객체 탐지 실습 using YOLOv8

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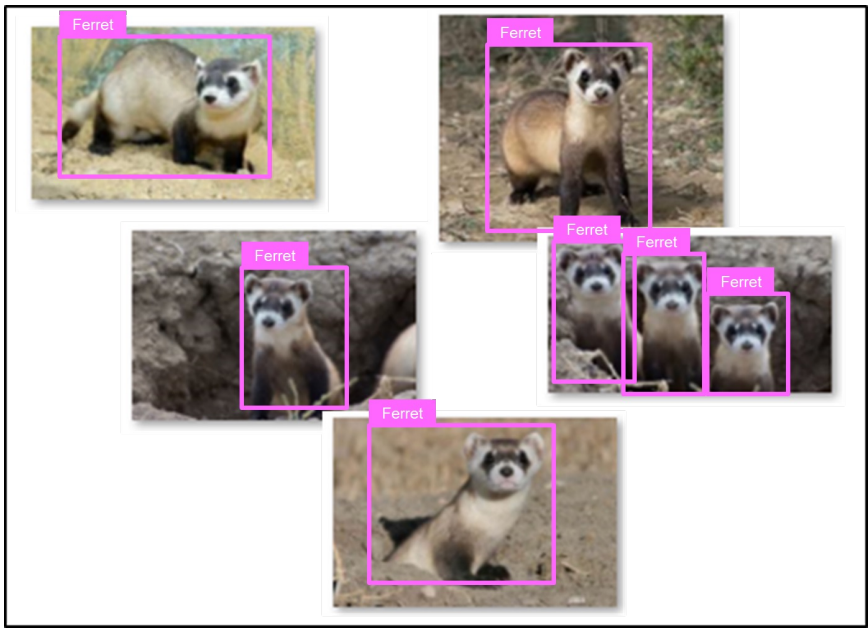
YOLOv8 from Ultralytics

- 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 모형 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>



