

```
import imageio.v3 as iio
import numpy as np
import matplotlib.pyplot as plt

video_path = "/content/MV Assignment 4 recording.mp4"
frames = []
for frame in iio.imiter(video_path):
    frames.append(np.array(frame))

motion_threshold = 10000
event_frames = []
timestamps = []
fps = 24

def frame_difference(prev_frame, curr_frame):
    diff_frame = np.abs(prev_frame.astype(np.int16) - curr_frame.astype(np.int16))
    return np.sum(diff_frame)

for i in range(1, len(frames)):
    prev_frame = frames[i - 1]
    curr_frame = frames[i]

    motion_intensity = frame_difference(prev_frame, curr_frame)

    if motion_intensity > motion_threshold:
        event_frames.append(curr_frame)
        timestamps.append(i / fps)

print("Events detected at the following timestamps (seconds):")
print(timestamps)
```

→ Events detected at the following timestamps (seconds):
[0.04166666666666664, 0.083333333333333, 0.125, 0.1666666666666666, 0.208333333333334, 0.25, 0.291666666666667, 0.333333333333334]

```
for i, event_frame in enumerate(event_frames):
    plt.figure()
    plt.imshow(event_frame)
    plt.title(f"Event at {timestamps[i]:.2f} seconds")
    plt.axis('off')
plt.show()
```

ipython-input-24-cd3f0f626916>:2: RuntimeWarning: More than 20 figures have been opened. Figures created through the pyplot interface plt.figure()

