**CSE499A.10 - Supervisely Related Q&A – Goal**

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**The goal of exploring Supervise.ly: Why you explored Supervise.ly?**

**Supervise.ly** is all about datasets, annotation and using them to build models. As the project is related to annotation, **Supervise.ly** was explored to see how its service works, what are the benefits and challenges. And how its working process reduces human effort in real world annotation problems.

**How this knowledge will help you to build an intelligent system?**

Knowledge of **Supervise.ly** will certainly help in approaching image annotation problems. It introduces various pretrained models for transfer learning. Each model performs best at a specific problem set. Some model performs better at classification problems and some at object detection, face recognition, semantic image segmentation etc. For example: **Mask R-CNN** is a flexible framework developed for the purpose of object instance segmentation, **YOLOv2** is an ultra-popular object detection framework for deep learning applications, Google’s **Deeplabv3** is for semantic image segmentation etc. To use a pretrained model, a person needs to know on which dataset it was trained. If it is similar to the task of that person, he can use that pretrained model. All those models are available in **Supervise.ly.** Observing results by switching to different models, a person will able to pick the right pretrained model for his task. So, the knowledge of working with **Supervise.ly** in choosing right model will greatly help building an intelligent system.

**How image annotation works and how you will implement it to your practical model?**

Image annotation for deep learning is mainly done for object detection with more precision. It is the process in which a computer automatically specifies metadata to a digital image. Typically, in this process, metadata is assigned to an image in the form of titles or keywords.

There are many types of image annotation techniques. For example: Bounding Boxes, Polygonal Segmentation, Line Annotation, Landmark Annotation, 3D Cuboids, Semantic Segmentation etc.

Semantic segmentation suits best for this project. It is a form of image annotation that involves separating an image into different regions, assigning a label to every pixel in an image.

Regions of an image that carry different semantic meanings/definitions are considered separate from other regions. For example, one portion of an image could be “sky”, while another could be “grass”. The key idea is that regions are defined based on semantic information, and that the image classifier gives a label to every pixel that comprises that region.

To implement this in practical model a CNN can be trained using image level tags so that the CNN can predict pixel-level semantic labels.

**References:**

1. <https://hackernoon.com/illuminating-the-intriguing-computer-vision-uses-cases-of-image-annotation-w21m3zfg>