



객체 탐지 실습 using YOLOv8

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YOLOv8 from Ultralytics

- Fine-tuning 해 보기
 - 과정
 - 단계1: To prepare custom datasets
 - 이미지 데이터 준비
 - 이를 위해서는 annotation tool 사용 필요
 - 여기서는 roboflow 이용
 - <https://roboflow.com/>
 - pip install roboflow
 - 계정 필요
 - 단계2: 미세조정
 - Ultralytics에서 제공되는 YOLOv8 사전학습 모델 사용
 - <https://docs.ultralytics.com/models/yolov8/#overview>
 - pip install ultralytics
 - 단계3: Inference

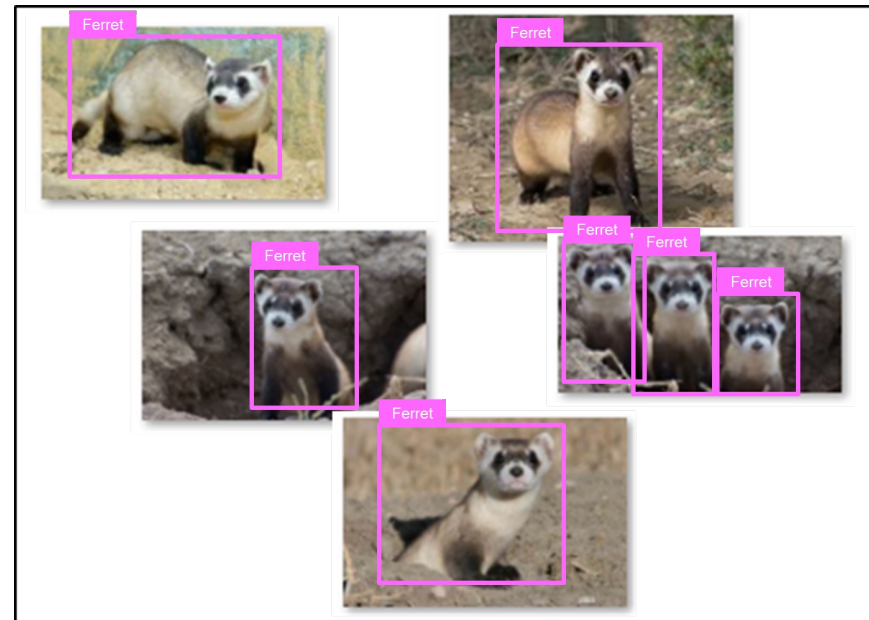
실습

- 목적(예)
 - 검은발 족제비 (black-footed ferret) 탐지
- Annotation



<with no GTBB and label>

11/27/23



<with GTBB and label>

Object detection



실습

- Raw dataset
 - ferret_toy.zip 파일 참고
- Annotation using roboflow
 - 1) 새로운 프로젝트 생성
 - 2) Upload images

+ Create New Project

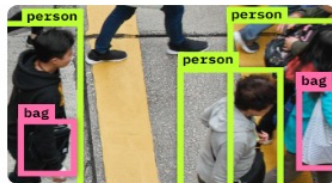
실습

Create New Project

×

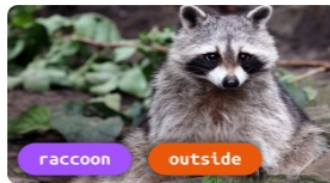
Yonsei university / [New Public Project](#)

Project Type



Object Detection

Find multiple things and their specific location.



Classification

Assign labels to the entire image.



Instance Segmentation

Detect multiple objects and their actual shape.

Show More ↓

Project Name

ferret_detection

What are you detecting? ?

