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Boo Proposal

My idea for this project was to implement something akin to the Boos from Mario, who follow you until you look at them. So you would run the robot, it would scan for a person, probably by turning around. When it locates a person, it keeps their body in the center of its view and checks to see if they're looking (either by face detection or otherwise). If it doesn't detect that someone is look, it will begin to drive forward.

I haven't found anything similar to what I'm doing, but I did not search too hard. My MVP is some person tracking system that performs similarly to the person following from the first project (probably using some pre-trained model). Once this is done it extends naturally to detect if someone is looking (which doesn't have a non-ml relation that I know of). This is most likely going to be a top-down orientation as I'm trying to get a system working, but there will the aspect of I'll make sure I really understand the implementations of the models I'm using.

I haven't done an insane amount of research into the body and facial detection space. For the body detection, I think it's much easier if I use a pre-trained model so I can get right to the facial detection, which I think would be better scoped for the project. I'll probably find a suitable facial dataset online to train a model. If necessary I'll do some simple collection with the neato's camera to quickly fine tune the model.

As for the model itself I'll do a simple convolutional neural network that leads to a single output of whether or not there is a face in the image. I'll probably use Adam (Adaptive Momentum) to train it cause it works for most scenarios and Cross-Entropy as the cost function since its binary outputs.

Finally, as I mentioned before I can pretty easily compare the person tracking to the previous implementations. I'm not sure how to compare the rest of it though.