



VISION VERSE:

A VISIONARY JOURNEY IN IMAGE PROCESSING

Project Need and Scope

You will be introduced to fundamental image processing techniques that will empower you with the ability to enhance and manipulate digital images and also provide you with skills for tasks like image restoration, feature extraction, and object recognition, essential in fields ranging from medical imaging to computer vision

DEBLURRING
A PICTURE
USING
PHOTOSHOP



DEBLURRING
A PICTURE
USING AN OPEN
CV PACKAGE



IMPLEMENTING
YOUR OWN
DEBLURRING METHOD
ON PYTHON



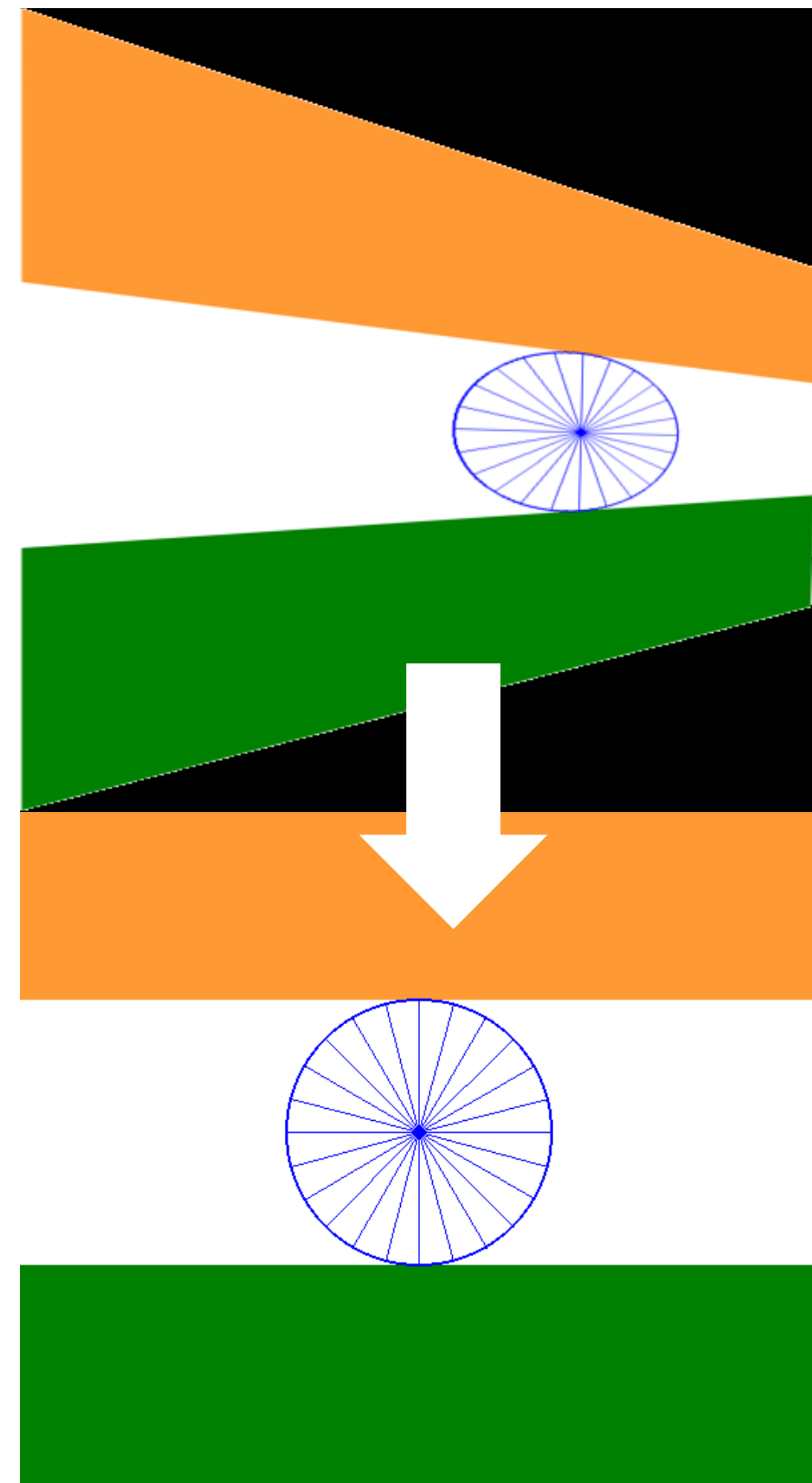
GUESSING THE SHAPE
OF THE BLUR KERNEL
AND CORRECT EVERY
PIXEL ONE BY ONE



TRYING EVERY VALUE
