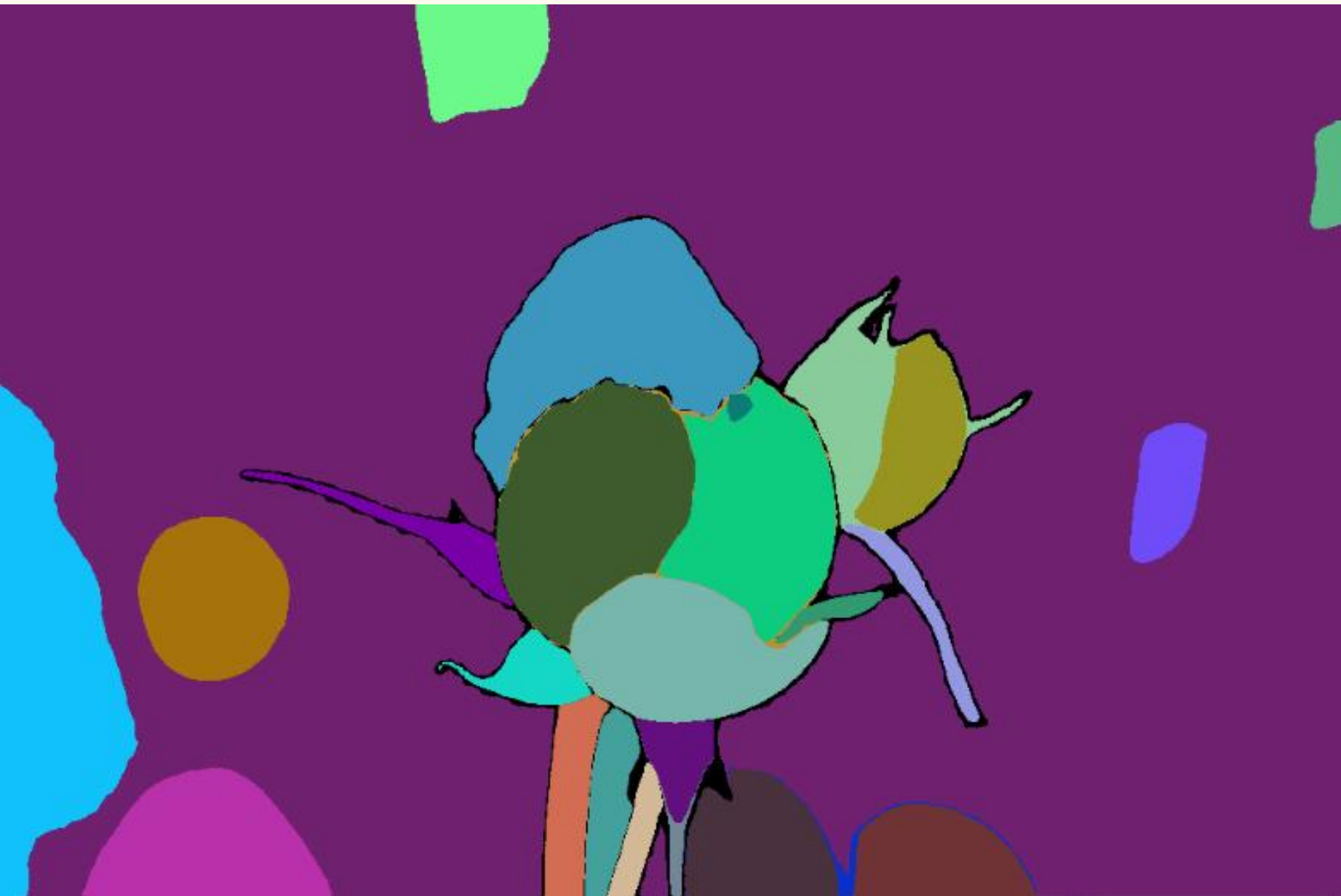


# ULTIMATE VISION MODEL SEGMENT ALL



[HTTPS://GITHUB.COM/INSIGHTBUILDER](https://github.com/insightbuilder)



## VISION SEGMENTATION WITH LANGCHAIN



# AI MODELS JUMPS THE BARRIER

**PHYSICAL  
WORLD**

**DIGITAL  
WORLD**





# **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.** [HTTPS://REPLICATE.COM/PABLODAWSON/SEGMENT-](https://replicate.com/pablo dawson/segment-anything-automatic/api)

WHERE IT LEAVES US IN PYTHON:

[ANYTHING-AUTOMATIC/API](https://replicate.com/pablo dawson/segment-anything-automatic/api)

A) LANGCHAIN VIA REPLICATE

[HTTPS://REPLICATE.COM/FACEBOOKRESEARCH/MASK2FO](https://replicate.com/facebookresearch/mask2former/api)

B) METASEG

[RMER/API](https://replicate.com/facebookresearch/mask2former/api)

[HTTPS://GITHUB.COM/INSIGHTBUILDER](https://github.com/insightbuilder)

