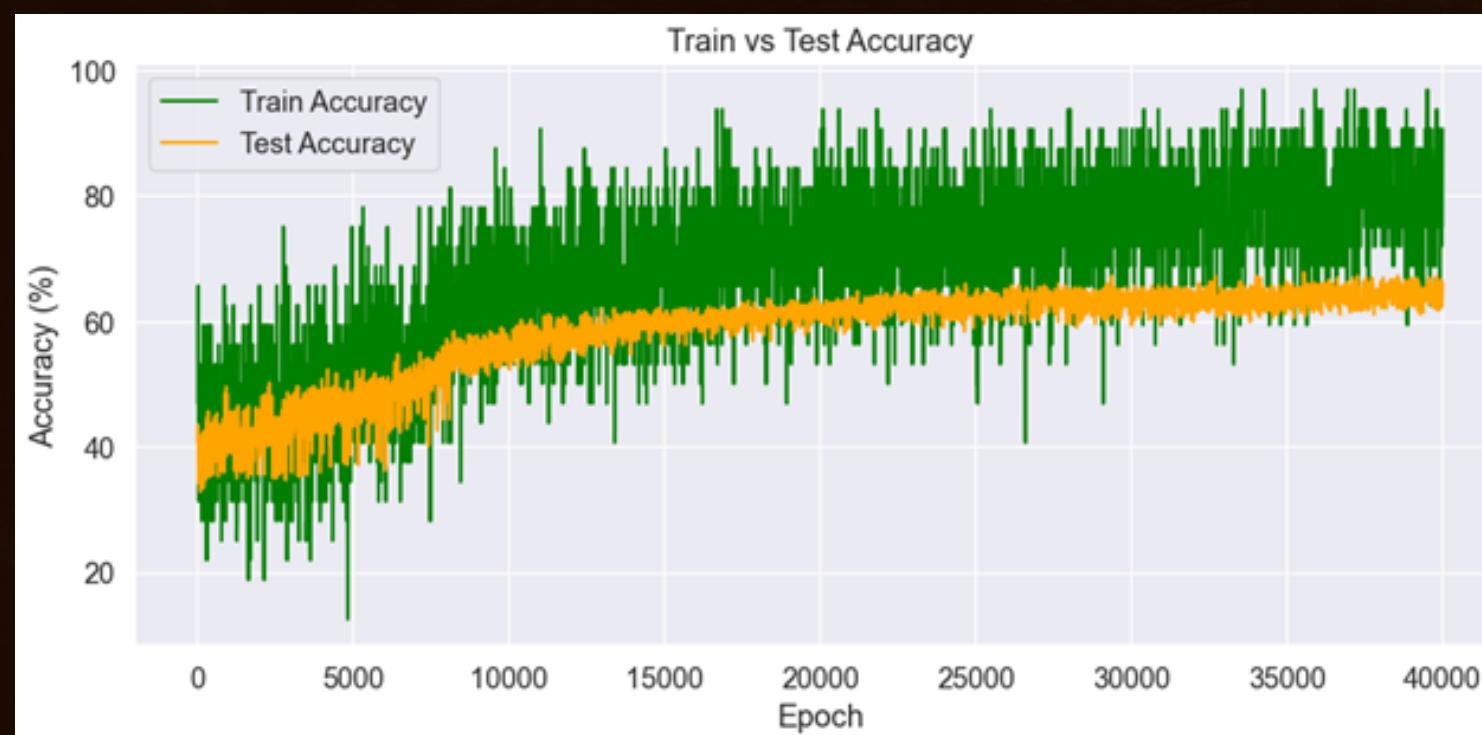
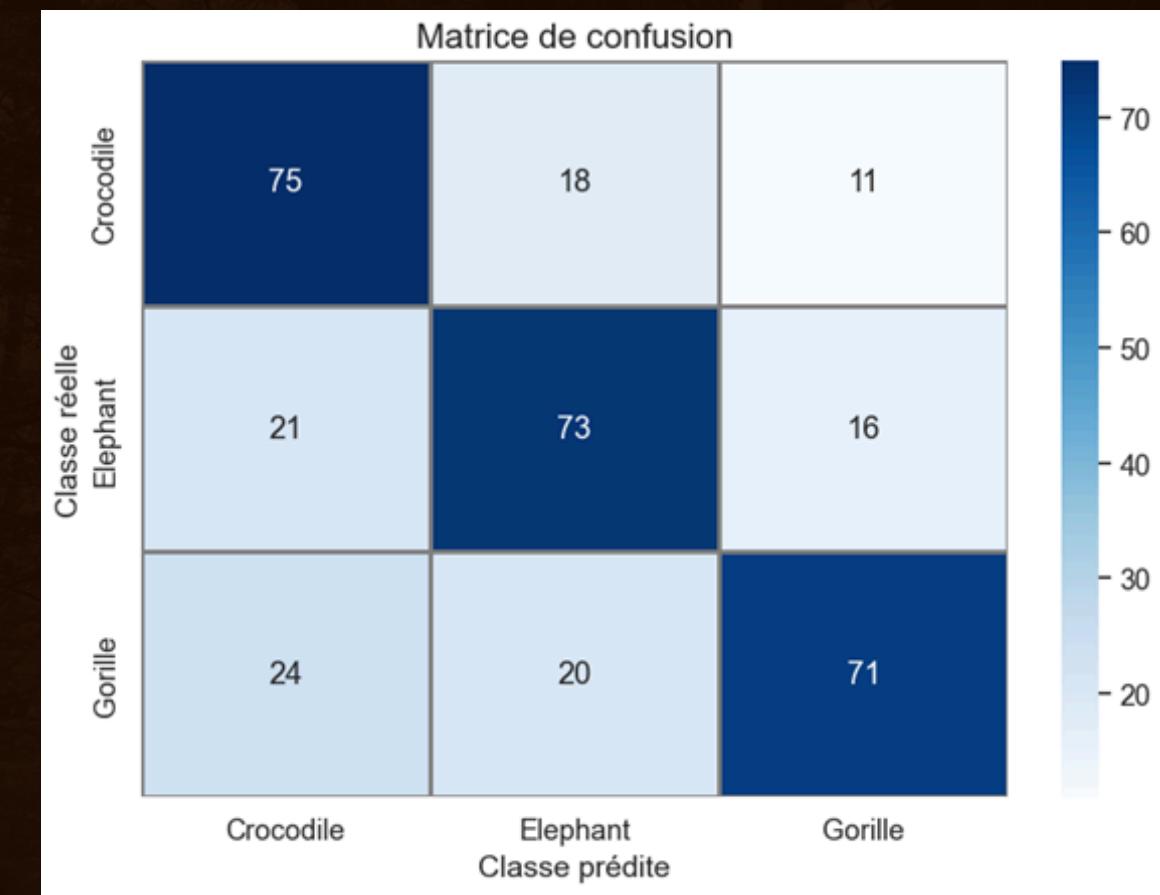
# Expérimentation 6

- Réseau de neurones = [size\*size\*512, 256, 3])
- Epochs = 20000
- learning rate = 0.0075
- batch size = 32
- size = 32\*32



# Expérimentation 7

- Réseau de neurones = [size\*size\*256, 128, 3)]
- Epochs = 40000
- learning rate = 0.005
- batch size = 32
- size = 16\*16



# Merci pour votre attention