FOR EVERY PIXEL
AND HOPING THE UNBLUR
IMAGE WILL APPEAR



FINDING WHERE THE
PHOTOGRAPH WAS TAKEN
AND SHOOT A NEW ONE





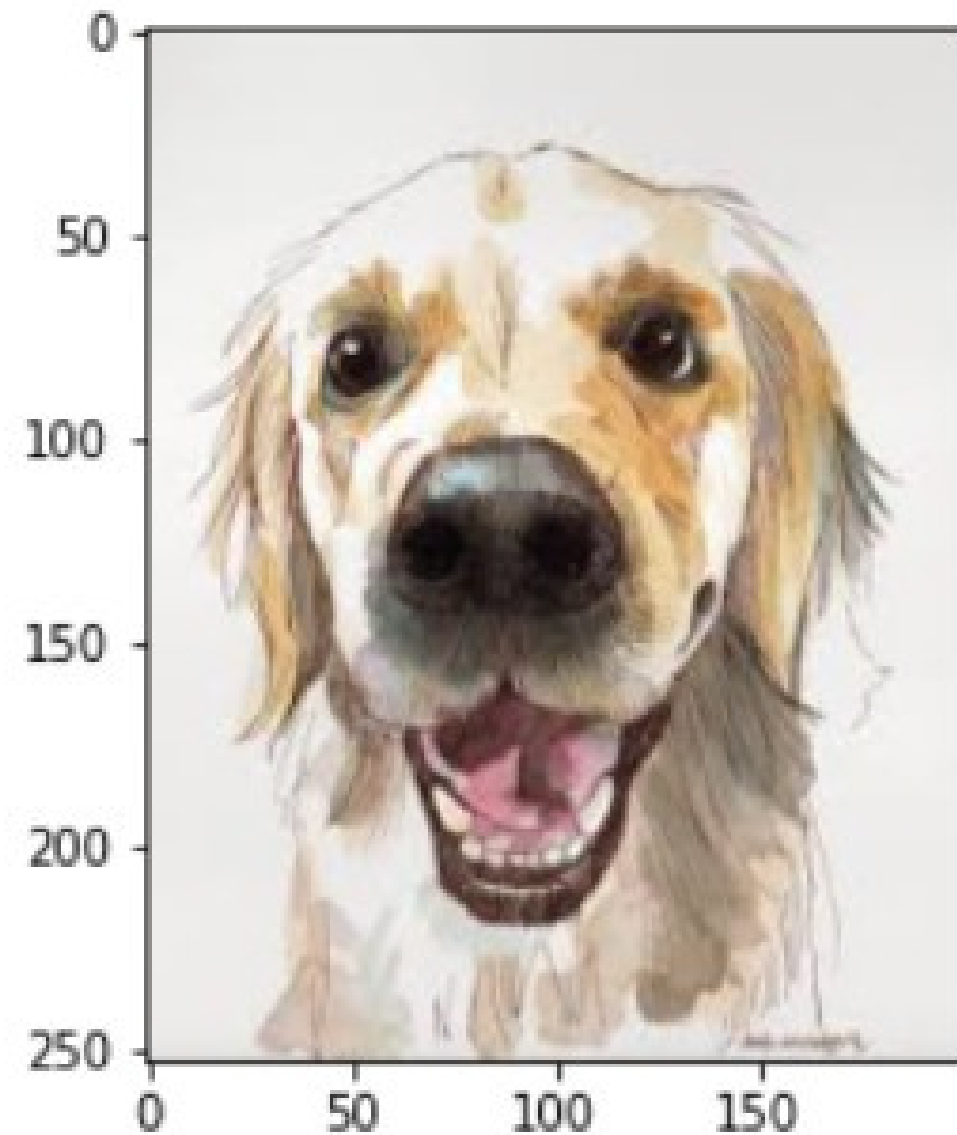
PROJECT TIMELINE

All the weeks will be followed by exercises related to the concepts covered where you will learn real life implementation of the techniques.



WEEK 01

Introduction to basic Python programming and its libraries: NumPy, Pandas, Matplotlib.



```
fig, axs = plt.subplots(nrows=1, ncols=3, figsize=(20,8))
```

```
for c, ax in zip(range(3), axs):  
    rgb_img = np.zeros(image.shape, dtype="uint8")  
    rgb_img[:, :, c] = image[:, :, c]  
    ax.imshow(rgb_img)  
    ax.set_axis_off()
```

Output:



