発表番号08

Analysis of Image Annotation Method for One-Stage Object Detection Deep Learning Model

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4 QUALITY EDUCATION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
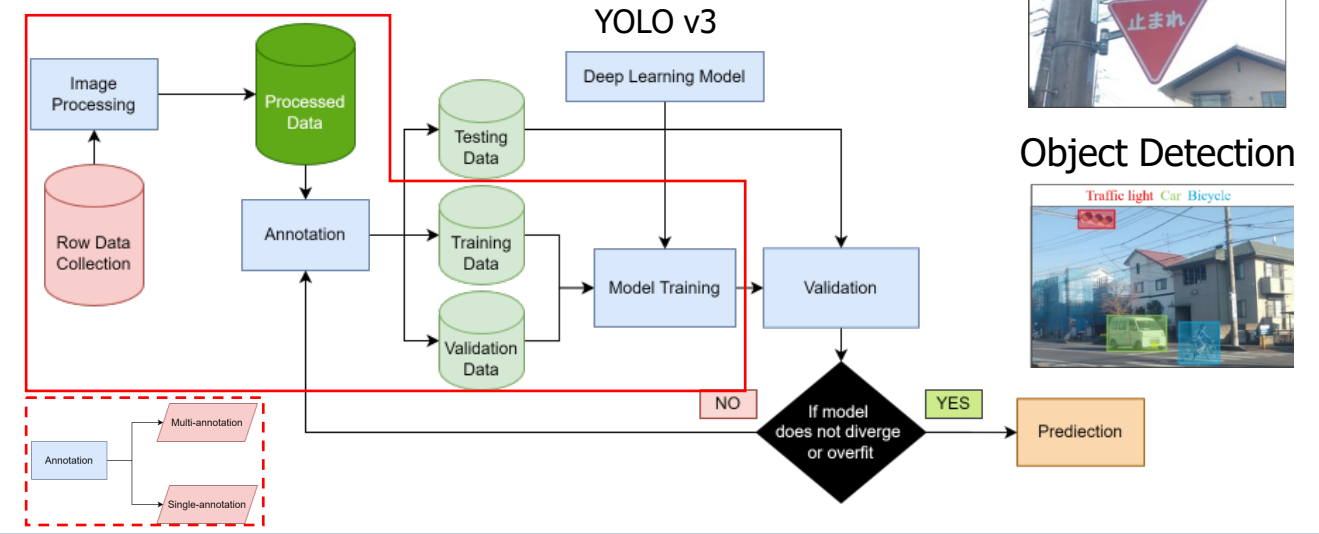
Outline

Overview

In this research, we apply two different training methods to the object detection deep learning model, Multi-annotation and Single-annotation. Each training method uses the different method of annotation.

