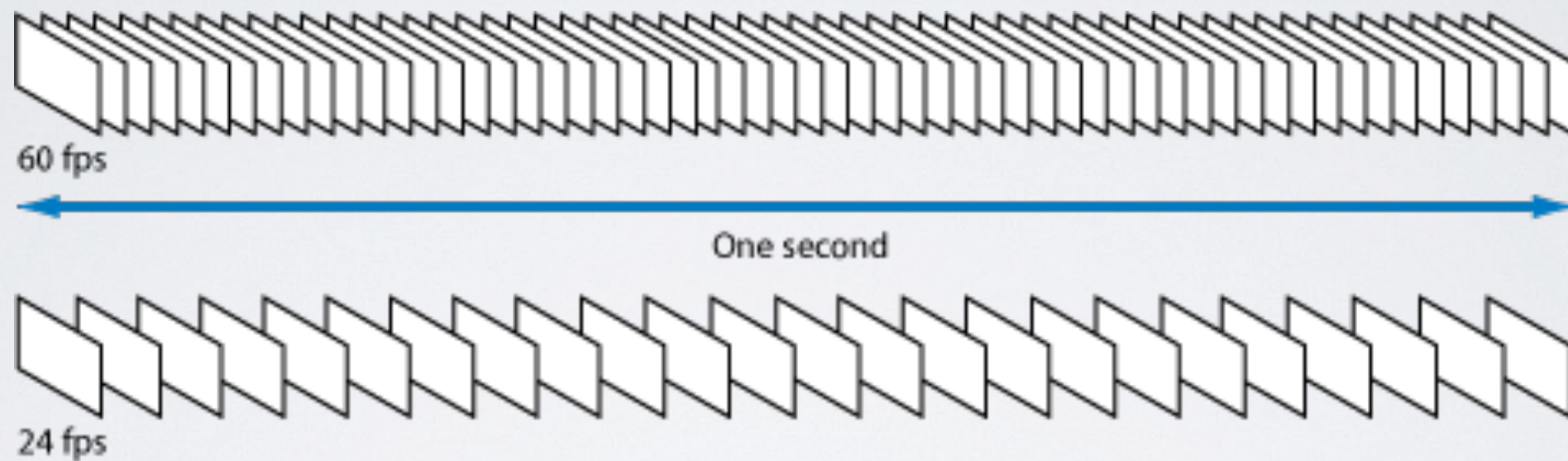


FRAME RATE CHANGER

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What is FPS?



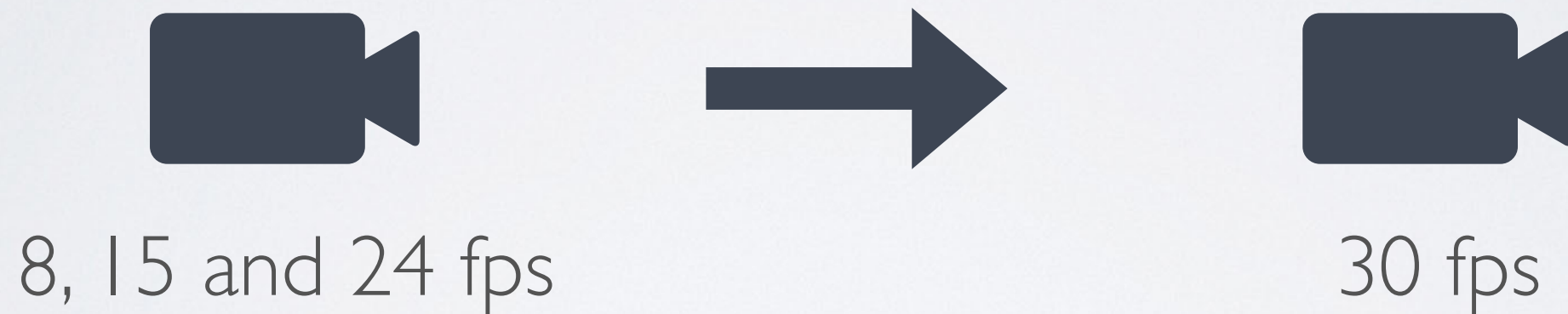
The number of frames for each second.