WEEK 02

Understanding of Sampling and Quantization of Image

○ Input



○ Sampling



○ Quantization



WEEK 03

Techniques for Edge Detection Canny edge detection, Hough Transform

original image



Final Image



WEEK 04

Image Filtering Gaussian, Median, Bilateral, Box filter



WEEK 05

Techniques for Image Segmentation Otsu, Region Growing, K-Means, Watershed



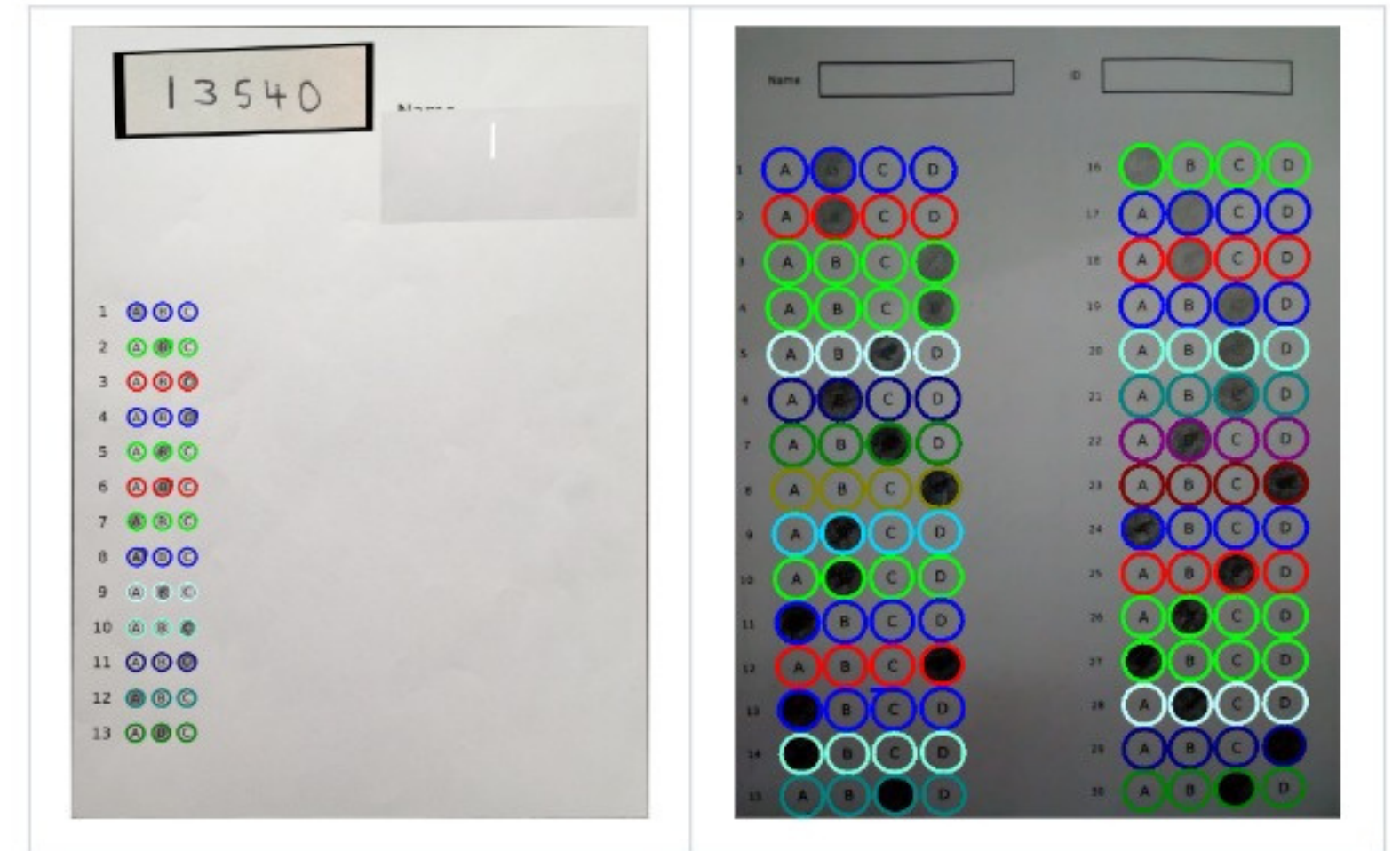
WEEK 06

A self project for the mentees covering all the related topics taught

Grade Auto-filler



Don't like the project idea?
Don't worry!!! New suggestions
are always welcomed..



Evaluation

Ratification would be given on the basis of number of assignments completed before deadline

MID-TERM EVALUATION:

A small presentation of encompassing the learnings of the first 3 week in the project and some assignments

END-TERM EVALUATION:

It will be based on the basis on the self project done by the mentees .The mentees will be evaluated for creativity and novelty.





Duration of Project: Around 1.5 months

Expected Number of Assignments: 6 (one every week)

One live doubt session every week



Weekly Time Commitment: 5–6 hours

PREREQUISITE REQUIRED

NONE!!!!!!!!!!



All required is your enthu



PROJECT MENTORS

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THANK YOU