BBM416 Semester Project Proposal

Project Topic: Enhancing Military Aircraft Images Using Super-Resolution Techniques

In this project, we aim to improve the accuracy of aircraft detection and recognition systems used in defense applications by enhancing low-resolution or poor-quality images of military aircraft using Super-Resolution techniques. In aerial surveillance images, where resolution is often limited, enhancing details is crucial. Through SuperResolution approaches, key aircraft features such as fuselage shape, wing structure, and engine placement will become clearer and more distinguishable, ultimately improving detection and classification algorithm performance.

The **Kaggle *Military Aircraft Recognition Dataset*** will be used in this project. This dataset has the following characteristics:

- **Number of Images and Categories**: It contains images of different models of military aircraft, ensuring diversity in aircraft types.

- **Image Format**: The dataset consists of images in JPEG format, available in various resolutions and sizes.

- **Labels**: Each image is labeled with the corresponding aircraft model, making it suitable for classification tasks.

In this project, Super-Resolution models will be trained on low-resolution images to generate high-resolution versions. The enhanced images will then be tested in aircraft detection, classification, and recognition processes, and the results will be evaluated in terms of accuracy improvement.

Link to dataset : https://www.kaggle.com/datasets/khlaifiabilel/military-aircraft-recognition-dataset

Erdinç Arıcı   2210356035

Gazi Kağan Soysal 2210356050

Emirhan Utku   2210765029