Case Study

Enhanced ML model accuracy for U.S-based Real Estate Consulting firm

Client Overview

- U.S-based Real Estate, Infrastructure, and Environmental Consulting services firm that helps real estate property owners – both public and private – design efficiently, make better informed decisions about infrastructure projects, and cut project implementation costs.

Business Challenges / Need

- To help accelerate key business decisions, the client built a ML model to detects type & direction of transmission wires from 1000s of images

- For higher accuracy, the ML model must be trained with good quality annotated data

- Data Annotation involves 2 steps – a) Detect the wires from the images, b) Identify and annotate its type

- Challenge is to scale data annotation process, while keeping costs low

Solutions

- Indium built a pre-processing module that consists of wire detection and data annotation models

- RCNN and Detectron2 were used to detect the wires. LabelMe was leveraged to categorize wire type as transmission or communication and annotate them

- Our MLOps solution helped annotate 3000+ docs and convert them into VOC and COCO formats, which can be consumed directly by the ML model

- Indium helped automate model re-training with human-in-the-loop, to help find the right-fit model faster

- The MLOps solution was then containerized with AWS ECR and deployed on AWS EC2

Technology / Tools

- AWS ECR, AWS EC2, LabelMe, Python, Instance segmentation models, Mask RCNN (Region based convolutional neural networks), Detectron2

Business Impact

- **6x faster model re-deployment** with pre-processing module and auto-retraining

- **Higher ML model accuracy** realized through cost-effective data annotation combined with effective quality control mechanism that minimized human errors

- **40% lower efforts** to identify the different types of transmission wires

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