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Daily Log

Monday September 30

Ran OpenPose on different images and videos. Played with the parameters to see what differences it would make in terms of the annotated poses to better help me understand what each parameter meant. Found the original OpenPose paper (https://arxiv.org/pdf/1611.08050.pdf) and started reading through it to better understand the math they did and how it relates to the variables in the code.

Tuesday October 1

Continued reading through the OpenPose paper and understanding the various parts of it (Confidence maps, PAFs, differentiating between persons in a single frame). While reading this, I realized that one potential problem in my methodology could be as follows: there could be multiple people in a violent frame, but they wouldn't all necessary be engaging in violent behaviors. There could be bystanders, passersby, etc. I started thinking about this problem for a little bit but couldn't come up with a real solution to it.

Thursday October 3

In the paper, the authors articulate that there's a 2D vector between joints that constitutes a limb. Spent a lot of time trying to find the corresponding code for the vector and eventually found it. Next, I started trying to understand the coordinate system being used to get some idea of where limbs were relative to each other. Figured out how each limb was represented (a hand, leg, etc.), but couldn't ascertain how to find out where those limbs were in space. This might be because each vector is generated in a local coordinate system in a sub-section of the image rather than a global one. Thought about how to get around this problem and get information about where limbs were next to each other.

Timeline

Date	Goal	Met
Today minus 2 weeks	Run pre-processing code to decompose surveillance feed into individual frames marked as violent or non-violent through entire dataset.	Memory errors
Today minus 1 week	Run pre-processing code to decompose surveillance feed into individual frames marked as violent or non-violent through entire dataset.	Completed
Today	Review OpenPose code and determine best statistical representation for poses.	Still in progress. Should be finished by the end of this week
Today plus 1 week	Run OpenPose code through dataset of frames marked as violent or non-violent.	
Today plus 2 weeks	Write code that loads new dataset, preprocesses it, and gets it ready as input data for the neural network	

Reflection

Working through the details of the OpenPose model is confusing but I'm getting through it one step at a time. The code doesn't have any comments either so trying to keep track of what is being talked about in the method section of the paper and what's happening in the code is sort of hard. I think finding the vector representation of a 'limb' in the code was an important step that will help be get through the rest of the code faster. There has to be some conception of a global coordinate system in the cv library when its actually painting the image and adding lines to it when creating poses – maybe I'll look at the code for that this week as well.