Event at 0.04 seconds



Event at 0.08 seconds



Event at 0.12 seconds



Event at 0.17 seconds



Event at 0.21 seconds





Event at 0.25 seconds



Event at 0.29 seconds



Event at 0.33 seconds



Event at 0.38 seconds



Event at 0.42 seconds





Event at 0.46 seconds



Event at 0.50 seconds



Event at 0.54 seconds



Event at 0.58 seconds



Event at 0.62 seconds





Event at 0.67 seconds



Event at 0.71 seconds



Event at 0.75 seconds



Event at 0.79 seconds



Event at 0.83 seconds





Event at 0.88 seconds



Event at 0.92 seconds



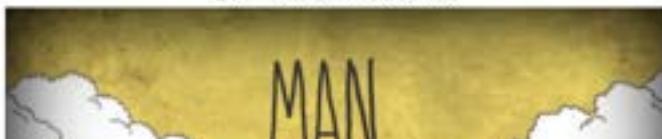
Event at 0.96 seconds



Event at 1.00 seconds



Event at 1.04 seconds





Event at 1.08 seconds



Event at 1.12 seconds



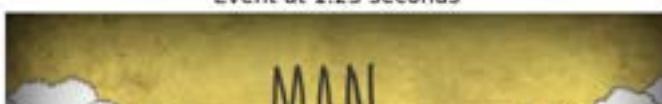
Event at 1.17 seconds



Event at 1.21 seconds



Event at 1.25 seconds





Event at 1.29 seconds



Event at 1.33 seconds



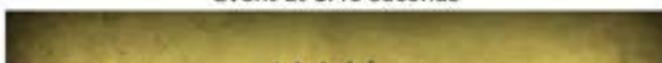
Event at 1.38 seconds



Event at 1.42 seconds



Event at 1.46 seconds





Event at 1.50 seconds



Event at 1.54 seconds



Event at 1.58 seconds



Event at 1.62 seconds



Event at 1.67 seconds



Event at 1.71 seconds



Event at 1.75 seconds



Event at 1.79 seconds



Event at 1.83 seconds



Event at 1.88 seconds



Event at 1.92 seconds



Event at 1.96 seconds



Event at 2.00 seconds



Event at 2.04 seconds



Event at 2.08 seconds



Event at 2.12 seconds



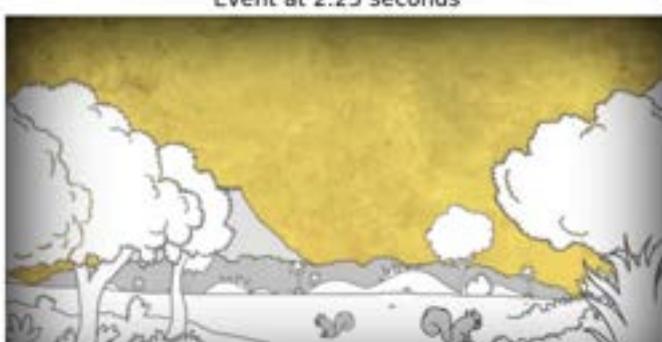
Event at 2.17 seconds

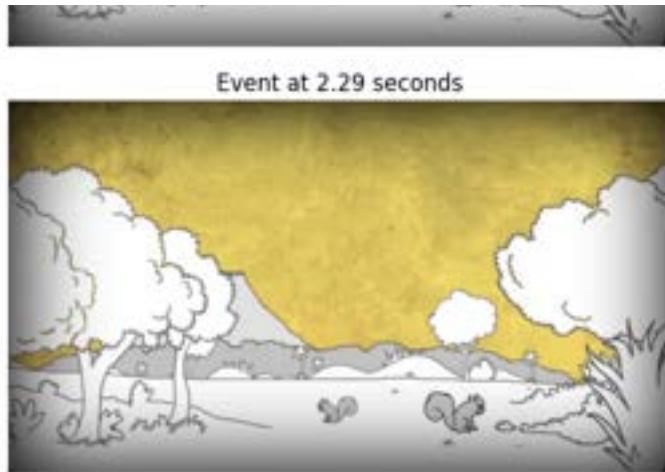


Event at 2.21 seconds



Event at 2.25 seconds





Event at 2.29 seconds



Event at 2.33 seconds



Event at 2.38 seconds



