SECURITY - WEAPON DETECTION

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Project option

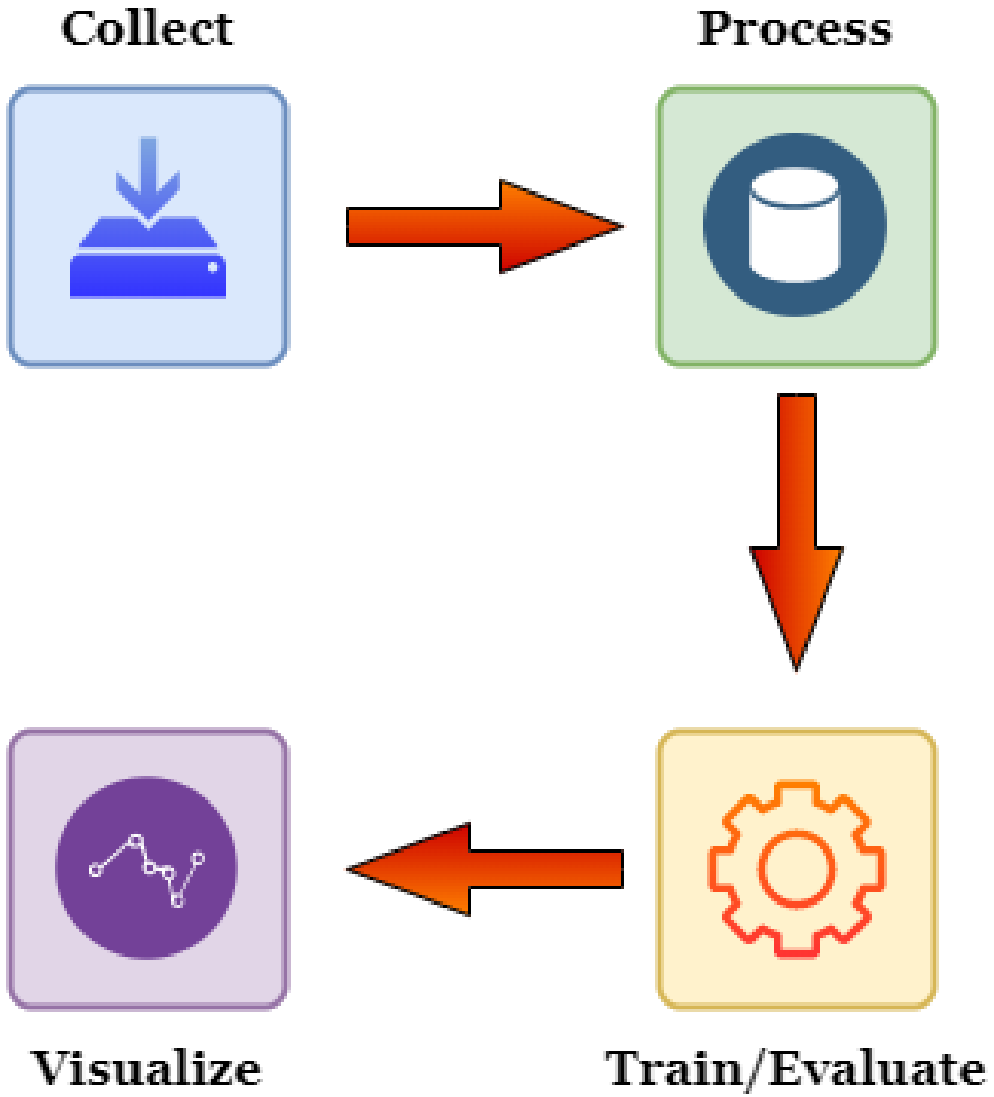
- **Application track**

- Security camera with weapons detection

Architecture

Flask

LabelImg

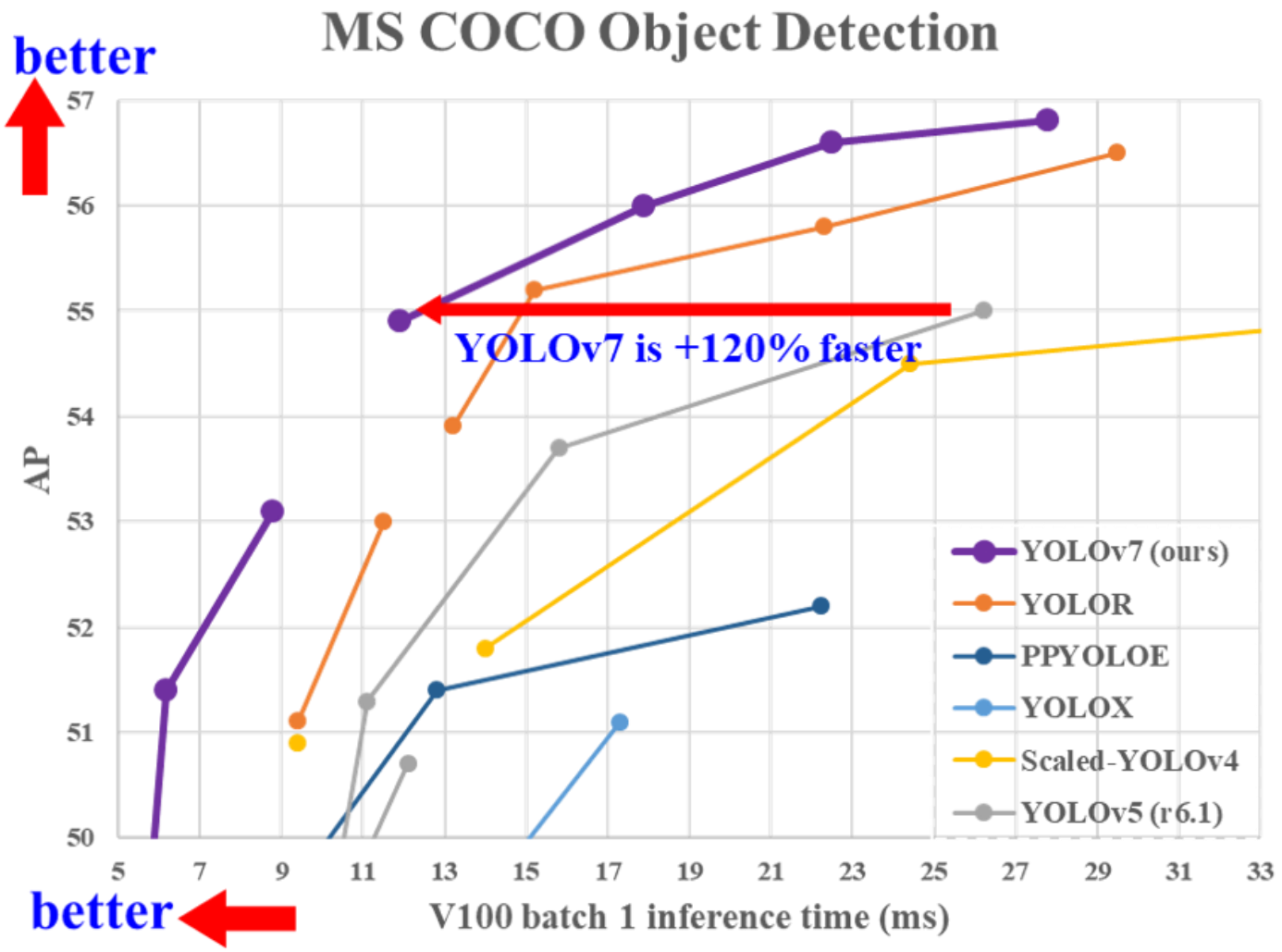


Algorithm & dataset

- YOLOv7

