ULTIMATE VISION MODEL SEGMENT ALL

VISION SEGMENTATION WITH LANGCHAIN

HTTPS://GITHUB.COM/INSIGHTBUILDER

AI MODELS JUMPS THE BARRIER

WHY SEGMENT? A PRIMER

CHALLENGE SOLVED : DIVIDING PICTURES

ADVANTAGES OF TECHNIQUE

- REDUCES THE ENTIRE IMAGE'S COMPLEXITY
- ALLOWS FOR FURTHER PROCESSING
- IMAGE ANALYSIS OF EACH SEGMENT.
- EACH PIXEL IS LABELED.

USE CASE OF IMAGE SEGMENTATION

- OBJECT DETECTION
- IMAGE ANNOTATION OR LABELING
- COMPUTER VISION
- ROBOTIC AUTOMATION
- FACE DETECTION
- VIDEO SURVEILLANCE

- INPUT PROMPTS ARE POINTS OR BOXES
- GENERATE MASKS FOR ALL OBJECTS IN AN IMAGE.

SEGMENT - ALL : A PRIMER

CHALLENGE SOLVED : VECTORISING PICTURES

1) FACEBOOK AI RESEARCH

2) USING SEGMENT-ANYTHING LIBRARY

3) REQUIRES GPU : MODEL AVAILABLE FREE

- **DEFAULT OR VIT_H: VIT-H SAM MODEL.**
- **VIT_L: VIT-L SAM MODEL.**
- **VIT_B: VIT-B SAM MODEL.**

WHERE IT LEAVES US IN PYTHON:

A) LANGCHAIN VIA REPLICATE

B) METASEG

HTTPS://REPLICATE.COM/PABLODAWSON/SEGMENT-ANYTHING-AUTOMATIC/API

HTTPS://REPLICATE.COM/FACEBOOKRESEARCH/MASK2FORMER/API

CONVERTING PICS INTO NUMBERS

```
FROM METASEG IMPORT SEGAUTOMASKGENERATOR
AUTOSEG_IMAGE =
SEGAUTOMASKGENERATOR().SAVE_IMAGE(
 SOURCE="/CONTENT/ROSEBUD-
6006985_1280.JPG",
 MODEL_TYPE="VIT_L",
 POINTS_PER_SIDE=8,
 POINTS_PER_BATCH=32,
 MIN_AREA=0,
)
```

```
FROM SEGMENT_ANYTHING IMPORT SAMPREDICTOR
FROM SEGMENT IMPORT SAM_MODEL_REGISTRY,
SAMAUTOMATICMASKGENERATOR
SAM = SAM_MODEL_REGISTRY["VIT_L"]
(CHECKPOINT="/CONTENT/VIT_L.PTH")
MASK_GENERATOR = SAMAUTOMATICMASKGENERATOR(SAM)
IMAGE = CV2.IMREAD('/CONTENT/ROSEBUD.JPG')
IMAGE = CV2.CVTCOLOR(IMAGE, CV2.COLOR_BGR2RGB)
MASKS = MASK_GENERATOR.GENERATE(IMAGE)
```

```
IMPORT REPLICATE
OUTPUT = REPLICATE.RUN(
 "PABLODAWSON/SEGMENT-ANYTHING-AUTOMATIC:******",
 INPUT={"IMAGE": OPEN("/CONTENT/ROSEBUD-6006985_1280.JPG", "RB")})
>> HTTPS://REPLICATE.DELIVERY/PBXT
```

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USING NUMBERS AS PROMPT

```
FROM SEGMENT_ANYTHING IMPORT SAMPREDICTOR
FROM SEGMENT IMPORT SAM_MODEL_REGISTRY, SAMAUTOMATICMASKGENERATOR
SAM = SAM_MODEL_REGISTRY["VIT_L"](CHECKPOINT="/CONTENT/VIT_L.PTH")
PREDICTOR = SAMPREDICTOR(SAM)
PREDICTOR.SET_IMAGE(IMAGE)
PROMPT:
INPUT_POINT = NP.ARRAY([[500, 375]])
LABEL:
INPUT_LABEL = NP.ARRAY([1])
MASKS, SCORES, LOGITS = PREDICTOR.PREDICT(
 POINT_COORDS=INPUT_POINT,
 POINT_LABELS=INPUT_LABEL,
 MULTIMASK_OUTPUT=TRUE,
)
```