Event at 2.42 seconds



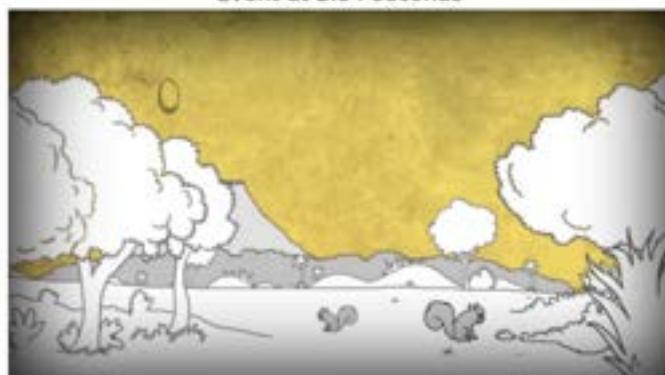
Event at 2.46 seconds



Event at 2.50 seconds



Event at 2.54 seconds



Event at 2.58 seconds



Event at 2.62 seconds

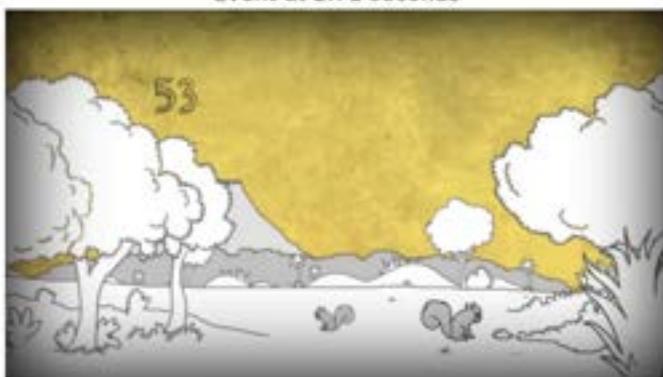


Event at 2.67 seconds

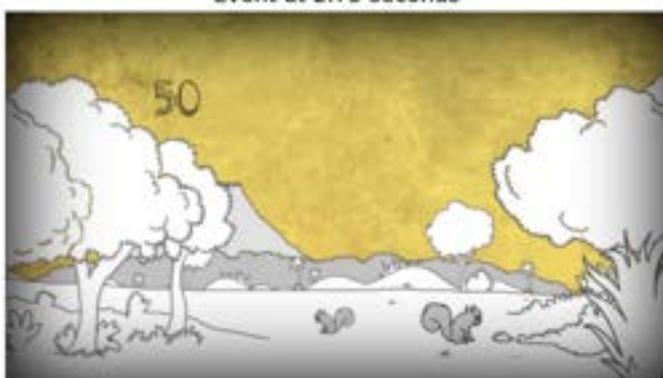




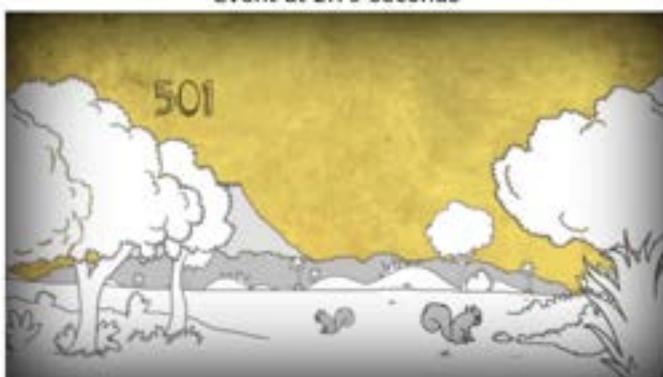
Event at 2.71 seconds



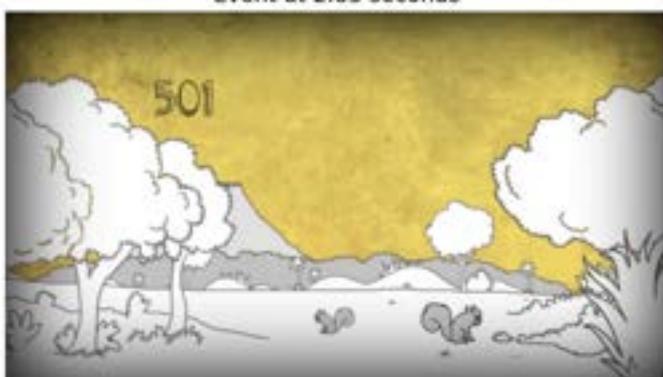
Event at 2.75 seconds



Event at 2.79 seconds



Event at 2.83 seconds

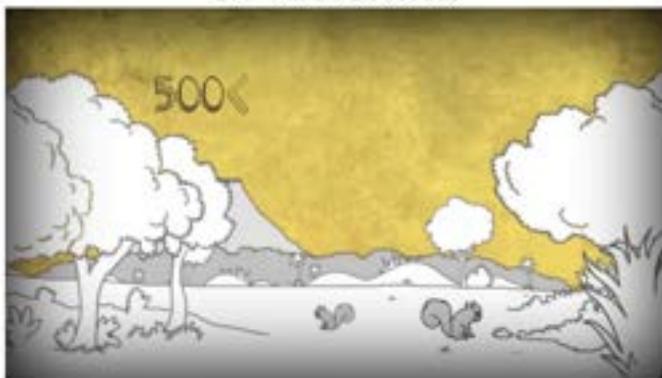


Event at 2.88 seconds

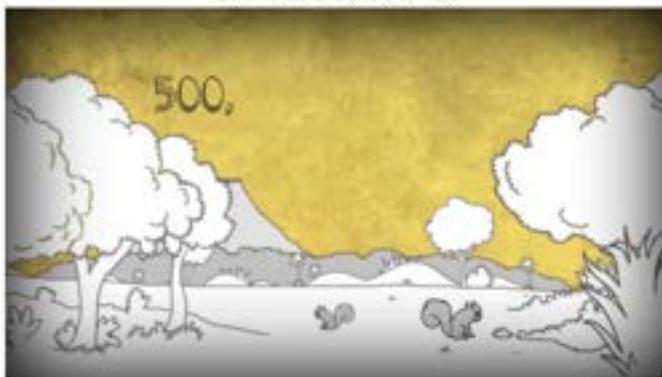




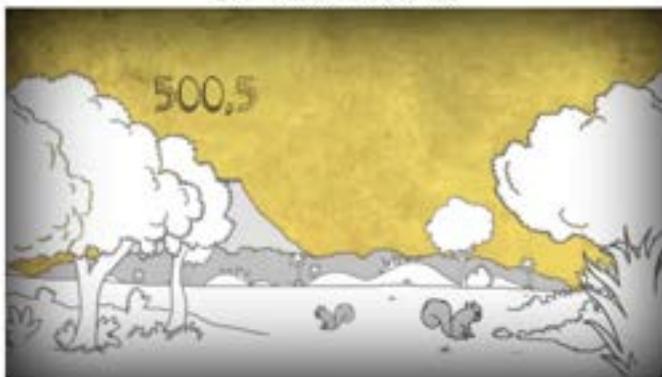
Event at 2.92 seconds



Event at 2.96 seconds



Event at 3.00 seconds



Event at 3.04 seconds



Event at 3.08 seconds





Event at 3.12 seconds



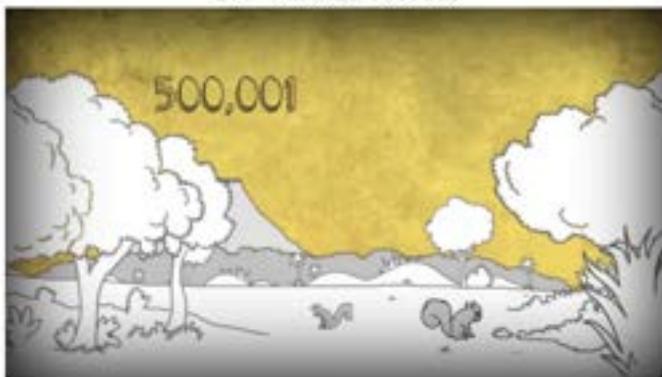
Event at 3.17 seconds



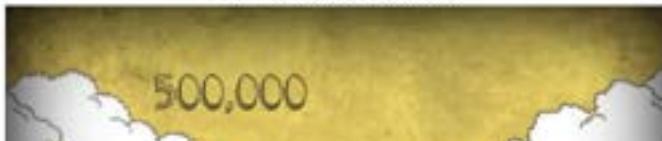
Event at 3.21 seconds

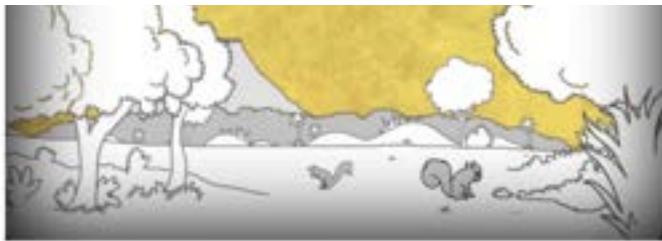


Event at 3.25 seconds



Event at 3.29 seconds





Event at 3.33 seconds



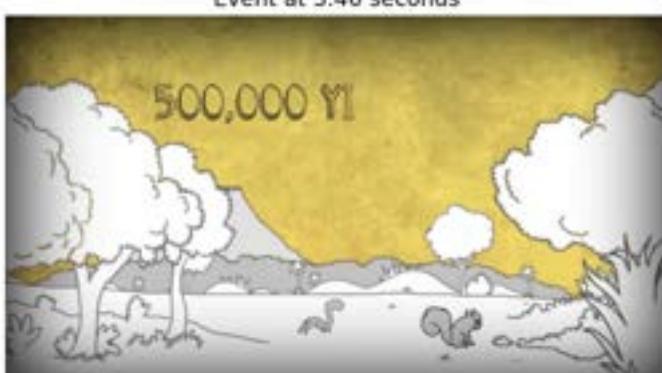
Event at 3.38 seconds



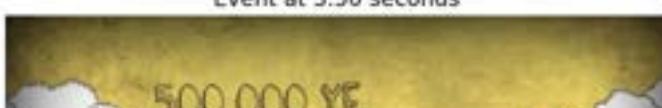
Event at 3.42 seconds



Event at 3.46 seconds



Event at 3.50 seconds





Event at 3.54 seconds



Event at 3.58 seconds



Event at 3.62 seconds



Event at 3.67 seconds



Event at 3.71 seconds





Event at 3.75 seconds



Event at 3.79 seconds



Event at 3.83 seconds



Event at 3.88 seconds



Event at 3.92 seconds



Event at 3.96 seconds



Event at 4.00 seconds



Event at 4.04 seconds



Event at 4.08 seconds



Event at 4.12 seconds



Event at 4.17 seconds



Event at 4.21 seconds