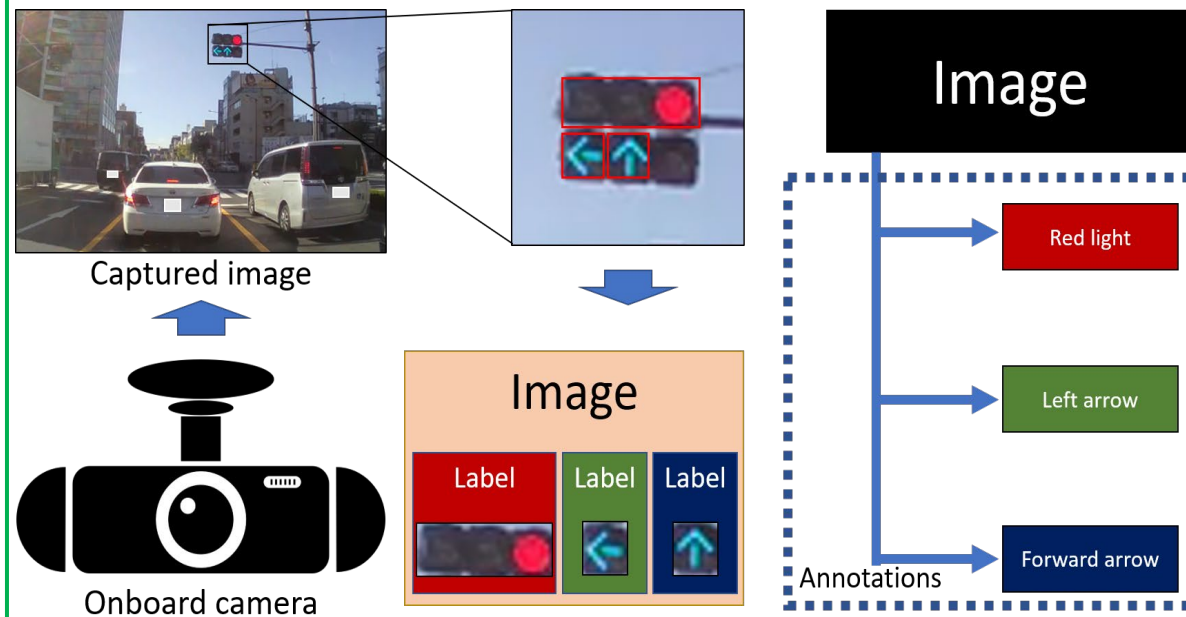## Annotation

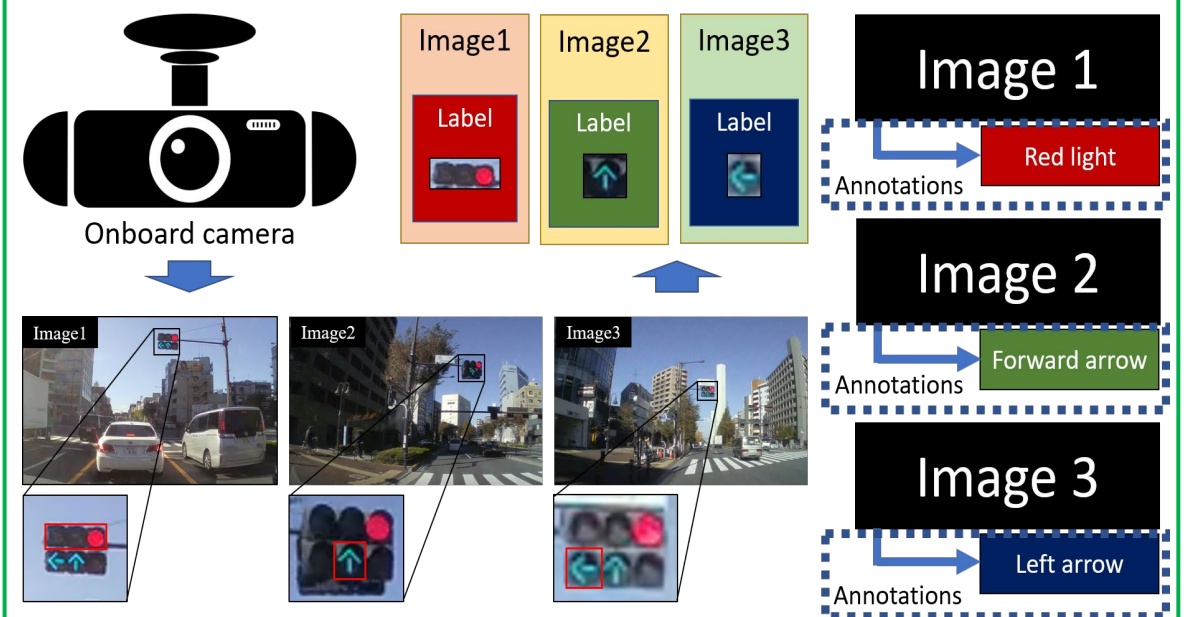Customized Dataset

VoTT

Model Setup and Structure

YOLO v3

Image Recognition

Object Detection

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Outline

Training Patterns

Pattern 1:

Multi-annotation

Captured image

Onboard camera

Image

Label | Label | Label

Image

Annotations
- Red light
- Left arrow
- Forward arrow

Pattern 2:

Single-annotation

Onboard camera

Image1 — Label
Image2 — Label
Image3 — Label

Image1 | Image2 | Image3

Image 1

Annotations → Red light

Image 2

Annotations → Forward arrow

Image 3

Annotations → Left arrow

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Outline
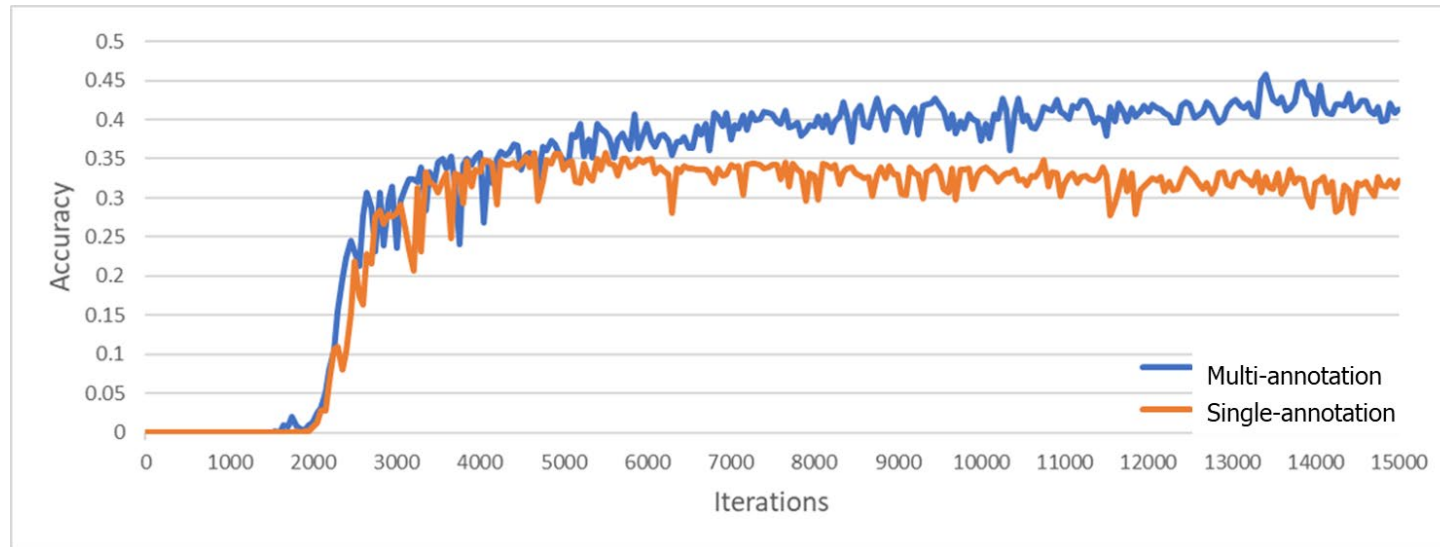
Result

Pattern	mAP
Multi-annotation	41.28 %
Single-annotation	32.28 %
Improvement	*9 %*

Conclusion

- As the result, the accuracy of pattern 1 is 9% higher than pattern 2.
- Improve the accuracy only changing the annotation during the training process.

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