

Number Plate Recognition & OCR

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Summary

- **Recognition Models**

- Regression (Transfer Learning)
 - VGG 16
 - Mobile Net V2
 - Inception V2

- **OCR**

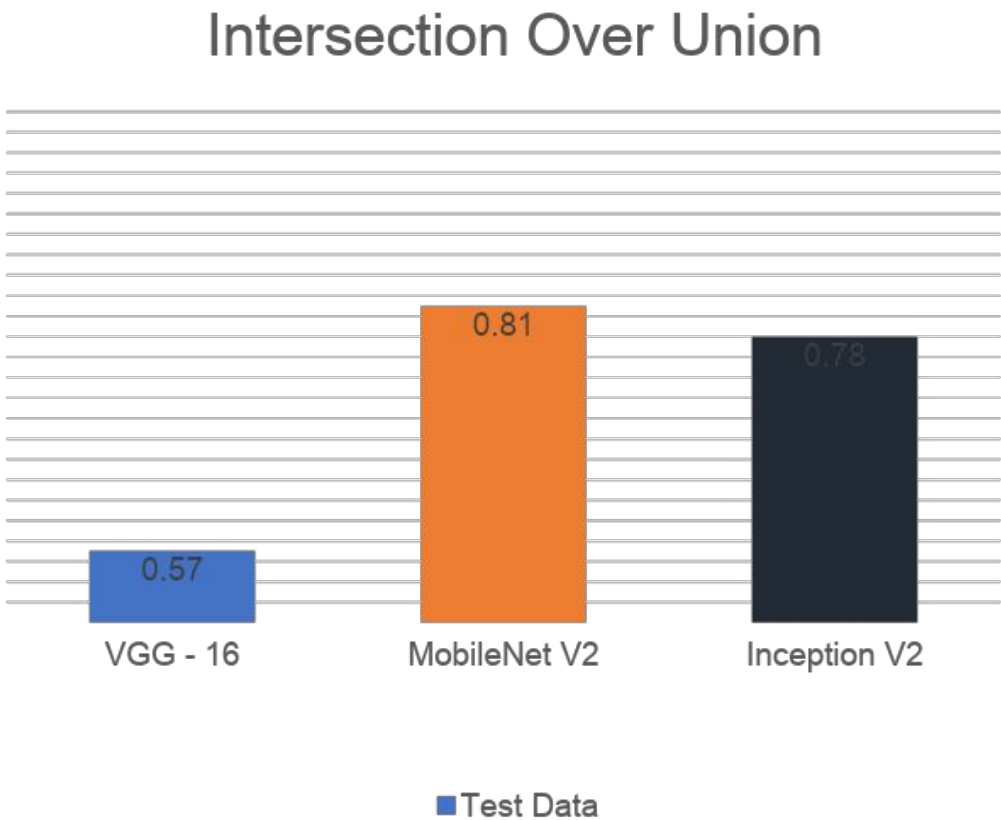
- Binarization
 - Gaussian Blur, Thresholding, Adaptive Thresholding,
- Denoising
- Histogram Equalization
- Morphological Transformation
- Perceptive Transformation
- Increase Image Resolution

RECOGNITION MODELS

TRANSFER LEARNING

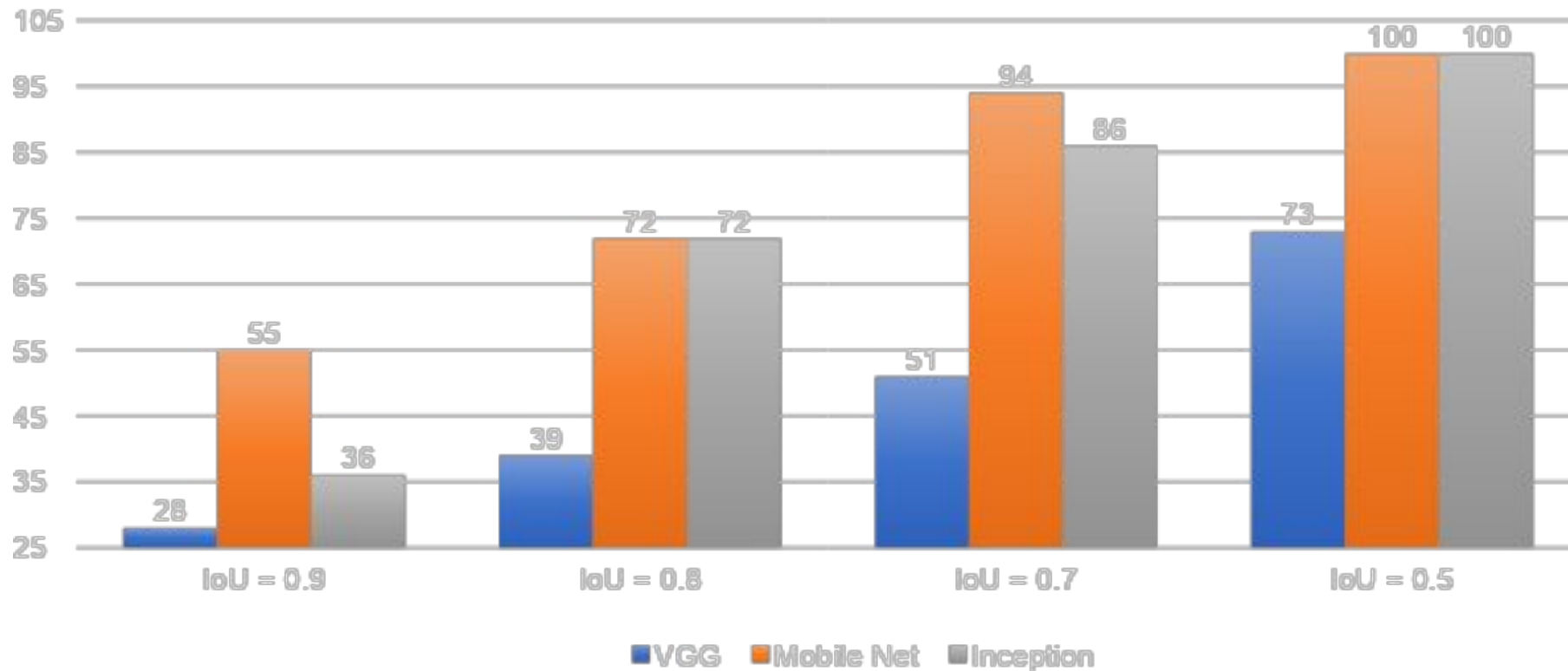
Transfer Learning Models Results

Model Name	Train Data	Test Data	MSE (Test)	MSE (Train)	IoU (Test)
VGG 16	322	36	0.0081	0.0035	0.67
Mobile Net	322	36	0.0055	0.0013	0.81
Inception	322	36	0.0055	0.0024	0.78



Precision for different IoU

	VGG-16	MobileNet V2	InceptionV2
IoU = 0.5	73 %	100 %	100 %
IoU = 0.7	51 %	94 %	86 %
IoU = 0.8	39 %	72 %	72 %
IoU = 0.9	28 %	55 %	36 %



Upcoming Plans

- Improve the IOU and Precision of the model
- Try different advanced object detection techniques to improve the IOU
- Automate OCR Process from detected numberplate
- Improve the OCR Results using some preprocessing techniques (R & D)