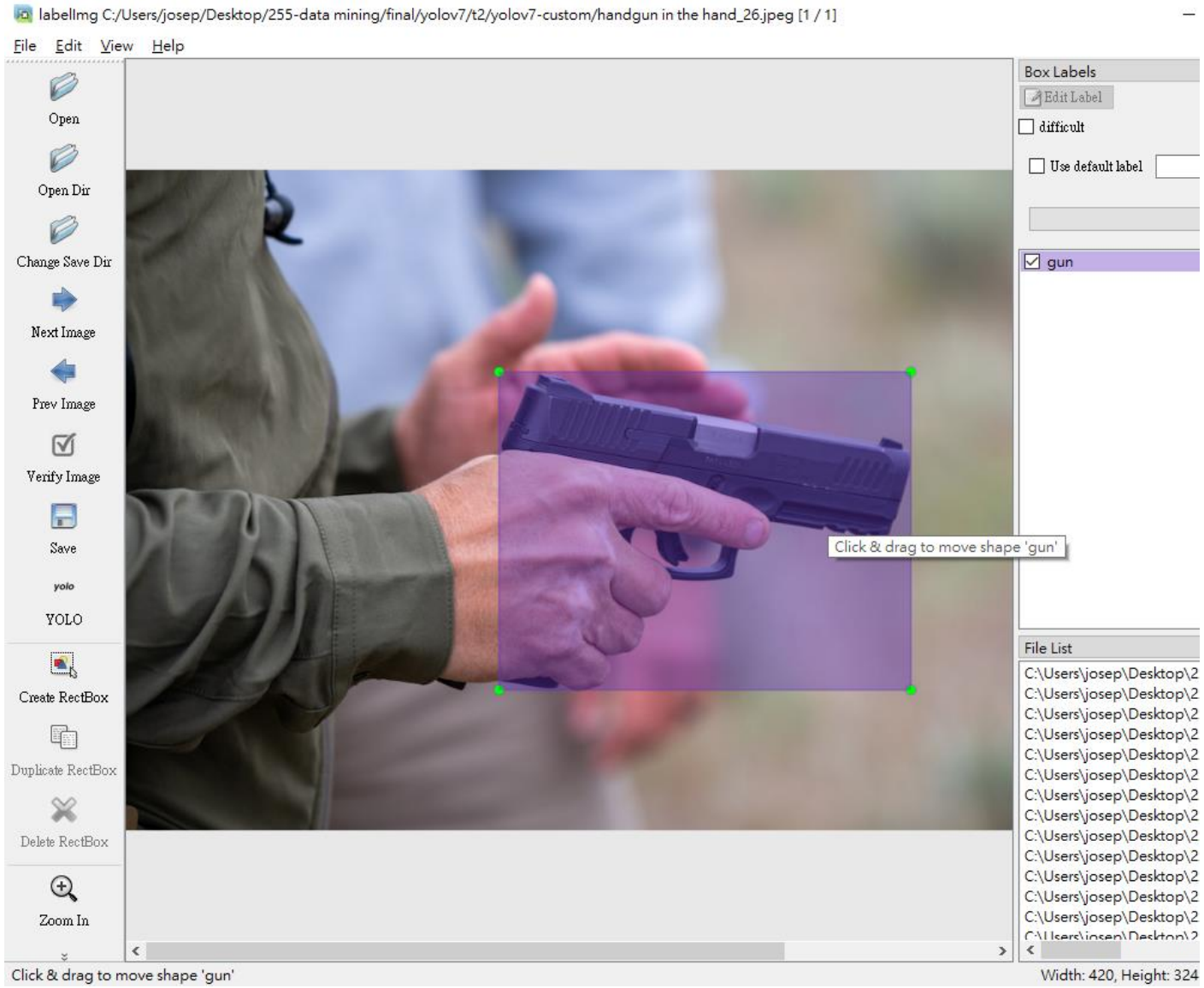
- Custom dataset

  - weapons



Data collection & preprocessing

- simple-image-download
  - Overlapping
- LabelImg
- Custom.yaml
  - Number of class
  - Name of class



39 lines (34 sloc) | 950 Bytes

```
# Usage: pip install -r requirements.txt

# Base ----------------------------------------
matplotlib>=3.2.2
numpy>=1.18.5
opencv-python>=4.1.1
Pillow>=7.1.2
PyYAML>=5.3.1
requests>=2.23.0
scipy>=1.4.1
torch>=1.7.0,!=1.12.0
torchvision>=0.8.1,!=0.13.0
tqdm>=4.41.0
protobuf<4.21.3

# Logging -------------------------------------
tensorboard>=2.4.1
# wandb

# Plotting ------------------------------------
```