Event at 4.25 seconds



Event at 4.29 seconds



Event at 4.33 seconds



Event at 4.38 seconds



Event at 4.42 seconds



Event at 4.46 seconds



Event at 4.50 seconds





Event at 4.54 seconds



Event at 4.58 seconds



Event at 4.62 seconds



Event at 4.67 seconds



Event at 4.71 seconds



Event at 4.75 seconds



Event at 4.79 seconds



Event at 4.83 seconds



Event at 4.88 seconds



Event at 4.92 seconds





Event at 4.96 seconds



Event at 5.00 seconds



Event at 5.04 seconds



Event at 5.08 seconds



Event at 5.12 seconds





Event at 5.17 seconds



Event at 5.21 seconds



Event at 5.25 seconds



Event at 5.29 seconds



Event at 5.33 seconds





Event at 5.38 seconds



Event at 5.42 seconds



Event at 5.46 seconds



Event at 5.50 seconds



Event at 5.54 seconds





Event at 5.58 seconds



Event at 5.62 seconds



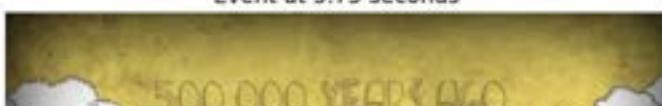
Event at 5.67 seconds



Event at 5.71 seconds



Event at 5.75 seconds





Event at 5.79 seconds



Event at 5.83 seconds



Event at 5.88 seconds



Event at 5.92 seconds



Event at 5.96 seconds





Event at 6.00 seconds



Event at 6.04 seconds



Event at 6.08 seconds



Event at 6.12 seconds



Event at 6.17 seconds



Event at 6.21 seconds



Event at 6.25 seconds



Event at 6.29 seconds



Event at 6.33 seconds



Event at 6.38 seconds



Event at 6.42 seconds



Event at 6.46 seconds



Event at 6.50 seconds



Event at 6.54 seconds



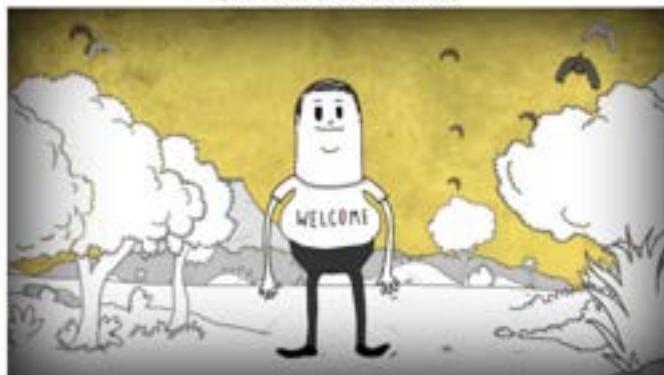
Event at 6.58 seconds



Event at 6.62 seconds



Event at 6.67 seconds



Event at 6.71 seconds



Event at 6.75 seconds





Event at 6.79 seconds