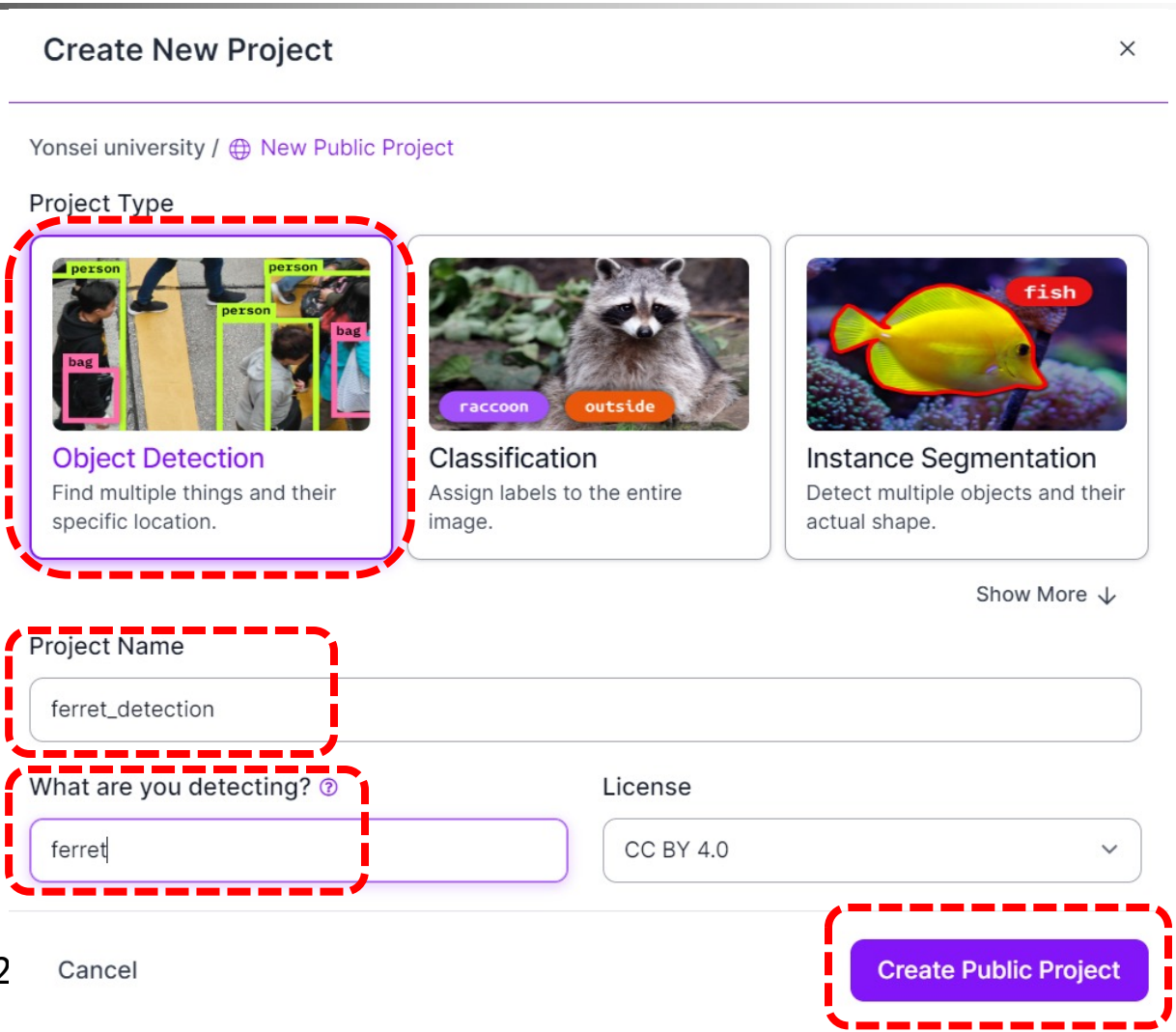
<with GTBB and label>

실습

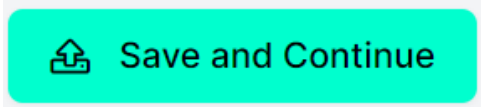
- Raw dataset
  - ferret_toy.zip 파일 참고
- Annotation using roboflow
  - 1) 새로운 프로젝트 생성 

  - 2) Upload images

실습

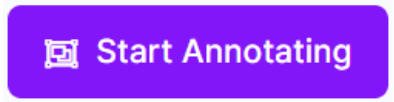

Create New Project
Yonsei university / New Public Project
Project Type
person
person
person
bag
bag
Object Detection
Find multiple things and their specific location.
raccoon
outside
Classification
Assign labels to the entire image.
fish
Instance Segmentation
Detect multiple objects and their actual shape.
Show More
Project Name
ferret_detection
What are you detecting?
ferret
License
CC BY 4.0
Cancel
Create Public Project