GPU

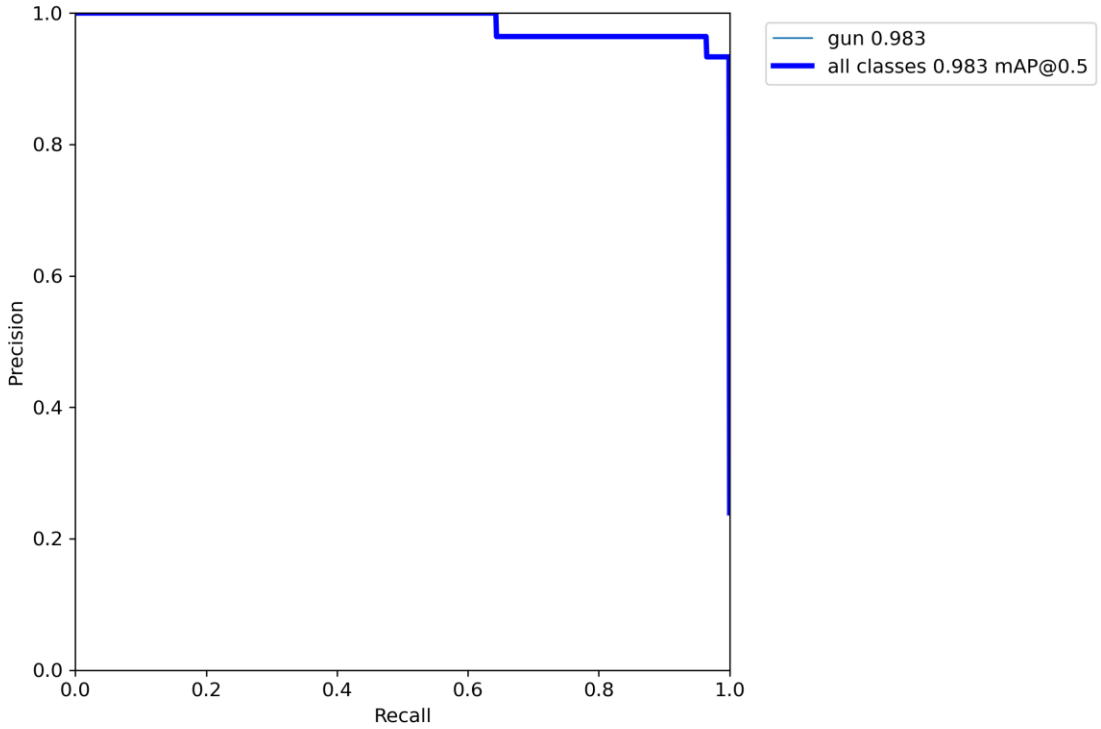
- torch
- torchvision

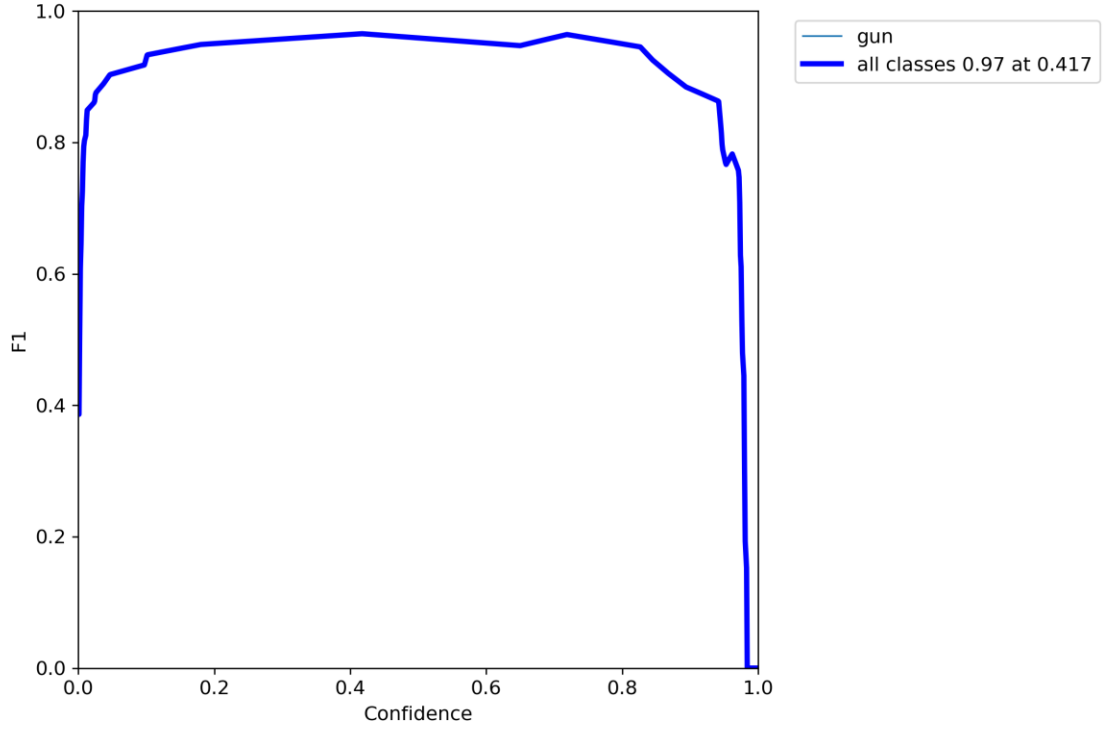
Acceleration

- pytorch-accelerated
- Yolov7-tiny

Performance

epochs

