Assignment #7: Analysis of preceding projects

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Introduction

The Jetson NANO is an optimized device for model reference. Using this as a tool, it was easy to find examples of various applications. We will investigate useful application development cases found in the NVIDIA developer community and establish the direction of future projects.

We will focus on discussing what should be considered while looking for related cases. For example, ease of securing datasets, compatibility with devices, size of models, and applicability will be considered.

Experiments

PROJECT 1

- Title: Yolact-Edge: Real-time Instance Segmentation on the Edge
- GITHUB Link: https://github.com/haotian-liu/yolact_edge

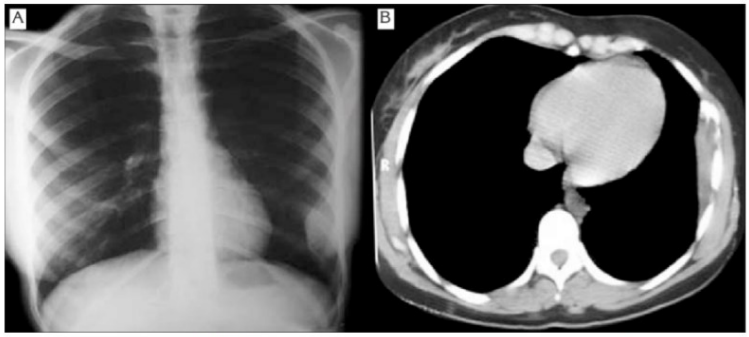
YolactEdge is the first competitive instance segmentation approach that runs on small edge devices at real-time speeds. Specifically, YolactEdge runs at up to 30.8 FGS on a JETSON Xavier.(In Jetson Nano, it was relatively slower.) with a ResNet-101 backbone on 550*550 resolution images.

RESULT:

PROJECT 2

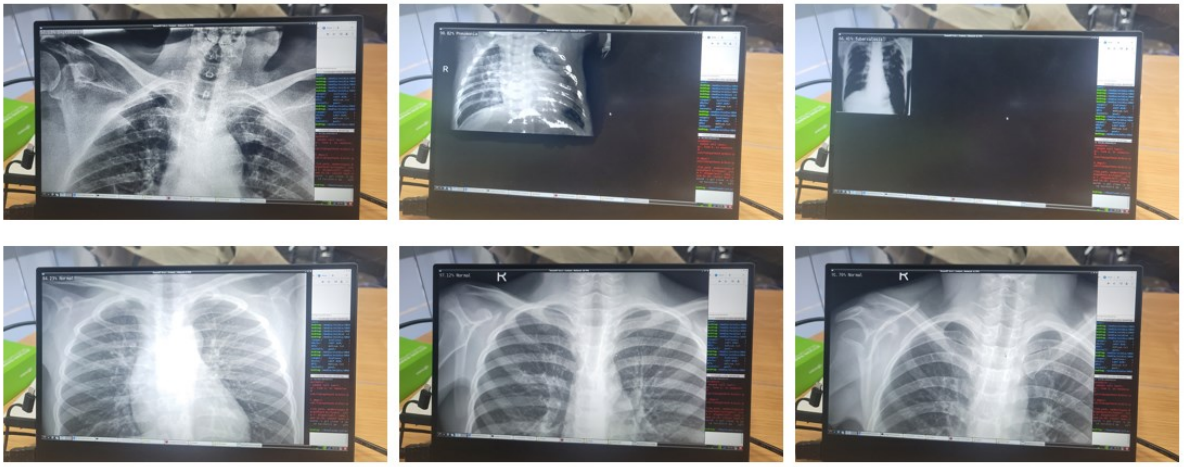
- Title: Detection of various deadly diseases
- GITHUB Link: https://github.com/THEGURUJ1/AI-for-Healthcare-Project-using-NVIDIA-Jetson-Nano-2GB-Developer-kit

This project uses deep learning concept in detection of various deadly diseases. It can detect lung cancer, covid-19, tuberculosis, and pneumonia. It uses CT-Scan and X-ray images of chest and lung in detecting the disease. It has an accuracy between 50% and 80%.



| X-ray Image of chest | | CT-Scan Image of Chest |

RESULT:



Conclusion

Various application cases using JETSON NANO were investigated, and GITHUB was able to practice calling and using models in the desired form. It is expected that it will be able to get great inspiration for deciding the subject of the project in the future.