CONVERTING PICS INTO NUMBERS

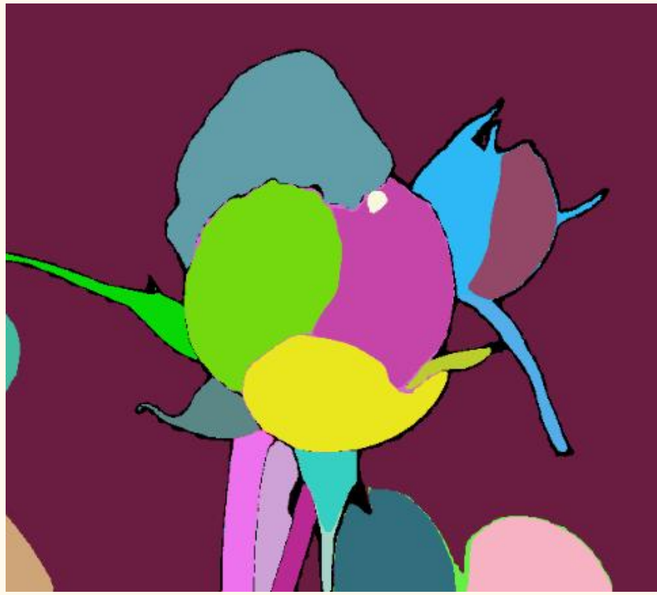
```
IMPORT REPLICATE

OUTPUT = REPLICATE.RUN(

 "PABLODAWSON/SEGMENT-ANYTHING-AUTOMATIC:******",

 INPUT={"IMAGE": OPEN("/CONTENT/ROSEBUD-6006985_1280.JPG", "RB")})

>> HTTPS://REPLICATE.DELIVERY/PBXT/*****
```



```
IMPORT REPLICATE

OUTPUT = REPLICATE.RUN(

"PABLODAWSON/SEGMENT-ANYTHING-AUTOMATIC:*****",

INPUT={"IMAGE": OPEN("/CONTENT/ROSEBUD-6006985_1280.JPG", "RB")})

>> HTTPS://REPLICATE.DELIVERY/PBXT/*****
FROM LANGCHAIN.LLMS IMPORT REPLICATE

FROM LANGCHAIN IMPORT PROMPTTEMPLATE, LLMCHAIN

REPLICATE(MODEL="STABILITY-AI/STABLE-DIFFUSION:*********",

          INPUT={'IMAGE_DIMENSIONS': '512X512'})
```

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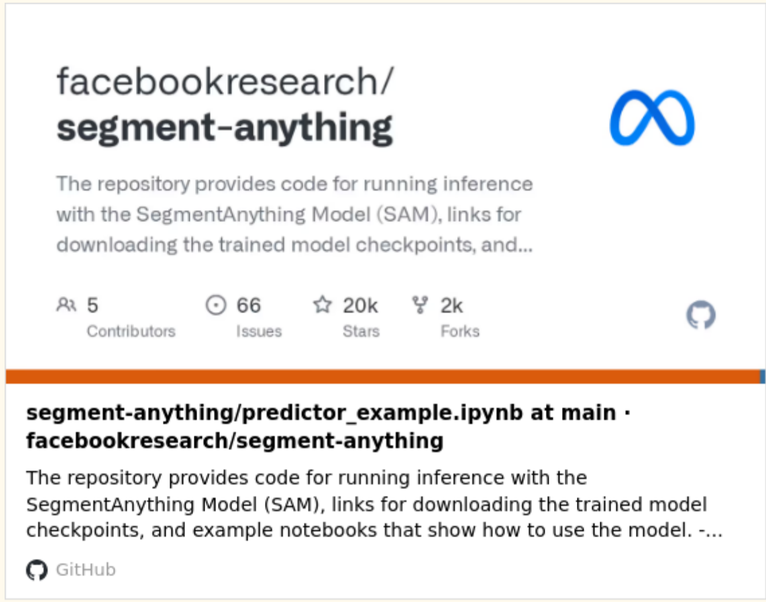
LETS HEAD TO COLAB

NOW WE ARE TALKING!!! PRACTICE

CODE WILL DOWNLOAD

1 ~ 4 GB MODEL!!!!

REQUIRE REPLICATE KEY



THANKS FOR WATCHING

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