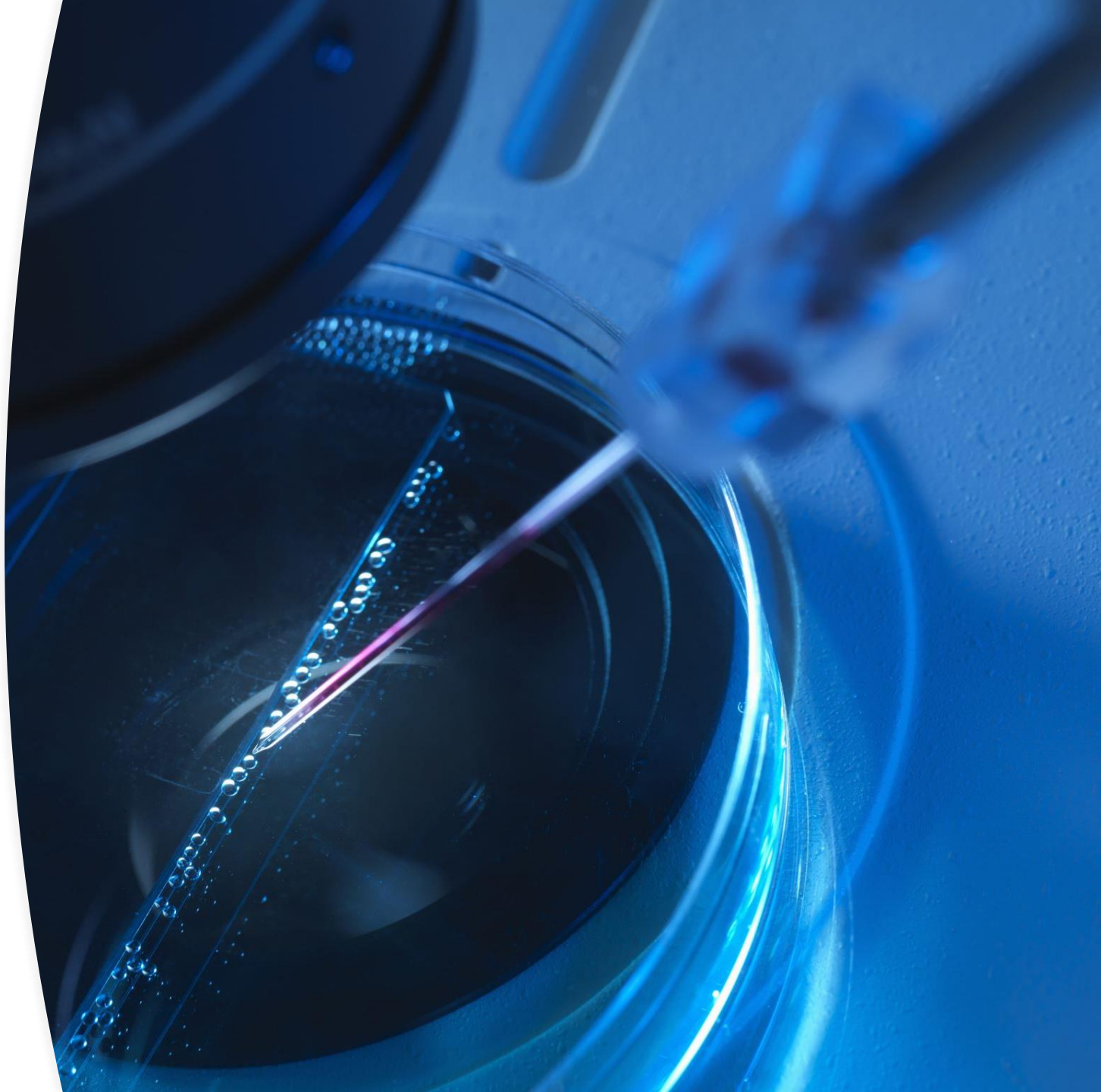


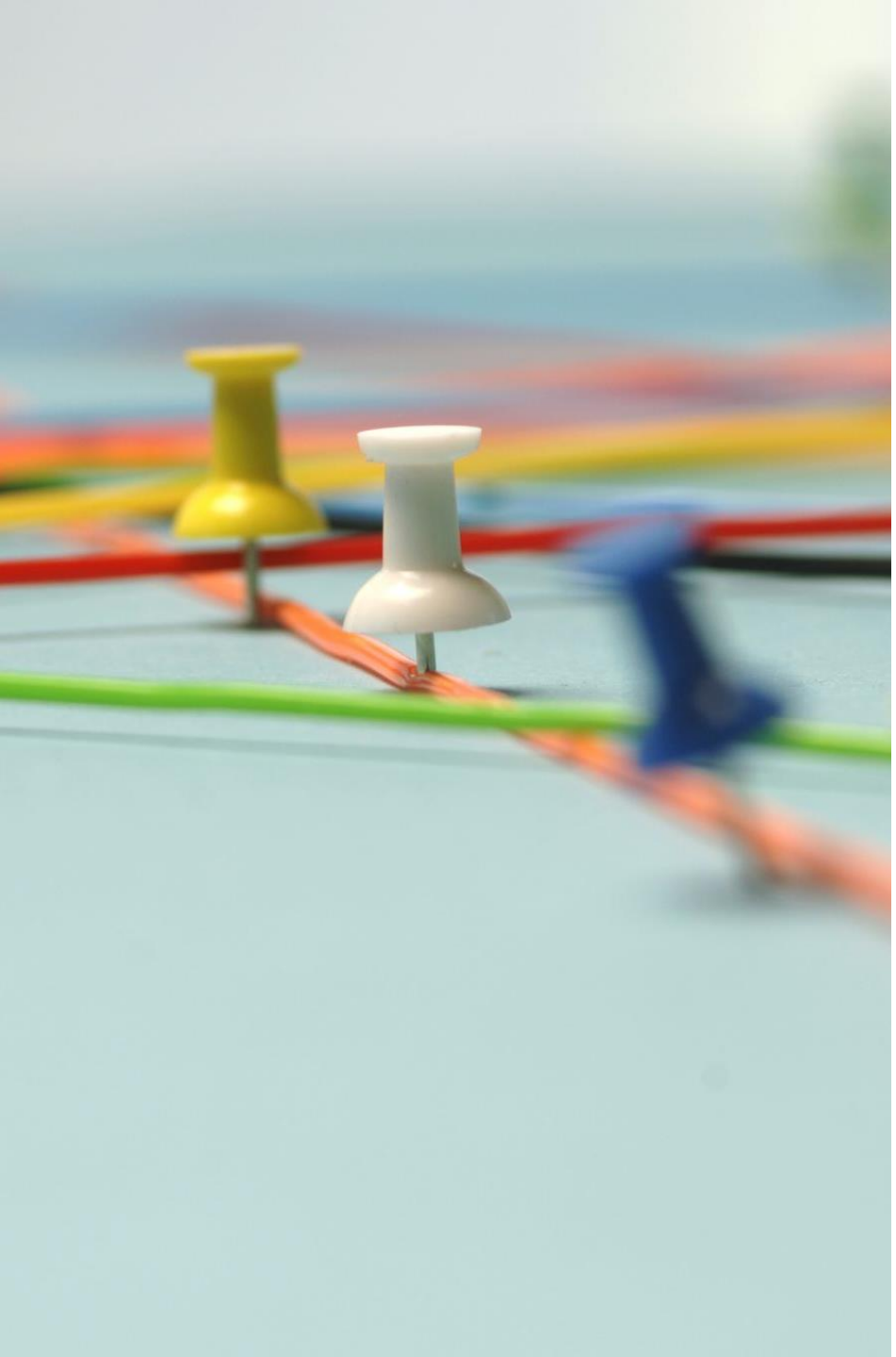



gun 0.97
gun 0.95

Challenges

- Detection for video, MP4
- Data collection





Future works

- Multiple classes objects detection

References

- https://github.com/WongKinYiu/yolov7
- https://github.com/heartexlabs/labelImg
- https://pypi.org/project/simple-image-download/