ferret

License

CC BY 4.0



Create Public Project

실습

■ Upload images

- ferret_toy.zip 압축 해제후, 업로드

- 그 다음  Save and Continue

- coworker 초대 가능 

- 필요시, 작업 guideline 작성 가능

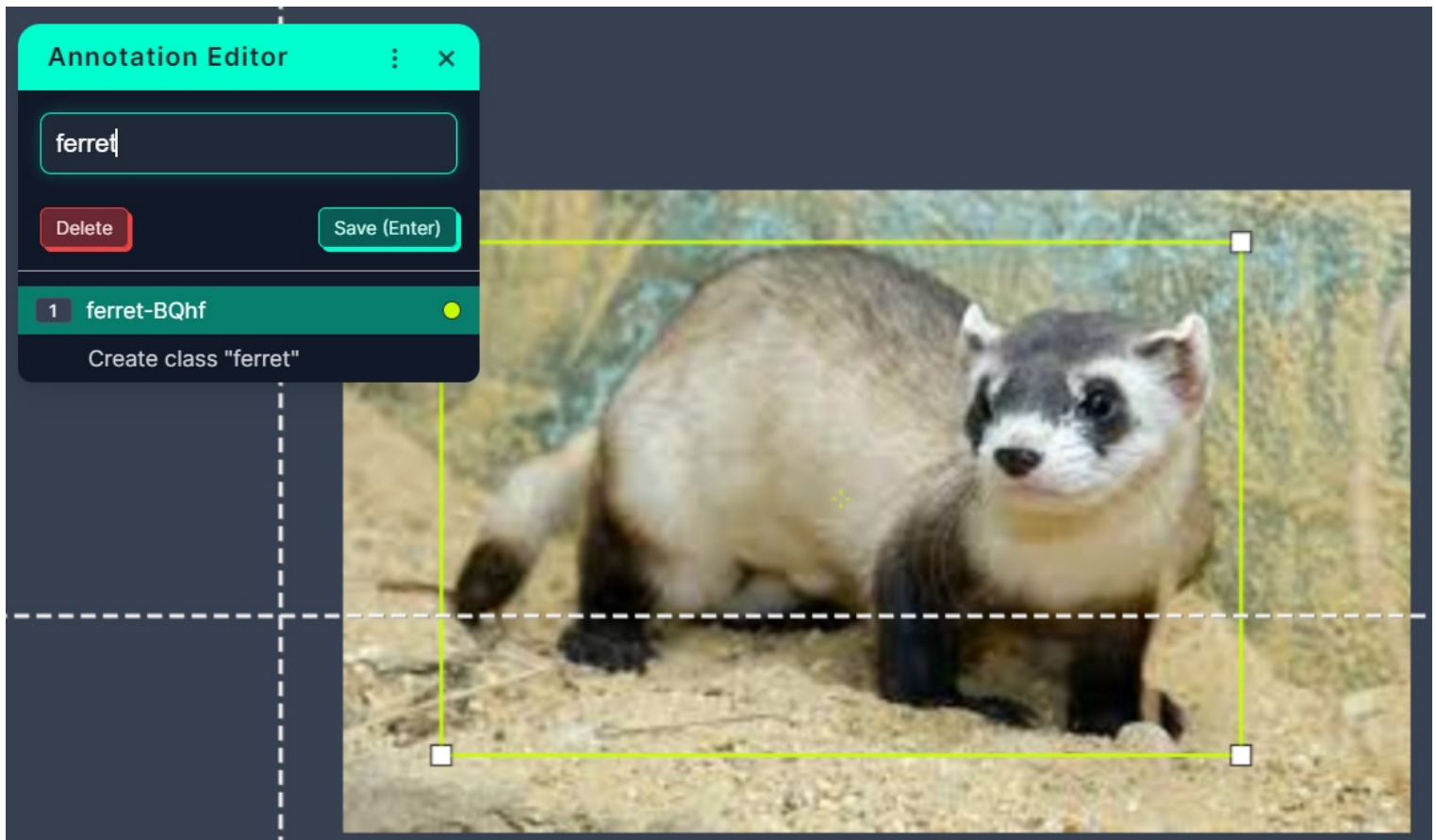
-  Assign Images

-  Start Annotating

- (작업 후 원래 페이지로 복귀)



실습



■ Annotation (cont'd)



Add 5 images to Dataset



Method

Split Images Between Train/Valid/Test



Train: 4 images

Valid: 1 images

Test: 0 images

You are about to add 5 images to the dataset

0 images will be sent back as part of a new job

Add Images

■ Annotation (cont'd)

■  Generate

■ 전처리

3

Preprocessing

Decrease training time and increase performance by applying image transformations to all images in this dataset.

Auto-Orient

Edit

×

Resize

Stretch to 640×640

Edit

×



Add Preprocessing Step

Continue

실습

- Annotation (cont'd)
 - Data augmentation

IMAGE LEVEL AUGMENTATIONS



■ Annotation (cont'd)

5

Generate

Review your selections and select a version size to create a moment-in-time snapshot of your dataset with the applied transformations.

Larger versions take longer to train but often result in better model performance. [See how this is calculated >>](#)

Maximum Version Size

13 images (3x)



Generate

■ Annotation (cont'd)

v1 2023-11-26 3:32pm
Generated on Nov 26, 2023

Export Dataset



This version doesn't have a model.

Train an optimized, state of the art model with Roboflow or upload a custom trained model to use features like Label Assist and Model Evaluation and deployment options like our auto-scaling API and edge device support.

Optional



Train with Roboflow

Available Credits: 2

Custom Train and Upload

실습

- Annotation (cont'd)
 - 데이터 다운로드

Export

×

Format

YOLO v5 PyTorch

TXT annotations and YAML config used with [YOLOv5](#).

☐ download zip to computer ☒ show download code

Cancel

Continue



실습

- 미세조정 using Ultralytics
 - “yolov8_example_for_class.ipynb” 참고
 - data.yaml 파일 수정
 - 경로 수정 필요

```
1 names:
2 - ferret
3 nc: 1
4 roboflow:
5     license: CC BY 4.0
6     project: ferret_test
7     url: https://universe.roboflow.com/yonsei-university-gu2p1,
8     version: 1
9     workspace: yonsei-university-gu2p1
10 test: test/images
11 train: train/images
12 val: valid/images
```