실습

- Upload images
  - ferret_toy.zip 압축 해제후, 업로드
  - 그 다음 

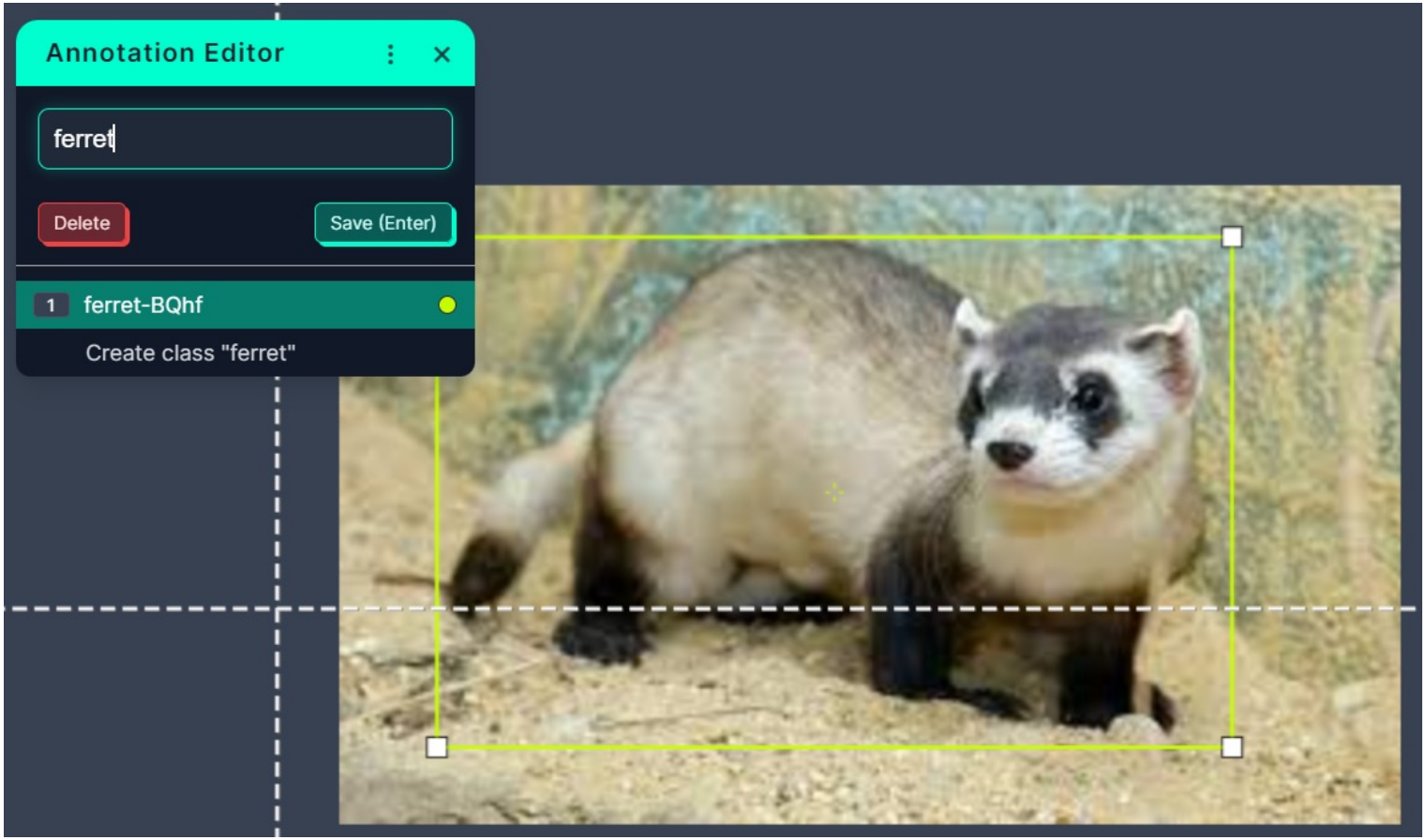
  - coworker 초대 가능 

    - 필요시, 작업 guideline 작성 가능
  - 

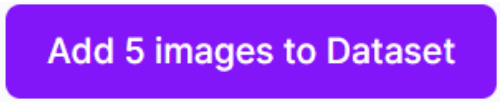
  - 

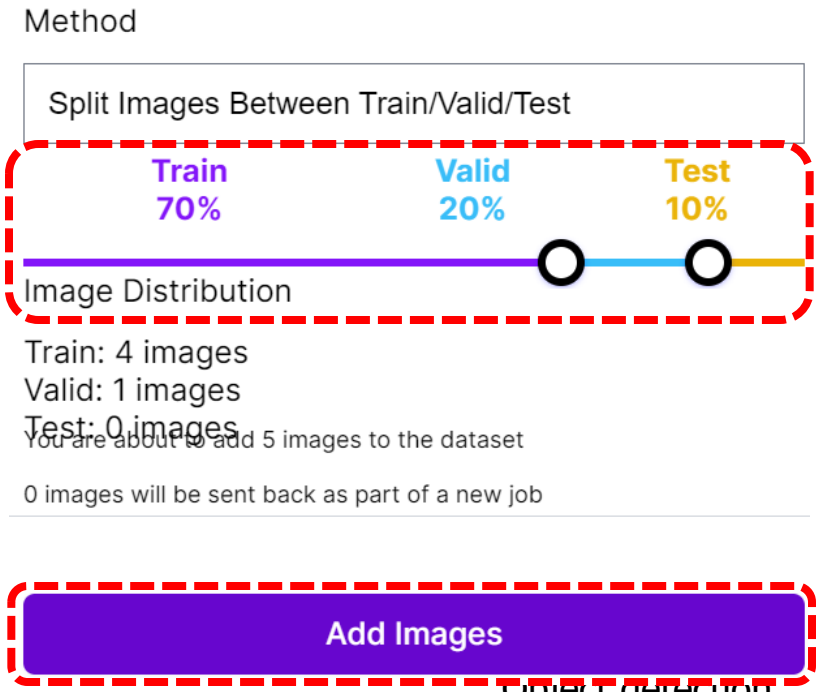
  - (작업 후 원래 페이지로 복귀) 

실습


Annotation Editor
ferret
Delete
Save (Enter)
1 ferret-BQhf
Create class "ferret"

