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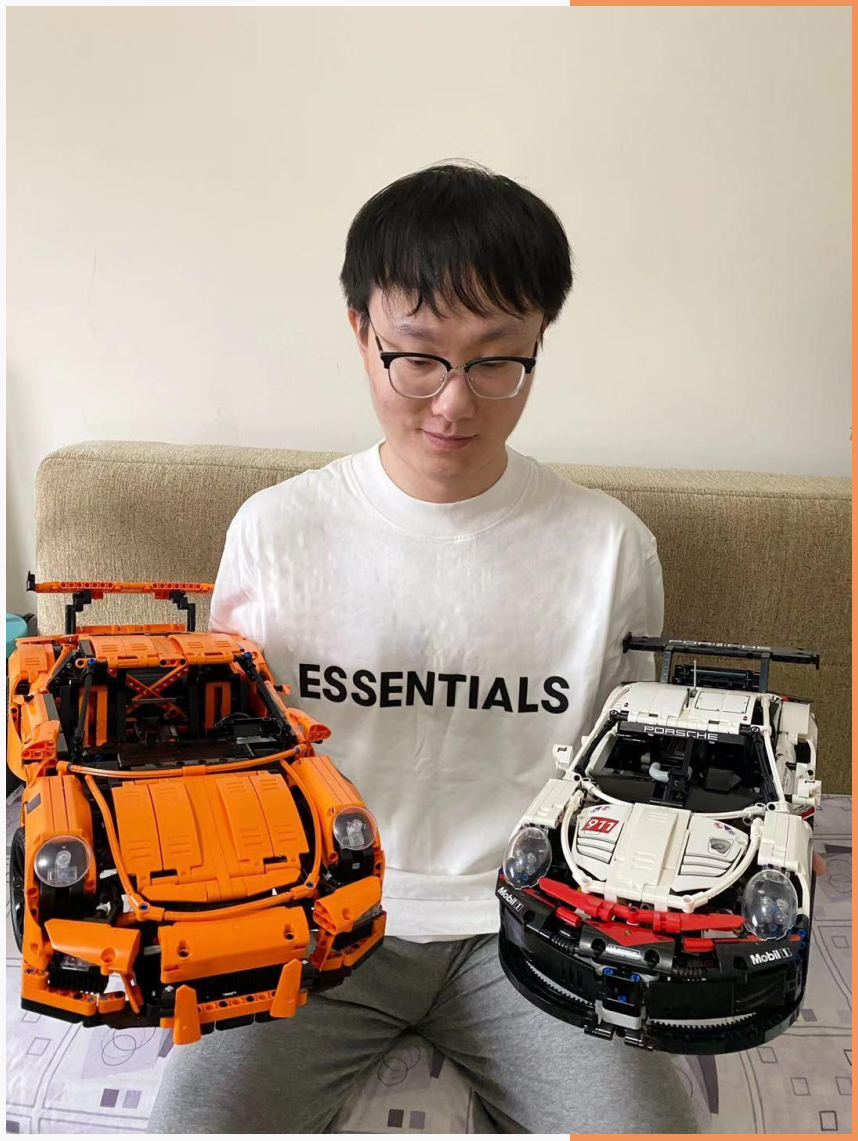
DS-NYC-13-Capstone2

