# **Project 1: Deep Learning enabled Real-time Object Detection on a live video stream**

Summary

This project aims to develop a real-time object detection system which can recognize objects from a live camera feed. Real-time object recognition models should be able to sense the environment, parse the scene and react accordingly. The model should be able to identify the types of objects in the scene. Once the type of objects have been identified, the model should locate the position of these objects by defining a bounding box around each object. We will implement a deep net for automating the detection on a real-hardware which has direct applications for drone-based systems that are either used for surveillance or in case of pop-up cellular networks used for coverage enhancement.

**Project Stages**

* **Stage 1: Developing Practical Skills**
  + Gain a good understanding of how to program in Python Programming Language (Please see Reading Post on Python in the General Channel)
* **Stage 2**: Develop a basic understanding of YOLO algorithm for Object detection

A quick intro to fundamentals of machine learning algorithm

<https://thecleverprogrammer.com/2020/06/05/all-machine-learning-algorithms-explained/?fbclid=IwAR31kDdzG_KFizTOT9vWSN50NGr00I3Ovj9YqSrusxeSShvHVb1e7hJhElw>

<https://www.youtube.com/watch?v=g7wvfTQsJkE&feature=youtu.be&fbclid=IwAR3KFS_355s3Q4X2zTpvTey7ev_r1cCONwn4P54dNzQqG-hr6GEXGN_MT6I>

Basics of Yolo Algorithm

<https://towardsdatascience.com/track-vehicles-and-people-using-yolov3-and-tensorflow-4f3d0e5b1b5f>

<https://www.youtube.com/watch?v=yDceQvxykq4>

* **Stage 3: Develop a code to perform live object detection**

Please refer to “Python Library Classify Human Action” in the File Section

<https://www.youtube.com/watch?v=NV1g0DYb_vs>

* **Stage 4 (Optional): How to run your code on Jetson Nano Platform**

Please refer to “ How\_to\_run\_TensorFlow\_Object\_Detection\_model\_on\_Jetson\_Nano” in the File Section.

<https://spectrum.ieee.org/geek-life/hands-on/quickly-embed-ai-into-your-projects-with-nvidias-jetson-nano?fbclid=IwAR06dDFjqOM_XTQuCSPXd33pLLB_6iDoH0bcSDIFUabKceT8dC2qrqoq6JY>

* **Stage 5: Prepare a short Final Presentation**

Will Update you more.