AIM: Increasing FPS

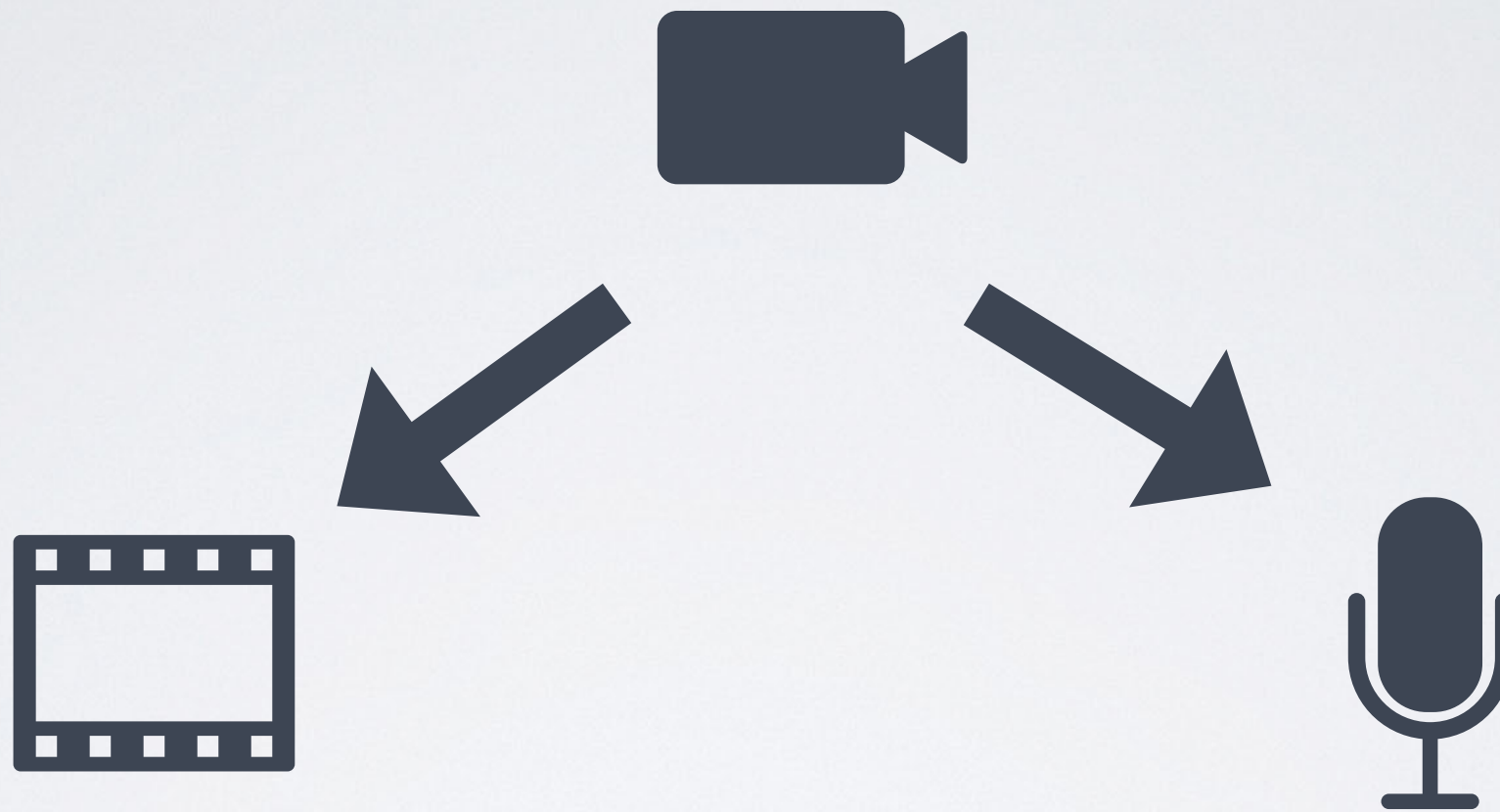


The higher the FPS is, the more fluent the view is.

We convert lower FPS videos to the higher FPS videos.

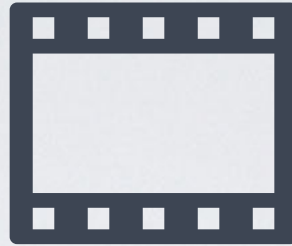


We separated the **video** and the **voice** first.



We apply our algorithm in **MATLAB** for the video.

After the process of video, we combine the voice and the video with a **Python** code.



We used **linear interpolation** method.



First Frame



Transition Frame
that we generate

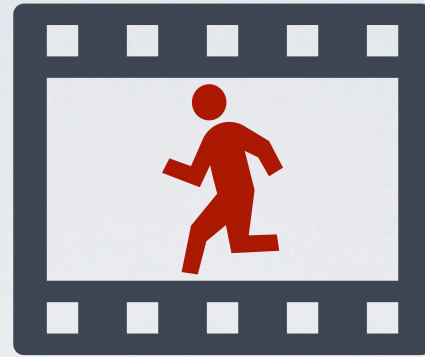


Second Frame



However, generated frame that occurs with only linear interpolation, is not the real transition frame. It contains **blurriness**.