COVID-19 Face Mask Detection Using Deep Learning

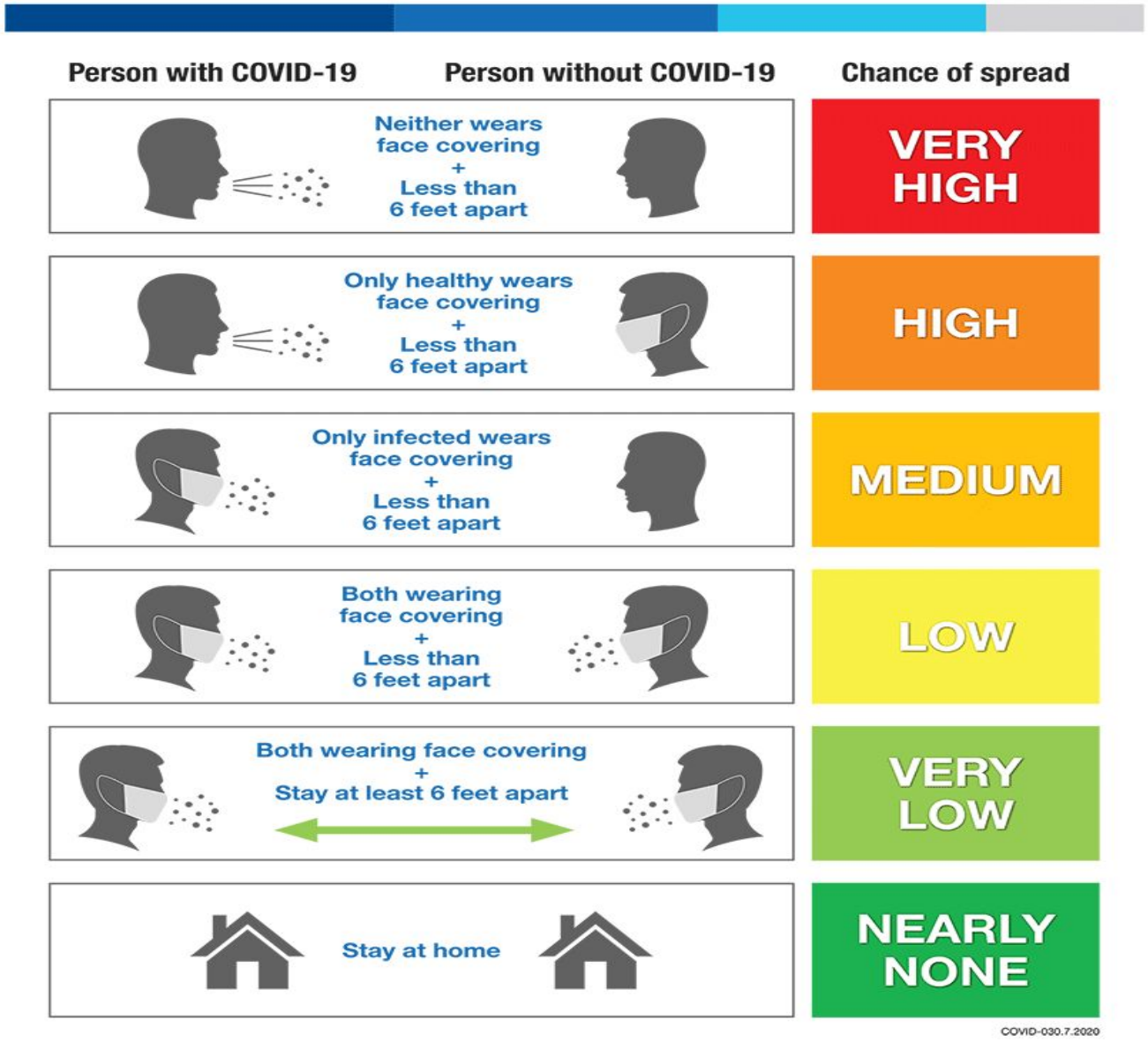
By: Hang Yin

Biography

- Master’s in Statistics from Cornell University
- Veteran of U.S. Army
- Data Scientist since 2020
- New hobby: Building up LEGO sets.



Why We Wear Masks



Data Information

- Contains 1006 Human Face images
- Divided into Training, Validation and Testing set
- Balanced Data with two label: Mask and No mask