Event at 6.83 seconds



Event at 6.88 seconds



Event at 6.92 seconds





Event at 7.00 seconds



Event at 7.04 seconds



Event at 7.08 seconds



Event at 7.12 seconds



Event at 7.17 seconds





Event at 7.21 seconds



Event at 7.25 seconds



Event at 7.29 seconds



Event at 7.33 seconds



Event at 7.38 seconds





Event at 7.42 seconds



Event at 7.46 seconds



Event at 7.50 seconds



Event at 7.54 seconds

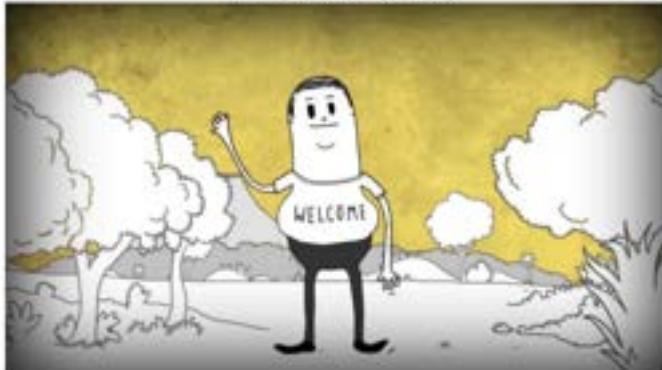


Event at 7.58 seconds

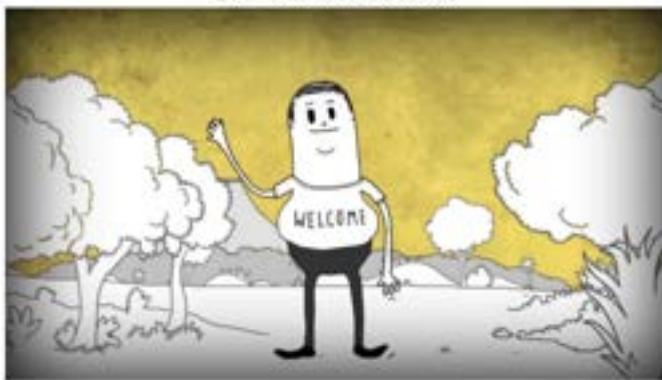




Event at 7.62 seconds



Event at 7.67 seconds



Event at 7.71 seconds



Event at 7.75 seconds



Event at 7.79 seconds





Event at 7.83 seconds



Event at 7.88 seconds



Event at 7.92 seconds



Event at 7.96 seconds



Event at 8.00 seconds





Event at 8.04 seconds



Event at 8.08 seconds



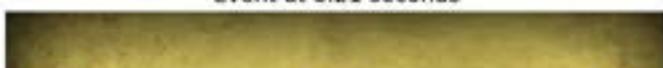
Event at 8.12 seconds



Event at 8.17 seconds



Event at 8.21 seconds





Event at 8.25 seconds



Event at 8.29 seconds



Event at 8.33 seconds



Event at 8.38 seconds



Event at 8.42 seconds



Event at 8.46 seconds



Event at 8.50 seconds



Event at 8.54 seconds



Event at 8.58 seconds



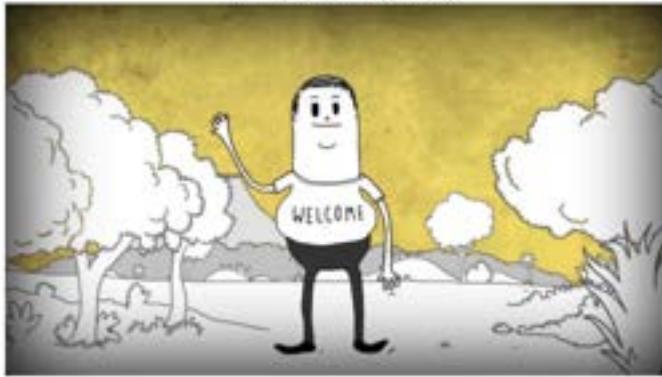
Event at 8.62 seconds



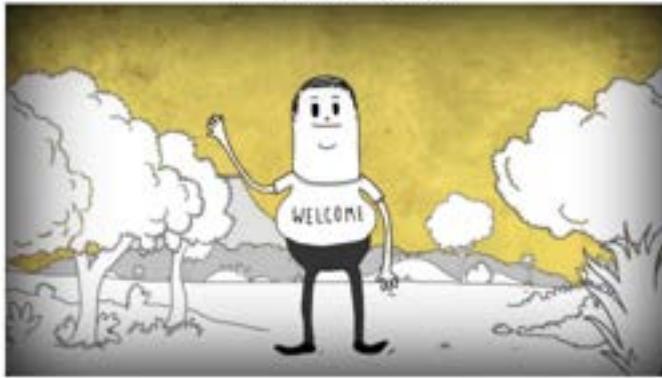
Event at 8.67 seconds



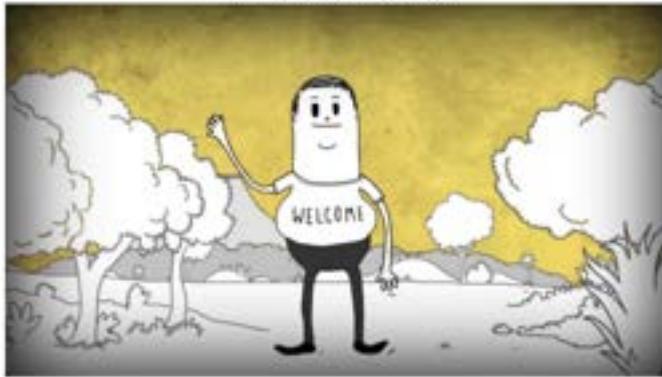
Event at 8.71 seconds



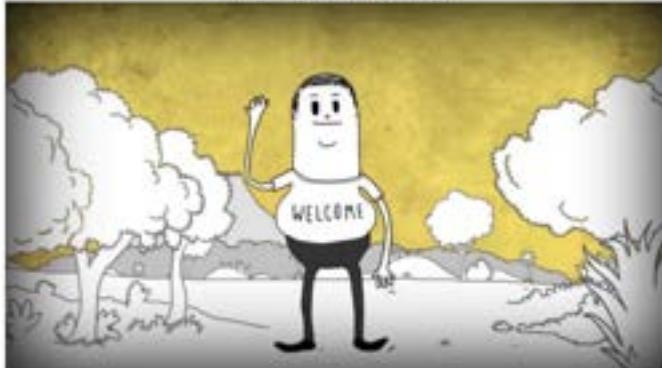
Event at 8.75 seconds



Event at 8.79 seconds



Event at 8.83 seconds



Event at 8.88 seconds



Event at 8.92 seconds

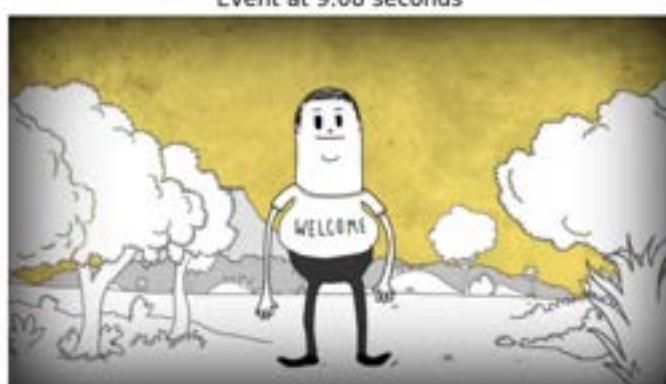
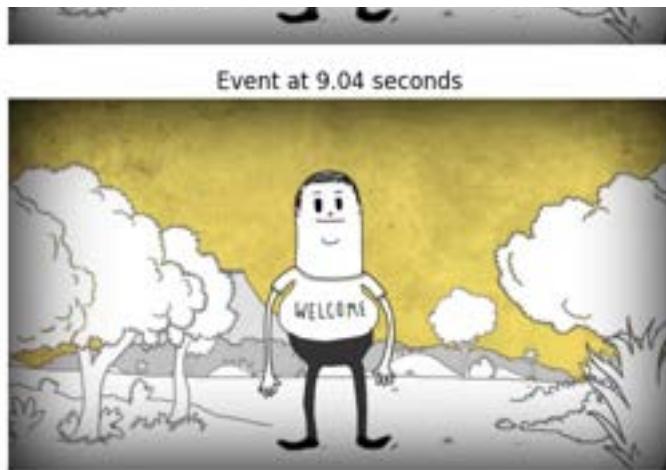


