**Future Improvements for Task II**

1. **Enhanced NER Capabilities:**

* **Multi-word Entity Handling**: Improve recognition of compound animal names (e.g., "polar bear", "African elephant")
* **Train NER model on more complex data (I used synthetic data for this task, which is not the best option, due to which the model is not robust to noise and variety in text data).**

1. **Advanced Image Classification:**

**We used data normalization, data standardization and data augmentation. As an improvement option, you can work more on data augmentation, reduce noise with Gaussian or median filter, improve contrast, you can use other models (We used resnet-18, I suggest trying resnet-50, EfficientNet, ViT or others).**

1. **Performance Optimization**

**Our model is very slow and will not be suitable for production. To speed it up, you can use lighter models, which will run faster (e.g. MobileNet for Image Classification).**

**The best solution is to collect more quality data to train the models. A particularly challenging task will be to collect the data for training the NER model, and to label it.**