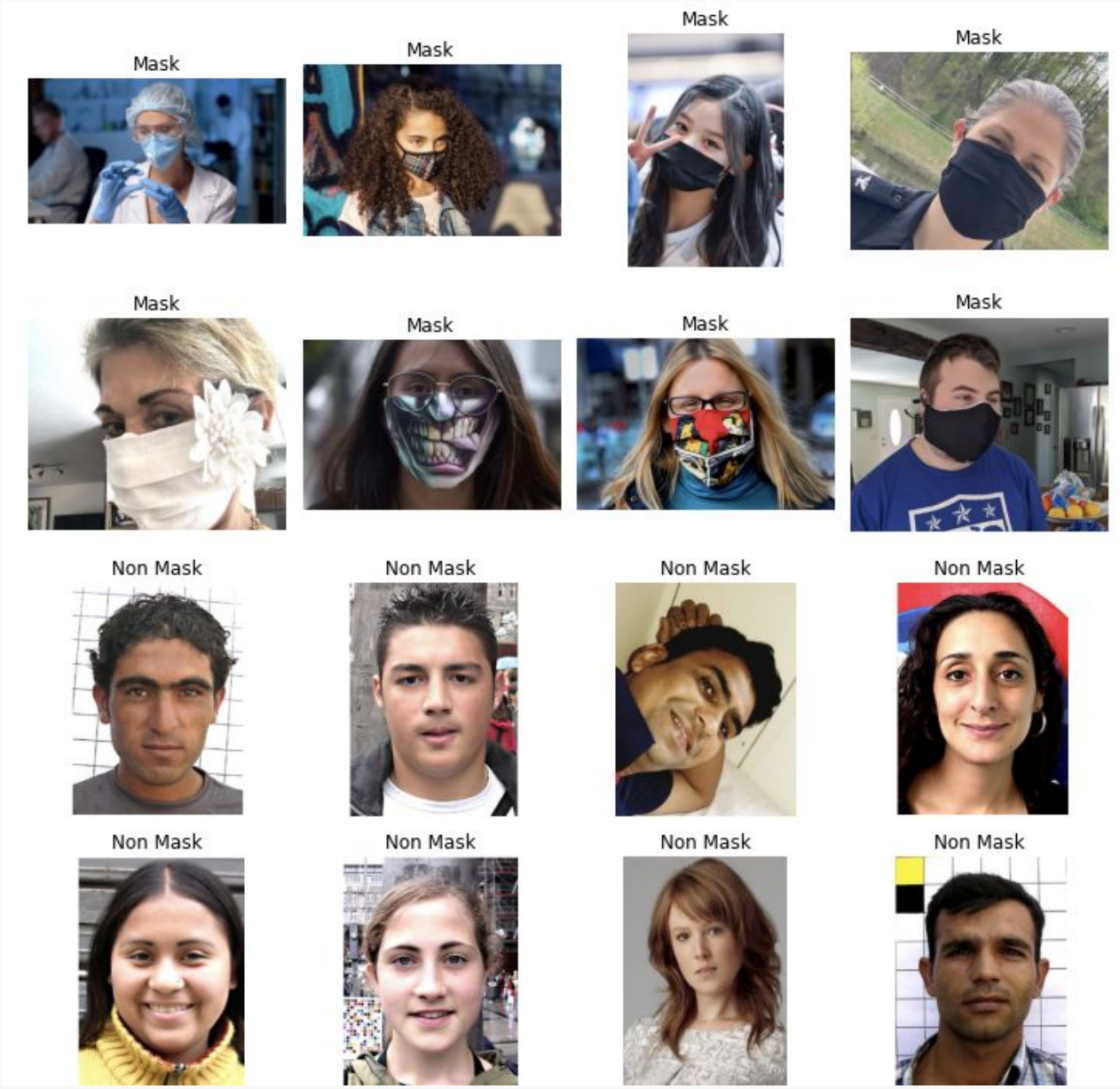