Event at 8.96 seconds



Event at 9.00 seconds







Event at 9.25 seconds



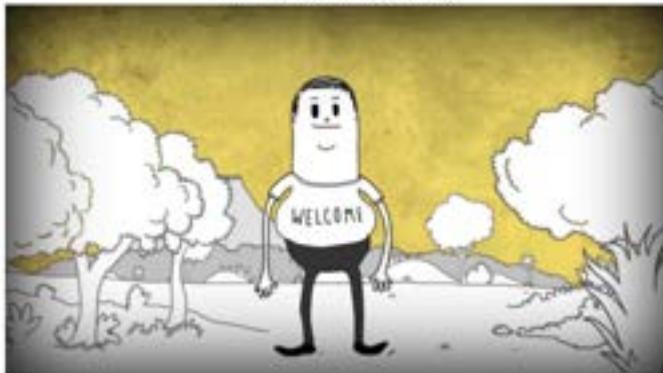
Event at 9.29 seconds



Event at 9.33 seconds

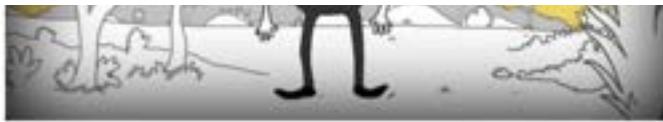


Event at 9.38 seconds



Event at 9.42 seconds





Event at 9.46 seconds



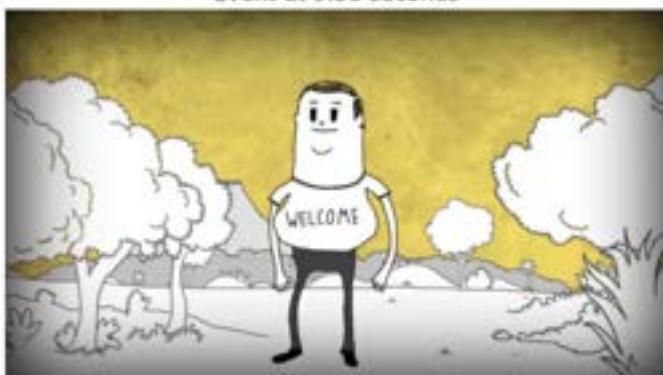
Event at 9.50 seconds



Event at 9.54 seconds



Event at 9.58 seconds



Event at 9.62 seconds





Event at 9.67 seconds



Event at 9.71 seconds



Event at 9.75 seconds



Event at 9.79 seconds

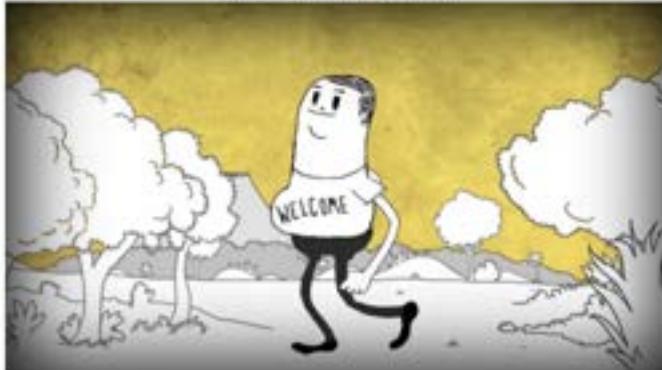


Event at 9.83 seconds





Event at 9.88 seconds



Event at 9.92 seconds



Event at 9.96 seconds



Event at 10.00 seconds



Event at 10.04 seconds





Event at 10.08 seconds



Event at 10.12 seconds



Event at 10.17 seconds



Event at 10.21 seconds



Event at 10.25 seconds





Event at 10.29 seconds



Event at 10.33 seconds



Event at 10.38 seconds



Event at 10.42 seconds



Event at 10.46 seconds





Event at 10.50 seconds



Event at 10.54 seconds



Event at 10.58 seconds



Event at 10.62 seconds



Event at 10.67 seconds



Event at 10.71 seconds



Event at 10.75 seconds



Event at 10.79 seconds



Event at 10.83 seconds



Event at 10.88 seconds



Event at 10.92 seconds



Event at 10.96 seconds



Event at 11.00 seconds



Event at 11.04 seconds



Event at 11.08 seconds



Event at 11.12 seconds



Event at 11.17 seconds

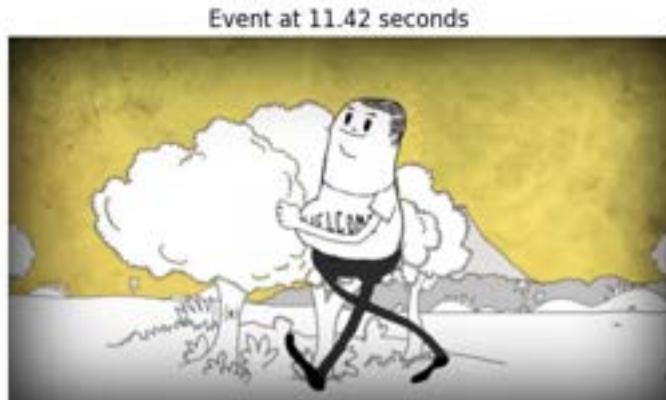


Event at 11.21 seconds



Event at 11.25 seconds







Event at 11.50 seconds



Event at 11.54 seconds



Event at 11.58 seconds



Event at 11.62 seconds



Event at 11.67 seconds





Event at 11.71 seconds



Event at 11.75 seconds



Event at 11.79 seconds



Event at 11.83 seconds



Event at 11.88 seconds





Event at 11.92 seconds



Event at 11.96 seconds



Event at 12.00 seconds



Event at 12.04 seconds



Event at 12.08 seconds





Event at 12.12 seconds



Event at 12.17 seconds



Event at 12.21 seconds



Event at 12.25 seconds



Event at 12.29 seconds





Event at 12.33 seconds



Event at 12.38 seconds



Event at 12.42 seconds



Event at 12.46 seconds



Event at 12.50 seconds





Event at 12.54 seconds



Event at 12.58 seconds



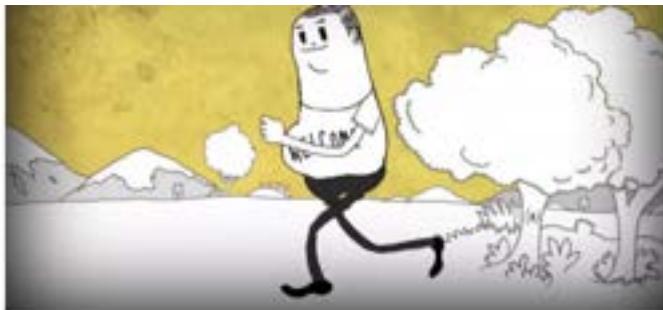
Event at 12.62 seconds



Event at 12.67 seconds



Event at 12.71 seconds



Event at 12.75 seconds



Event at 12.79 seconds



Event at 12.83 seconds



Event at 12.88 seconds



Event at 12.92 seconds



Event at 12.96 seconds



Event at 13.00 seconds



Event at 13.04 seconds



Event at 13.08 seconds



Event at 13.12 seconds



Event at 13.17 seconds



Event at 13.21 seconds



Event at 13.25 seconds



Event at 13.29 seconds



Event at 13.33 seconds



Event at 13.38 seconds



Event at 13.42 seconds



Event at 13.46 seconds



Event at 13.50 seconds







Event at 13.75 seconds



Event at 13.79 seconds



Event at 13.83 seconds



Event at 13.88 seconds



Event at 13.92 seconds



Event at 13.96 seconds



Event at 14.00 seconds



Event at 14.04 seconds



Event at 14.08 seconds



Event at 14.12 seconds





Event at 14.17 seconds



Event at 14.21 seconds



Event at 14.25 seconds



Event at 14.29 seconds



Event at 14.33 seconds





Event at 14.38 seconds



Event at 14.42 seconds



Event at 14.46 seconds



Event at 14.50 seconds



Event at 14.54 seconds





Event at 14.58 seconds



Event at 14.62 seconds



Event at 14.67 seconds



Event at 14.71 seconds



Event at 14.75 seconds





Event at 14.79 seconds



Event at 14.83 seconds



Event at 14.88 seconds



Event at 14.92 seconds



Event at 14.96 seconds





Event at 15.00 seconds



Event at 15.04 seconds



Event at 15.08 seconds



Event at 15.12 seconds



Event at 15.17 seconds



Event at 15.21 seconds



Event at 15.25 seconds



Event at 15.29 seconds



Event at 15.33 seconds



Event at 15.38 seconds



Event at 15.42 seconds



Event at 15.46 seconds



Event at 15.50 seconds



Event at 15.54 seconds



Event at 15.58 seconds



Event at 15.62 seconds



Event at 15.67 seconds

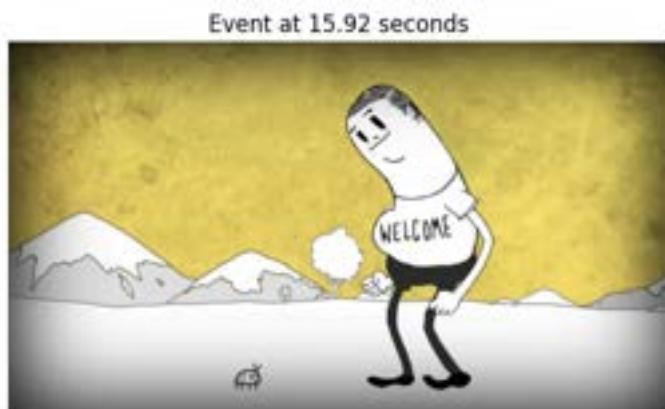


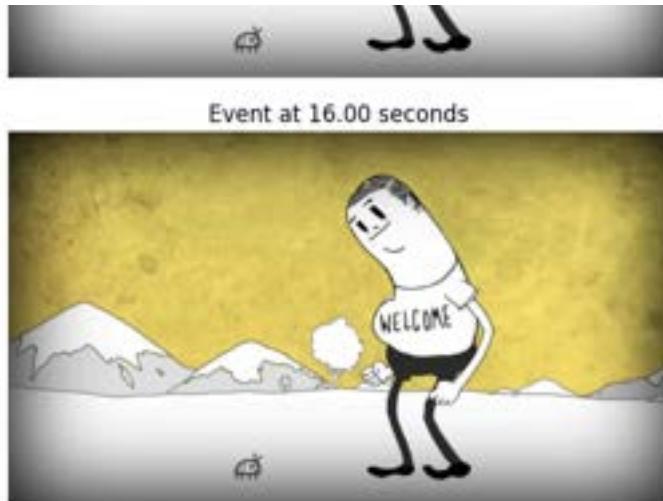
Event at 15.71 seconds



Event at 15.75 seconds







Event at 16.04 seconds



Event at 16.08 seconds



Event at 16.12 seconds



Event at 16.17 seconds





Event at 16.21 seconds



Event at 16.25 seconds



Event at 16.29 seconds



Event at 16.33 seconds



