Brief explanation of dynamic image processing:

1. **Read Video**: Opens a video file for processing.
2. **Frame Processing**: For each frame:
   * Converts the frame to grayscale.
   * Applies Gaussian Blur to reduce noise.
   * Uses adaptive thresholding to create a binary image.
   * Applies morphological operations to close gaps in contours.
   * Detects edges using Canny edge detection.
   * Finds contours in the edge-detected image and draws them if they meet a certain area threshold.
   * Calculates and marks the center of each valid contour.
3. **Output**: Writes the processed frames to a new video file and displays them in real-time. Challenge was that the triangle shape was not being contoured and the centroid wasn’t being plotted in the center of the triangle shape.

**Performance Overview**

Another challenge was that the algorithm takes about 3 to 4 minutes to run on the entire video, which may be optimized for efficiency.

**Suggestions for Improvement (haven’t implemented this yet)**

1. A smaller kernel can reduce processing time with minimal impact on output quality.
2. Resize frames to a lower resolution before processing can significantly speed up computations.
3. Early filtering of contours based on size can reduce computational load.