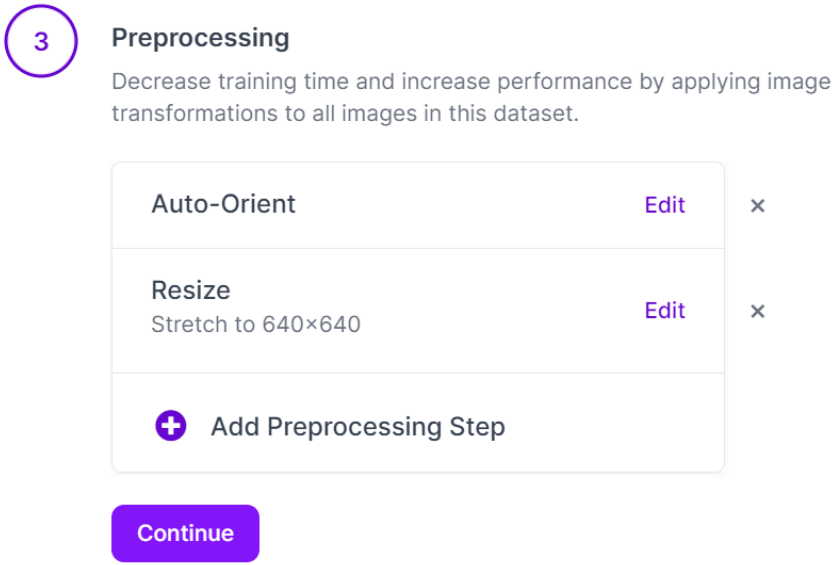
실습

- Annotation (cont'd)
  - 

  - 

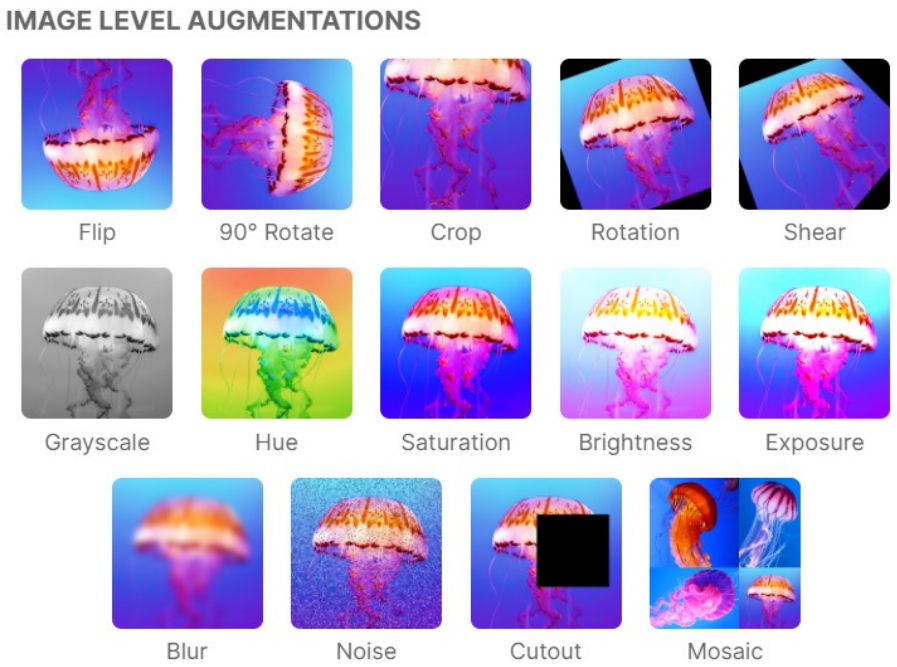
실습

- Annotation (cont'd)
  - Generate
  - 전처리



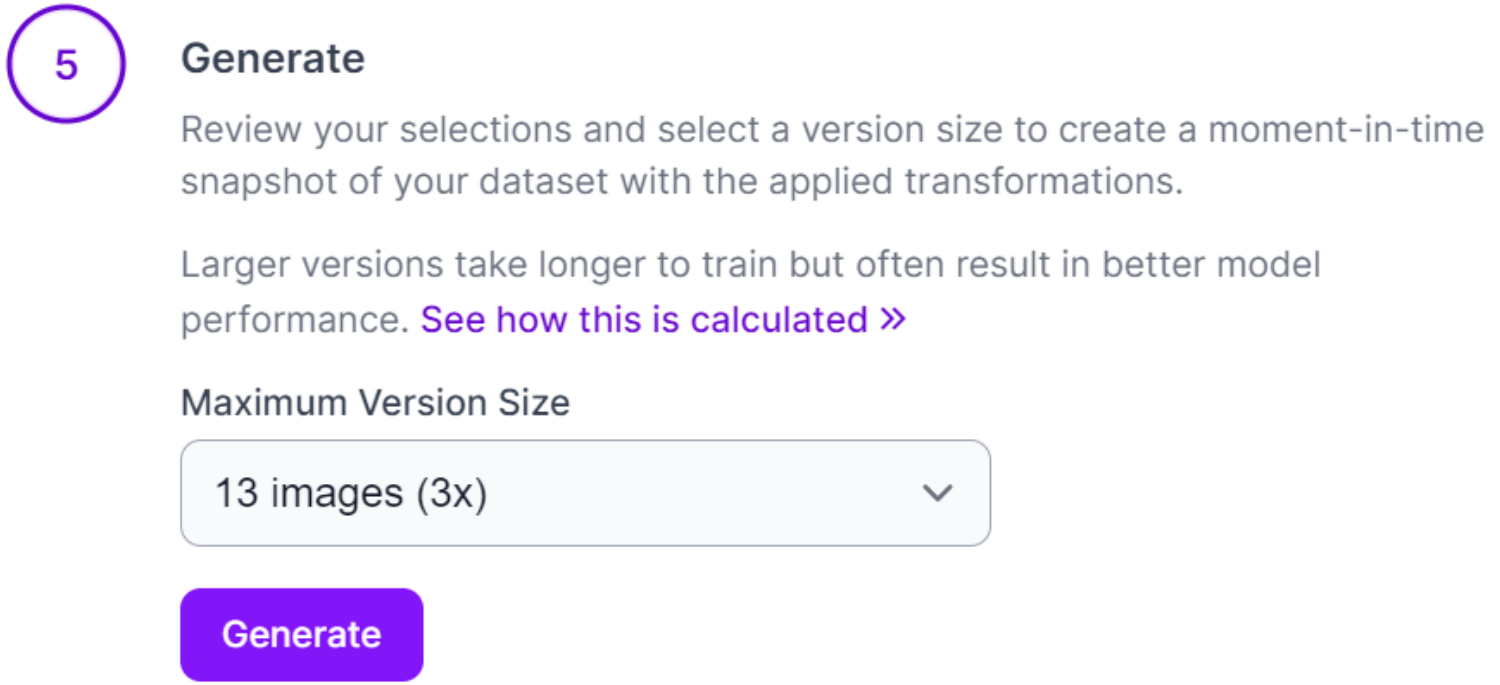
실습

- Annotation (cont'd)
  - Data augmentation