Event at 16.38 seconds





Event at 16.42 seconds



Event at 16.46 seconds



Event at 16.50 seconds



Event at 16.54 seconds



Event at 16.58 seconds





Event at 16.62 seconds



Event at 16.67 seconds



Event at 16.71 seconds



Event at 16.75 seconds



Event at 16.79 seconds





Event at 16.83 seconds



Event at 16.88 seconds



Event at 16.92 seconds



Event at 16.96 seconds



Event at 17.00 seconds





Event at 17.04 seconds



Event at 17.08 seconds



Event at 17.12 seconds



Event at 17.17 seconds



Event at 17.21 seconds





Event at 17.25 seconds



Event at 17.29 seconds



Event at 17.33 seconds



Event at 17.38 seconds



Event at 17.42 seconds



Event at 17.46 seconds



Event at 17.50 seconds



Event at 17.54 seconds



Event at 17.58 seconds



Event at 17.62 seconds



Event at 17.67 seconds



Event at 17.71 seconds



Event at 17.75 seconds



Event at 17.79 seconds



Event at 17.83 seconds



Event at 17.88 seconds



Event at 17.92 seconds



Event at 17.96 seconds



Event at 18.00 seconds



Event at 18.04 seconds



Event at 18.08 seconds



Event at 18.12 seconds



Event at 18.17 seconds



Event at 18.21 seconds





Event at 18.25 seconds



Event at 18.29 seconds



Event at 18.33 seconds



Event at 18.38 seconds



Event at 18.42 seconds





Event at 18.46 seconds



Event at 18.50 seconds



Event at 18.54 seconds



Event at 18.58 seconds



Event at 18.62 seconds





Event at 18.67 seconds



Event at 18.71 seconds



Event at 18.75 seconds



Event at 18.79 seconds



Event at 18.83 seconds





Event at 18.88 seconds



Event at 18.92 seconds



Event at 18.96 seconds



Event at 19.00 seconds



Event at 19.04 seconds





Event at 19.08 seconds



Event at 19.12 seconds



Event at 19.17 seconds



Event at 19.21 seconds



Event at 19.25 seconds





Event at 19.29 seconds



Event at 19.33 seconds



Event at 19.38 seconds

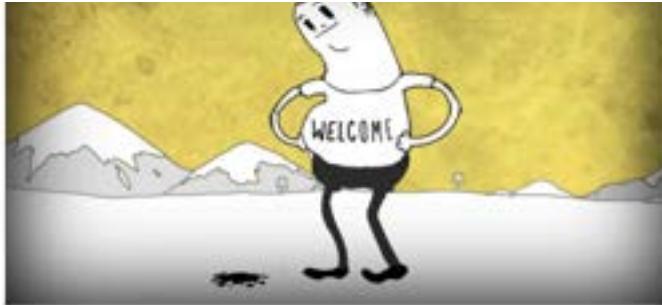


Event at 19.42 seconds



Event at 19.46 seconds





Event at 19.50 seconds



Event at 19.54 seconds



Event at 19.58 seconds



Event at 19.62 seconds



Event at 19.67 seconds



Event at 19.71 seconds



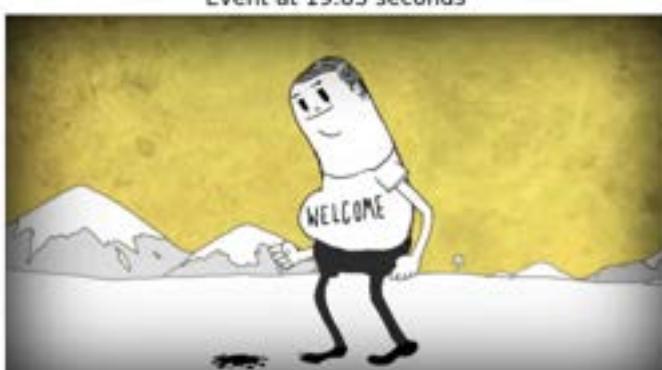
Event at 19.75 seconds



Event at 19.79 seconds



Event at 19.83 seconds



Event at 19.88 seconds



Event at 19.92 seconds



Event at 19.96 seconds



Event at 20.00 seconds



Event at 20.04 seconds



Event at 20.08 seconds



Event at 20.12 seconds



Event at 20.17 seconds



Event at 20.21 seconds



Event at 20.25 seconds







Event at 20.50 seconds



Event at 20.54 seconds



Event at 20.58 seconds



Event at 20.62 seconds



Event at 20.67 seconds





Event at 20.71 seconds



Event at 20.75 seconds



Event at 20.79 seconds



Event at 20.83 seconds



Event at 20.88 seconds





Event at 20.92 seconds



Event at 20.96 seconds



Event at 21.00 seconds



Event at 21.04 seconds



Event at 21.08 seconds





Event at 21.12 seconds



Event at 21.17 seconds



Event at 21.21 seconds



Event at 21.25 seconds



Event at 21.29 seconds





Event at 21.33 seconds



Event at 21.38 seconds



Event at 21.42 seconds



Event at 21.46 seconds



Event at 21.50 seconds





Event at 21.54 seconds



Event at 21.58 seconds



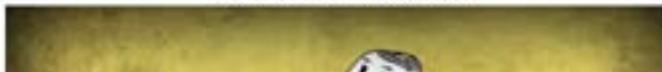
Event at 21.62 seconds



Event at 21.67 seconds



Event at 21.71 seconds





Event at 21.75 seconds



Event at 21.79 seconds



Event at 21.83 seconds



Event at 21.88 seconds



Event at 21.92 seconds



Event at 21.96 seconds



Event at 22.00 seconds



Event at 22.04 seconds



Event at 22.08 seconds



Event at 22.12 seconds



Event at 22.17 seconds



Event at 22.21 seconds



Event at 22.25 seconds



Event at 22.29 seconds



Event at 22.33 seconds



Event at 22.38 seconds



Event at 22.42 seconds



Event at 22.46 seconds



Event at 22.50 seconds







Event at 22.75 seconds



Event at 22.79 seconds



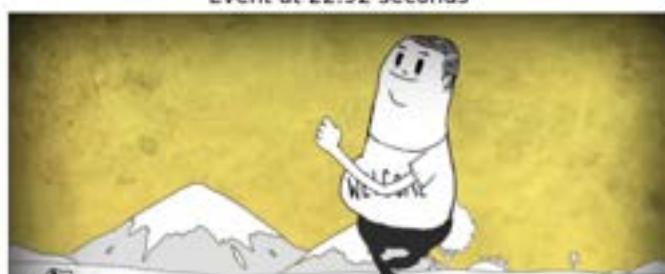
Event at 22.83 seconds



Event at 22.88 seconds



Event at 22.92 seconds





Event at 22.96 seconds



Event at 23.00 seconds



Event at 23.04 seconds



Event at 23.08 seconds



Event at 23.12 seconds





Event at 23.17 seconds



Event at 23.21 seconds



Event at 23.25 seconds



Event at 23.29 seconds



Event at 23.33 seconds





Event at 23.38 seconds



Event at 23.42 seconds



Event at 23.46 seconds



Event at 23.50 seconds



Event at 23.54 seconds