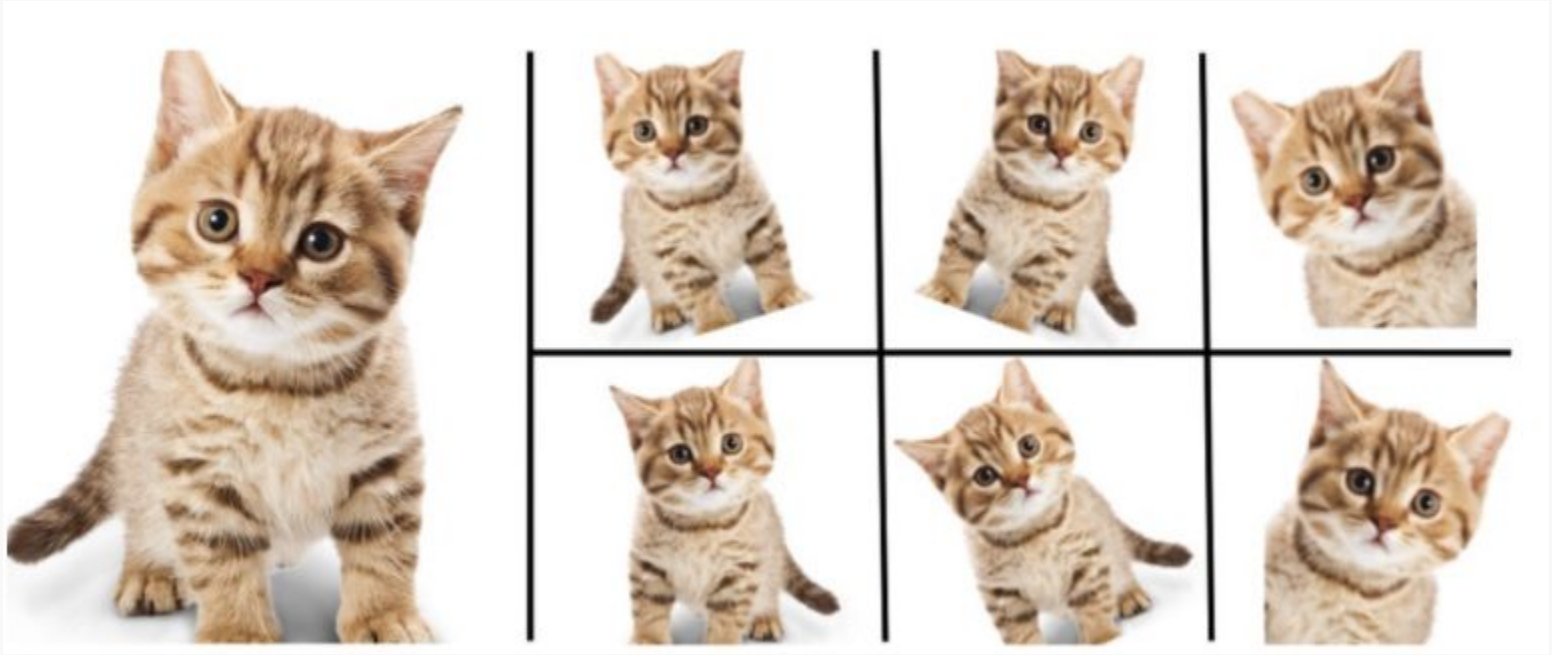