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

```
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)
```

# 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/*****
```

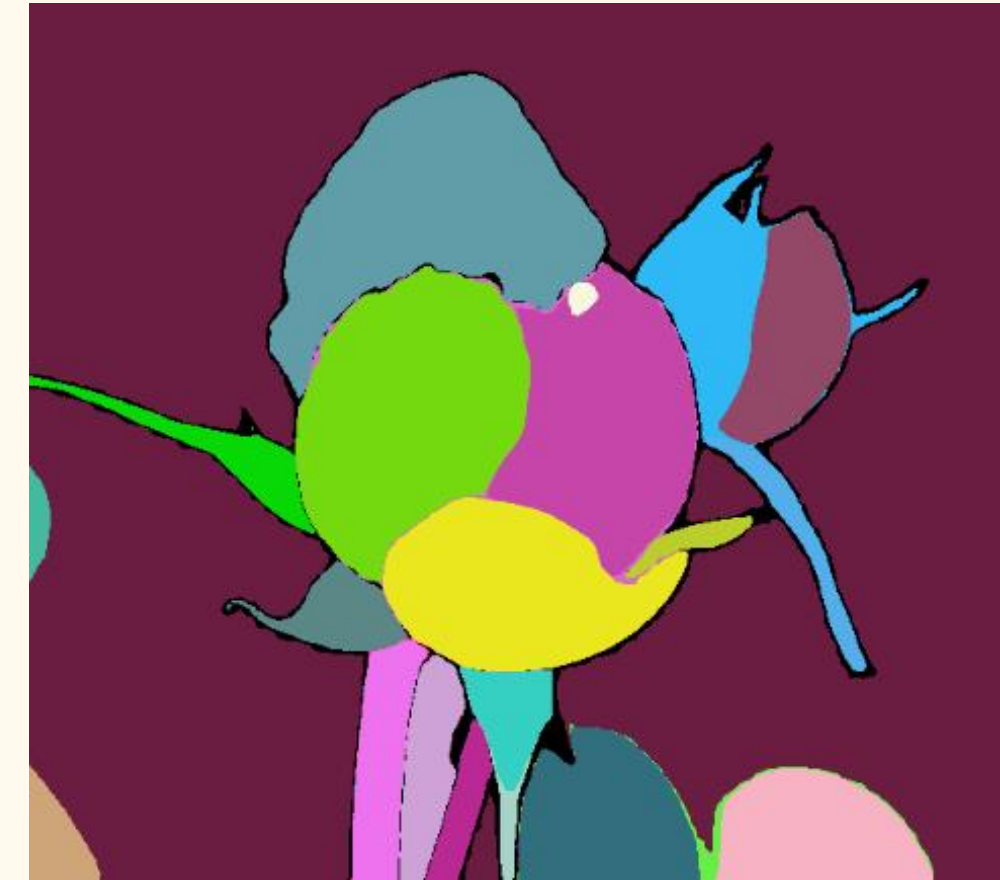
```
IMPORT REPLICATE
```

```
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'})
```



[HTTPS://GITHUB.COM/INSIGHTBUILDER](https://github.com/insightbuilder)

# LETS HEAD TO COLAB

**NOW WE ARE TALKING!!! PRACTICE**

**CODE WILL DOWNLOAD**

**1 ~ 4 GB MODEL!!!!**

**REQUIRE REPLICATE KEY**

insightbuilder/  
**python\_de\_learners\_data**



Repo contains the code, data and supporting documents including presentations, playbooks and additional documents to support learning

2Contributors

0Issues

13Stars

4Forks




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**python\_de\_learners\_data/exploring\_metaseg\_lc\_ver01.ipynb at main · insightbuilder/python\_de\_learners\_data**

Repo contains the code, data and supporting documents including presentations, playbooks and additional documents to support learning - python\_de\_learners\_data/exploring\_metaseg\_lc\_ver01.ipynb at m...

 GitHub

facebookresearch/  
**segment-anything**




The repository provides code for running inference with the SegmentAnything Model (SAM), links for downloading the trained model checkpoints, and...

5Contributors

66Issues

20kStars


2kForks



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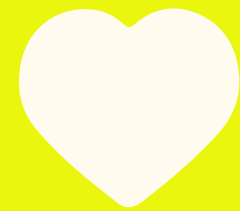
**segment-anything/predictor\_example.ipynb at main · facebookresearch/segment-anything**

The repository provides code for running inference with the SegmentAnything Model (SAM), links for downloading the trained model checkpoints, and example notebooks that show how to use the model. -...

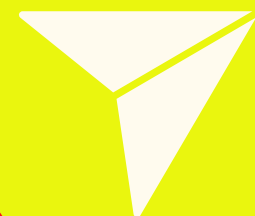
 GitHub



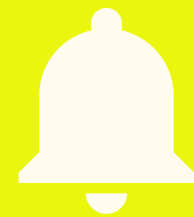
# THANKS FOR WATCHING



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