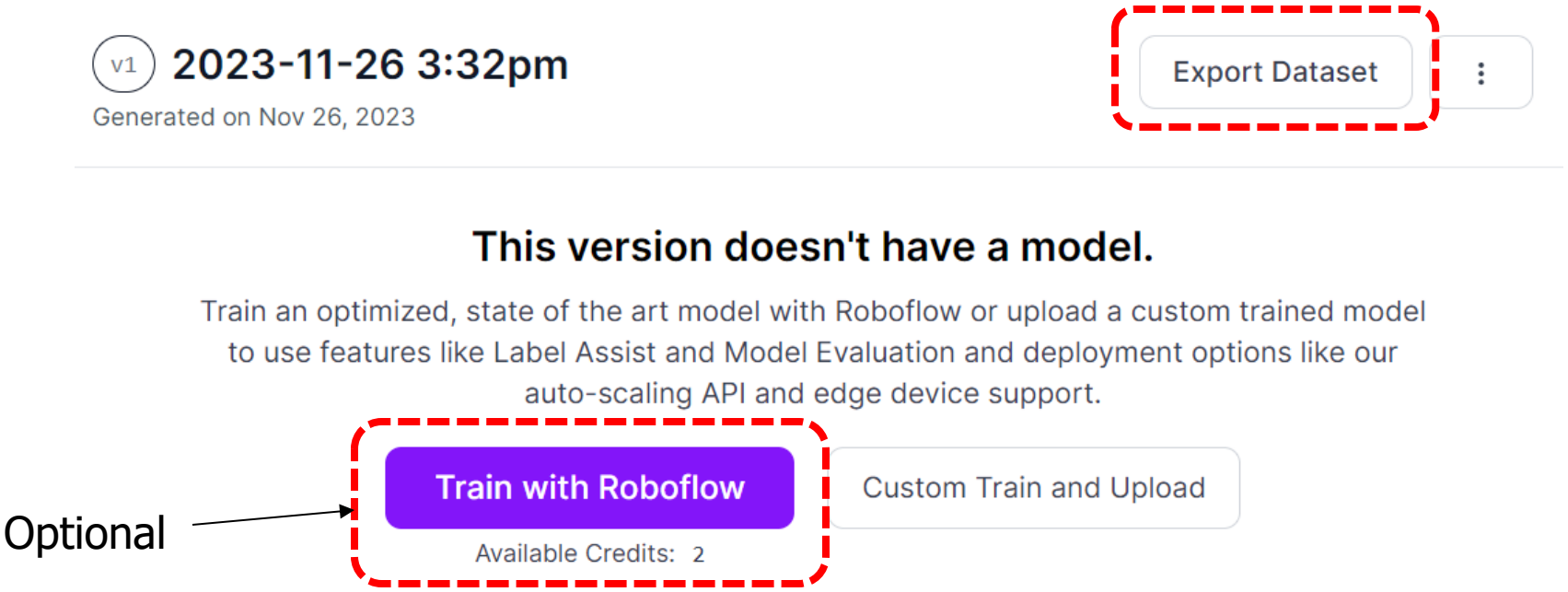
실습

- Annotation (cont'd)



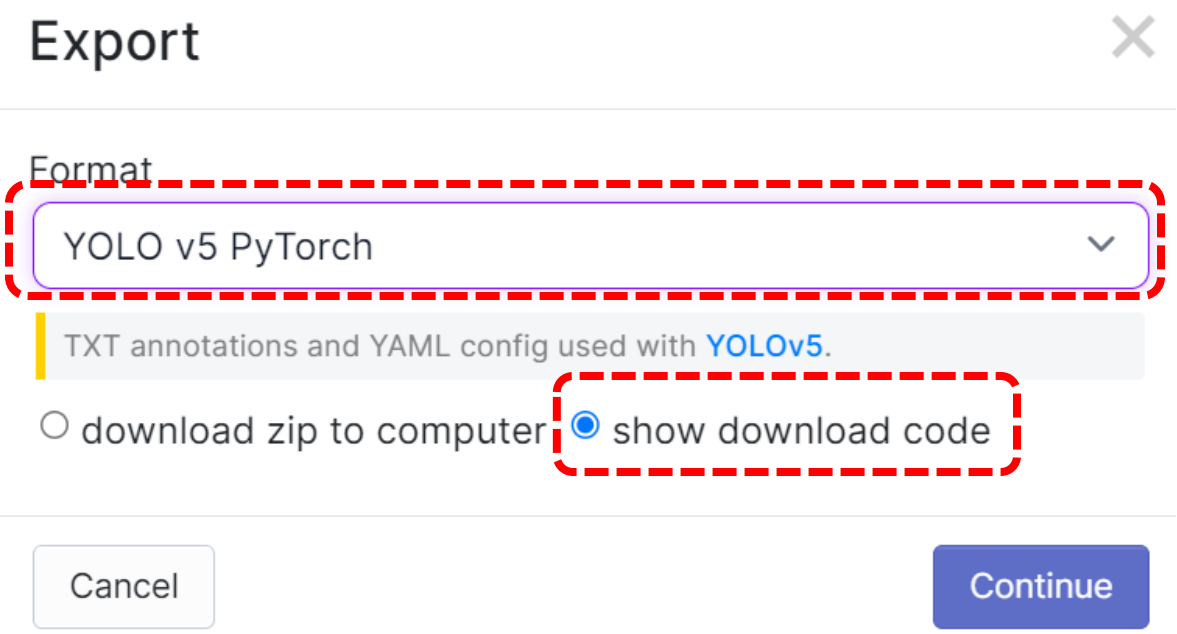
실습

- Annotation (cont'd)



실습

- Annotation (cont'd)
  - 데이터 다운로드



실습

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

```yaml
names:
- ferret
nc: 1
roboflow:
  license: CC BY 4.0
  project: ferret_test
  url: https://universe.roboflow.com/yonsei-university-gu2p1/
  version: 1
  workspace: yonsei-university-gu2p1
test: test/images
train: train/images
val: valid/images
```