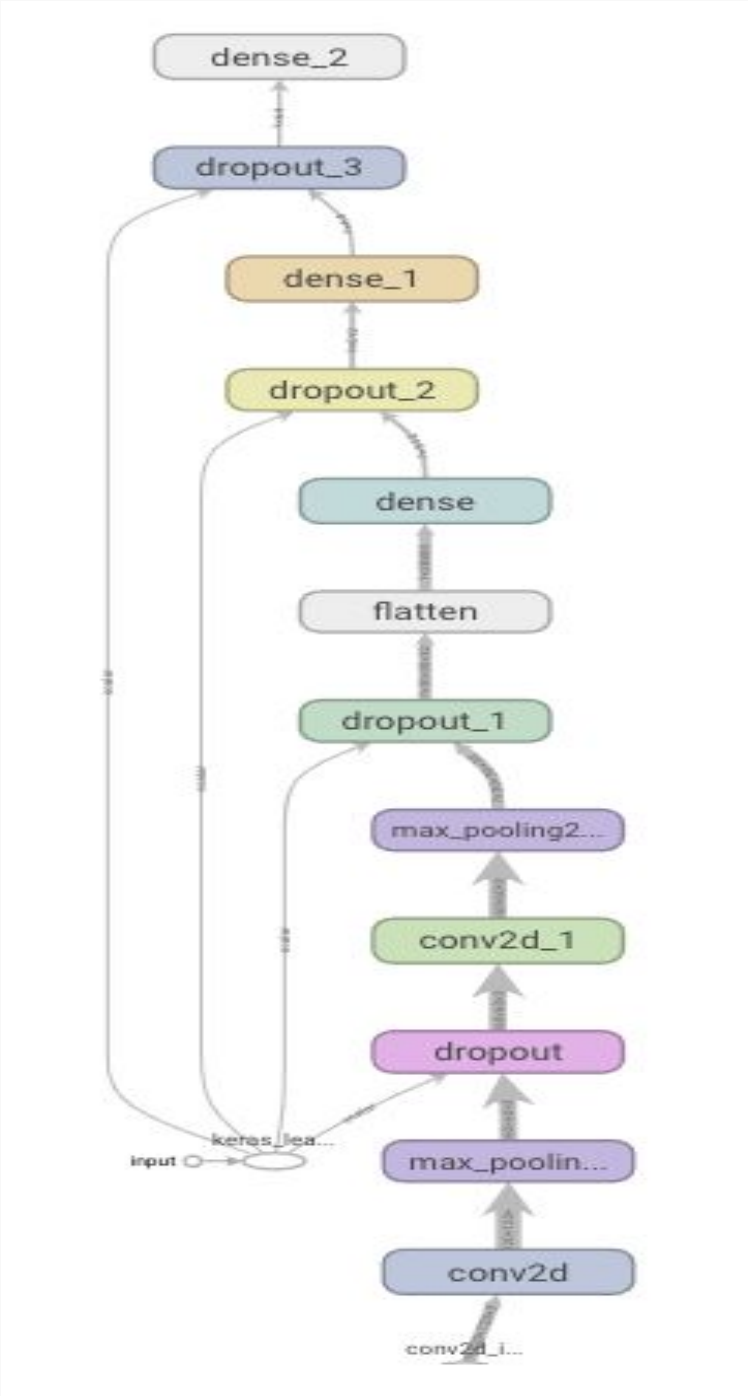
Image Augmentation

- Modify existing Training Data
- Adding more images to train
- Avoid Overfitting

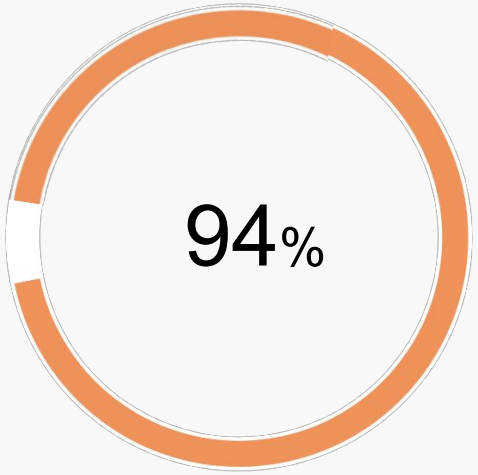


Model Framework

- Keras Sequential() model
- Dropouts to prevent overtraining
- Max_pooling and flatten to …..

