Week 5

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Wanted to fine tune C3D

```
def get_model_C3D(samples, height, width, channels):
    model = Sequential()
    #model.add(BatchNormalization(epsilon=0.001,mode=2, axis=1,input_shape=(3, nrows,ncols)))
    # input image is 66 x 200 to capture important piece of road.
    model.add(Conv3D(64, (3), strides=(1), input_shape=(samples, height, width, channels), activation='relu', padding='
    model.add(MaxPooling3D(pool_size=(1,2,2), strides=(1,2,2), padding='valid'))

    model.add(Conv3D(128, (3), strides=(1), activation='relu', padding='same'))
    model.add(MaxPooling3D(pool_size=(2,2,2), strides=(2,2,2), padding='valid'))

    model.add(Conv3D(256, (3), strides=(1), activation='relu', padding='same'))
    model.add(Conv3D(256, (3), strides=(1), activation='relu', padding='same'))
    model.add(MaxPooling3D(pool_size=(2,2,2), strides=(2,2,2), padding='valid'))

    model.add(Conv3D(512, (3), strides=(1), activation='relu', padding='same'))
    model.add(Conv3D(512, (3), strides=(1), activation='relu', padding='same'))
    model.add(MaxPooling3D(pool_size=(2,2,2), strides=(2,2,2), padding='valid'))

    model.add(Conv3D(512, (3), strides=(1), activation='relu', padding='same'))
    model.add(Conv3D(512, (3), strides=(1), activation='relu', padding='same'))


    model.add(ZeroPadding3D(padding=(0,1,1)))
    model.add(MaxPooling3D(pool_size=(2,2,2), strides=(2,2,2), padding='valid'))


    model.add(Flatten())

    model.add(Dense(4096))
    model.add(Activation('relu'))
    model.add(Dropout(.5))

    model.add(Dense(4096, activation='relu'))
    model.add(Activation('relu'))
    model.add(Dropout(.5))

    model.add(Dense(1))
    model.add(Activation('tanh'))

    return model
```

Still having trouble with this since the model seems to just be predicting very few parameters

Lots of work to do and lots of different routes we can take.

Skew
LSTM (and variants)
Significant Situations
Auto regressor
Smoothing steering angle
Torque
Acceleration
Speed
GTA

GANs
YT Dash Cam Videos

Looking heavily into LSTMs because they will help the network to “remember” past events like red lights or brake lights.

Also looking into new ways to test the network where we can actually see what its predicting.

Going to investigate how steering torque can help the network.