Event at 23.58 seconds



Event at 23.62 seconds



Event at 23.67 seconds



Event at 23.71 seconds



Event at 23.75 seconds





Event at 23.79 seconds



Event at 23.83 seconds



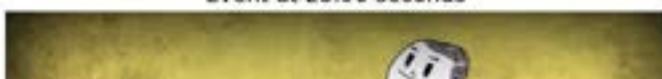
Event at 23.88 seconds



Event at 23.92 seconds



Event at 23.96 seconds





Event at 24.00 seconds



Event at 24.04 seconds



Event at 24.08 seconds



Event at 24.12 seconds



Event at 24.17 seconds



Event at 24.21 seconds



Event at 24.25 seconds



Event at 24.29 seconds



Event at 24.33 seconds



Event at 24.38 seconds



Event at 24.42 seconds



Event at 24.46 seconds



Event at 24.50 seconds



Event at 24.54 seconds



Event at 24.58 seconds



Event at 24.62 seconds



Event at 24.67 seconds



Event at 24.71 seconds



Event at 24.75 seconds







Event at 25.00 seconds



Event at 25.04 seconds



Event at 25.08 seconds



Event at 25.12 seconds



Event at 25.17 seconds





Event at 25.21 seconds



Event at 25.25 seconds



Event at 25.29 seconds



Event at 25.33 seconds



Event at 25.38 seconds





Event at 25.42 seconds



Event at 25.46 seconds



Event at 25.50 seconds



Event at 25.54 seconds



Event at 25.58 seconds





Event at 25.62 seconds



Event at 25.67 seconds



Event at 25.71 seconds



Event at 25.75 seconds



Event at 25.79 seconds





Event at 25.83 seconds



Event at 25.88 seconds



Event at 25.92 seconds



Event at 25.96 seconds



Event at 26.00 seconds





Event at 26.04 seconds



Event at 26.08 seconds



Event at 26.12 seconds



Event at 26.17 seconds



Event at 26.21 seconds



Event at 26.25 seconds



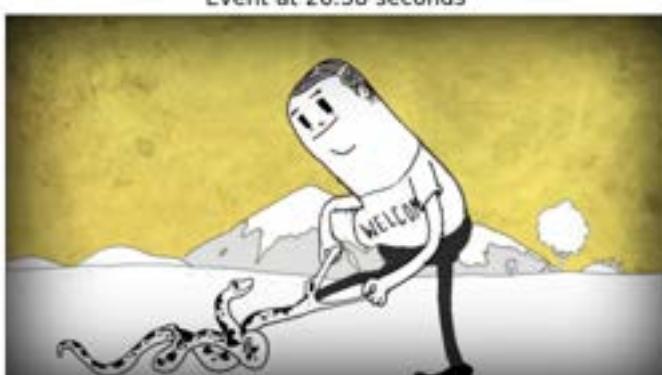
Event at 26.29 seconds



Event at 26.33 seconds



Event at 26.38 seconds



Event at 26.42 seconds



Event at 26.46 seconds



Event at 26.50 seconds



Event at 26.54 seconds



Event at 26.58 seconds



Event at 26.62 seconds



Event at 26.67 seconds



Event at 26.71 seconds



Event at 26.75 seconds



Event at 26.79 seconds



Event at 26.83 seconds



Event at 26.88 seconds



Event at 26.92 seconds



Event at 26.96 seconds



Event at 27.00 seconds







Event at 27.25 seconds



Event at 27.29 seconds



Event at 27.33 seconds



Event at 27.38 seconds



Event at 27.42 seconds





Event at 27.46 seconds



Event at 27.50 seconds



Event at 27.54 seconds



Event at 27.58 seconds



Event at 27.62 seconds





Event at 27.67 seconds



Event at 27.71 seconds



Event at 27.75 seconds



Event at 27.79 seconds



Event at 27.83 seconds





Event at 27.88 seconds



Event at 27.92 seconds



Event at 27.96 seconds



Event at 28.00 seconds



Event at 28.04 seconds





Event at 28.08 seconds



Event at 28.12 seconds



Event at 28.17 seconds



Event at 28.21 seconds



Event at 28.25 seconds





Event at 28.29 seconds



Event at 28.33 seconds



Event at 28.38 seconds



Event at 28.42 seconds



Event at 28.46 seconds





Event at 28.50 seconds



Event at 28.54 seconds



Event at 28.58 seconds



Event at 28.62 seconds



Event at 28.67 seconds



Event at 28.71 seconds



Event at 28.75 seconds



Event at 28.79 seconds



Event at 28.83 seconds



Event at 28.88 seconds



Event at 28.92 seconds



Event at 28.96 seconds



Event at 29.00 seconds



Event at 29.04 seconds



Event at 29.08 seconds



Event at 29.12 seconds



Event at 29.17 seconds



Event at 29.21 seconds



Event at 29.25 seconds





Event at 29.29 seconds



Event at 29.33 seconds



Event at 29.38 seconds



Event at 29.42 seconds



Event at 29.46 seconds



Event at 29.50 seconds



Event at 29.54 seconds



Event at 29.58 seconds



Event at 29.62 seconds



Event at 29.67 seconds





Event at 29.71 seconds



Event at 29.75 seconds



Event at 29.79 seconds



Event at 29.83 seconds



Event at 29.88 seconds





Event at 29.92 seconds



Event at 29.96 seconds



Event at 30.00 seconds



Event at 30.04 seconds



Event at 30.08 seconds





Event at 30.12 seconds



Event at 30.17 seconds



Event at 30.21 seconds



Event at 30.25 seconds



Event at 30.29 seconds





Event at 30.33 seconds



Event at 30.38 seconds



Event at 30.42 seconds



Event at 30.46 seconds



Event at 30.50 seconds





Event at 30.54 seconds



Event at 30.58 seconds



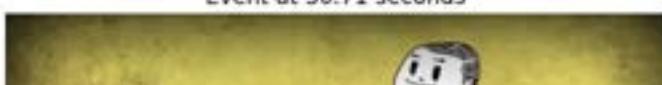
Event at 30.62 seconds



Event at 30.67 seconds



Event at 30.71 seconds





Event at 30.75 seconds



Event at 30.79 seconds