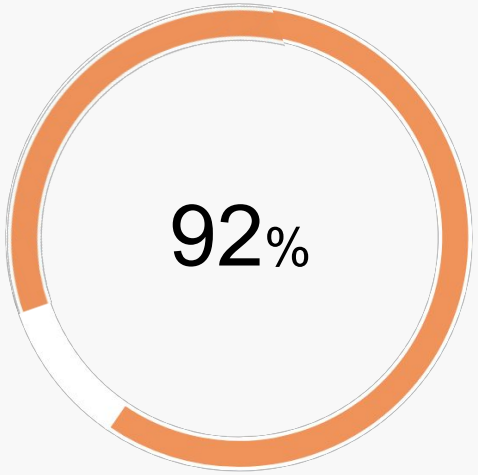


Model Performance



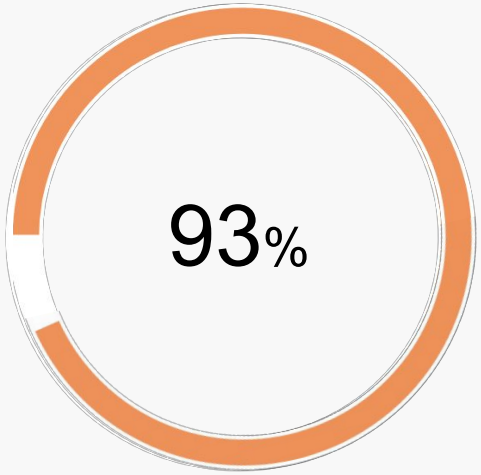
Training Set Accuracy

Average Loss: 0.25



Validation Set Accuracy

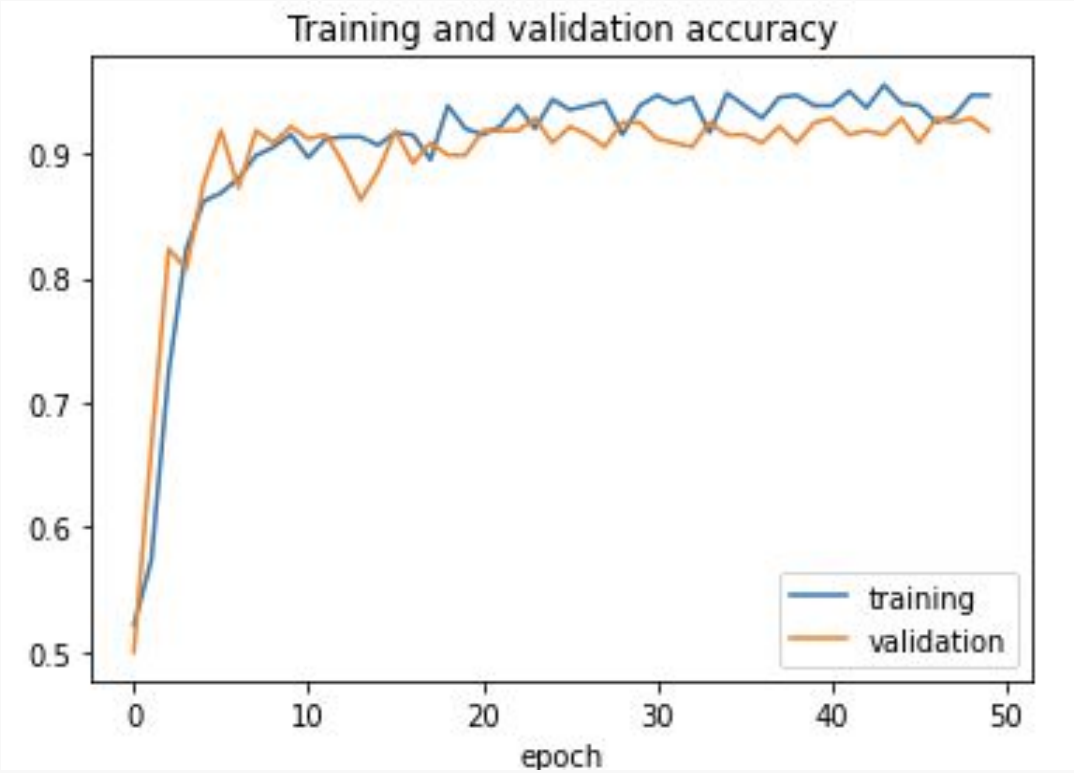
Average Loss: 0.27