So, we decide to make **motion estimation** to remove this blurriness.



We make **motion estimation**, then use **linear interpolation** to move this motion.



Motion Field in
First Frame



**Motion Field in
Transition Frame**



Motion Field in
Second Frame



We use
Demons Algorithm

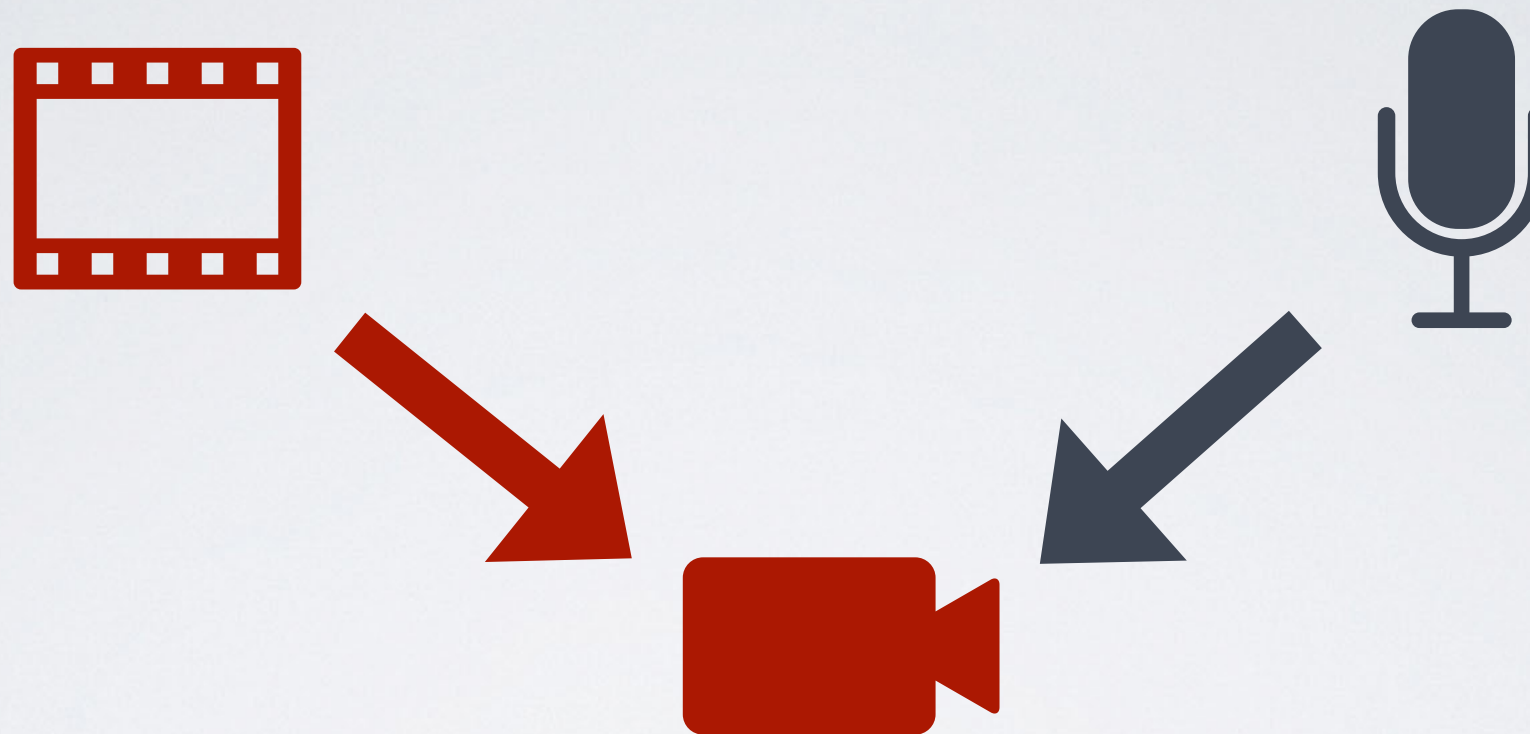
To produce this
Deformation Field



After all of them,

We apply **Median filtering**
to clean up the final frames.

In the end, we combine the **video** and the **voice** back.



To make this process, we used **Python**.

```
import subprocess

def our_function():
    FFmpeg_BIN = "ffmpeg"
    command = [ FFmpeg_BIN,
                 '-i', 'sil.avi',
                 '-i', 'sil.wav',
                 '-c', 'copy',
                 'out.MOV']
    subprocess.call(command, stdin=None, stdout=None, stderr=None, shell=False)
    command = ["rm", 'sil.avi', 'sil.wav']
    subprocess.call(command, stdin=None, stdout=None, stderr=None, shell=False)
our_function()
```


THANK YOU!

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