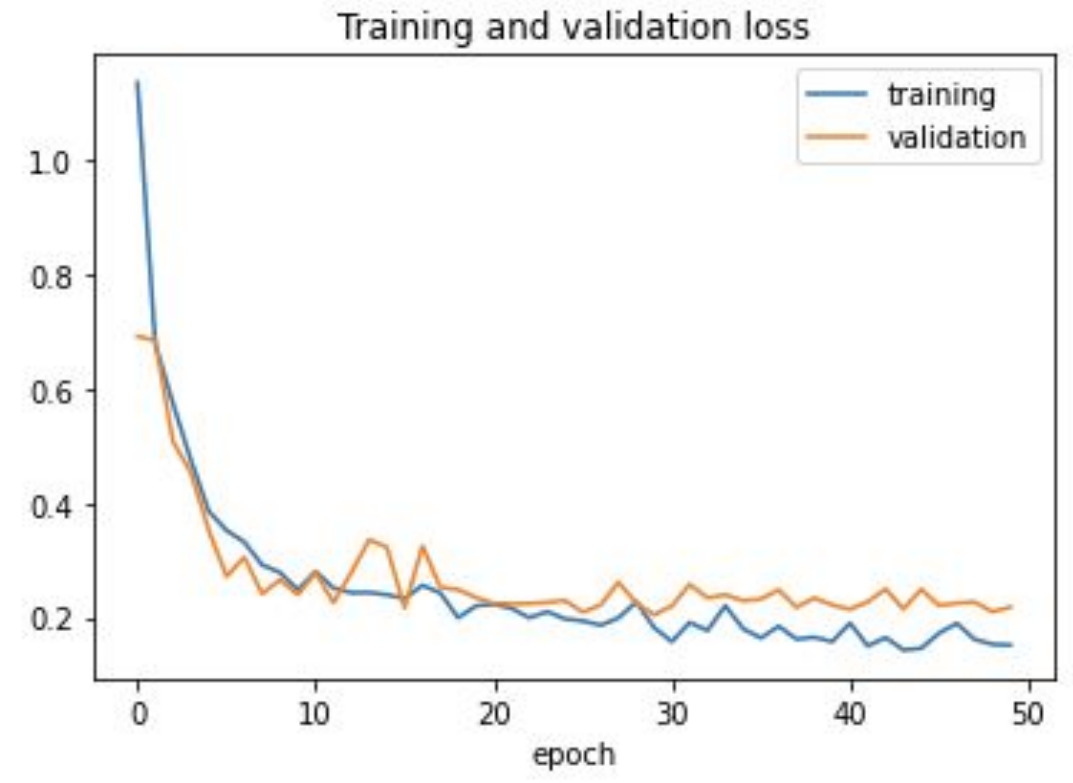


Testing Set Accuracy

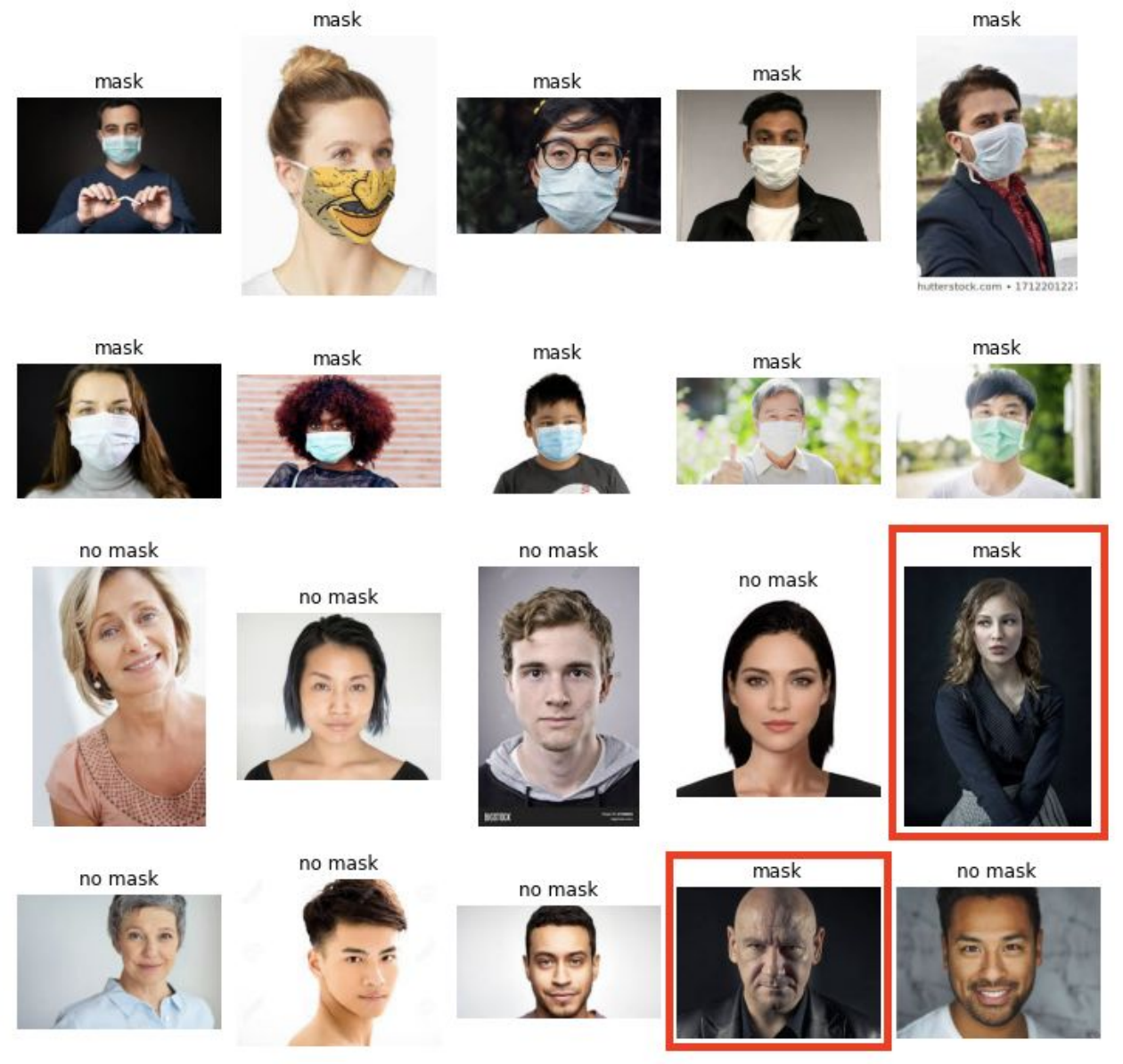
Average Loss: 0.15

Model Performance





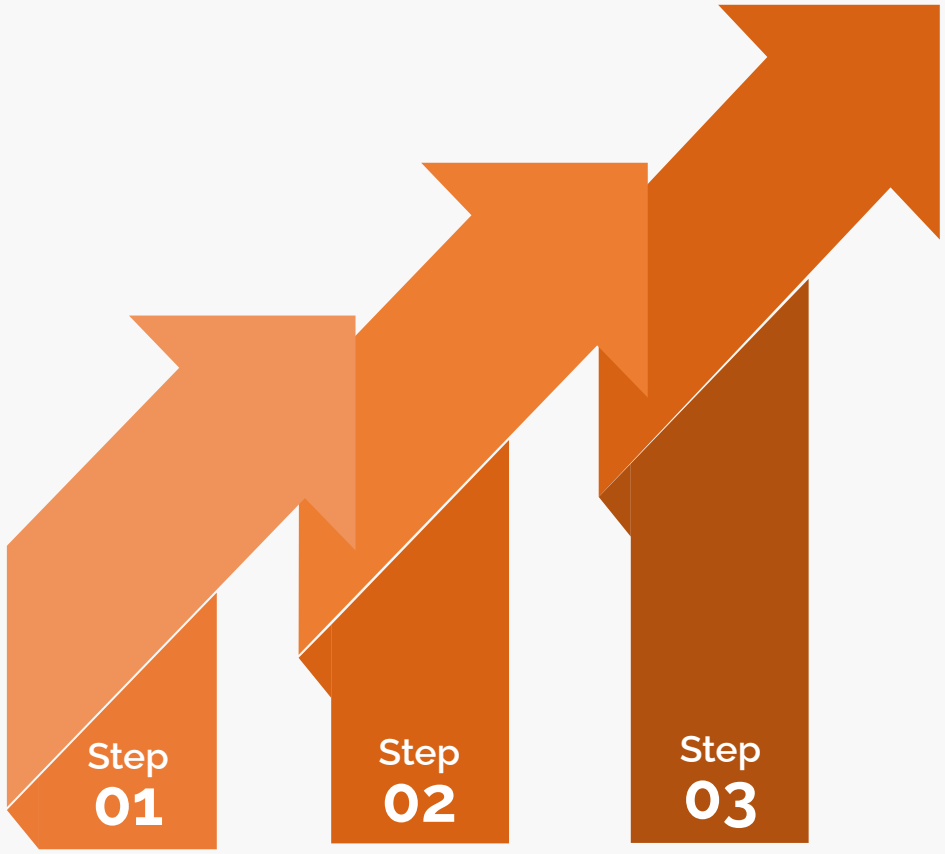
Model Testing



- Mask prediction Accuracy : 10 / 10
- No Mask prediction Accuracy : 8 / 10
- Having issues detecting no mask with dark background?

Further Research

- Transfer Learning
- Multiple Person Images
- Video Detection



Questions?

Thank you.