Interpreting the neural network solution

18-03-2019

Experiments

100px * 200px videos

5 * 5 = 25 bits per frame

Encoding technique:

0 bit : (R,G,B) -------> (R-offset, G-offset, B-offset)

1 bit: (R,G,B) -------> (R+offset, G+offset, B+offset)

Videos tested on

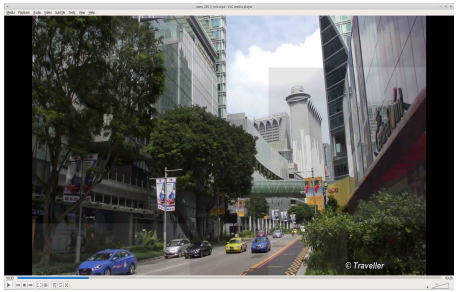
1. “BW video”

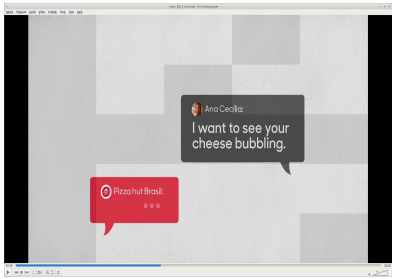
   (R,G,B) = (127,127,127) Offset = 127

2. “Random video”

   (R,G,B)=(U(50,200),U(50,200),U(50,200)) Offset = 20

3. “Multiple videos” Offset = Chromocode paper





Neural Network

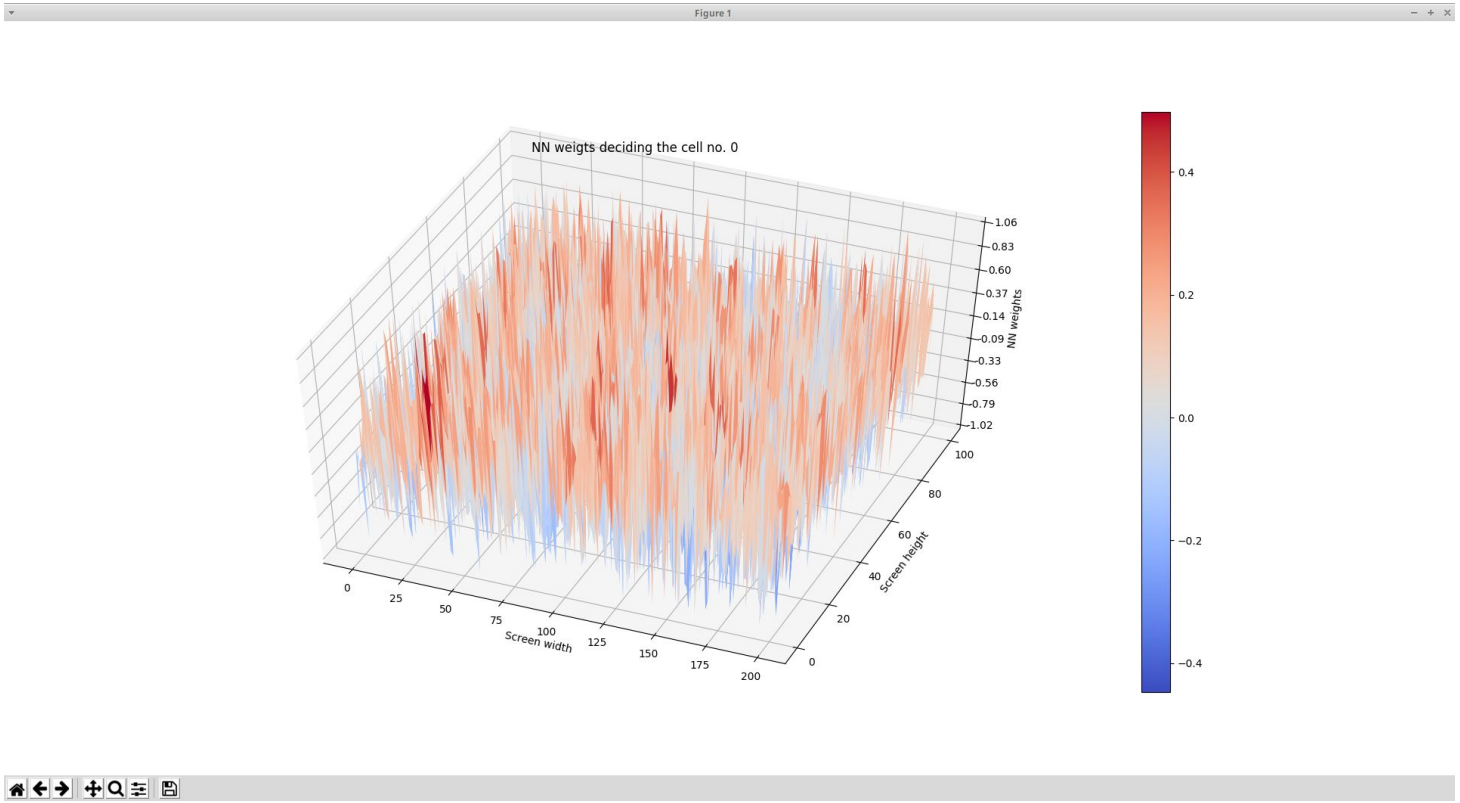
Pre processing :

- convert videos to BW, normalize the distribution assuming uniform (NOT gaussian) distribution.

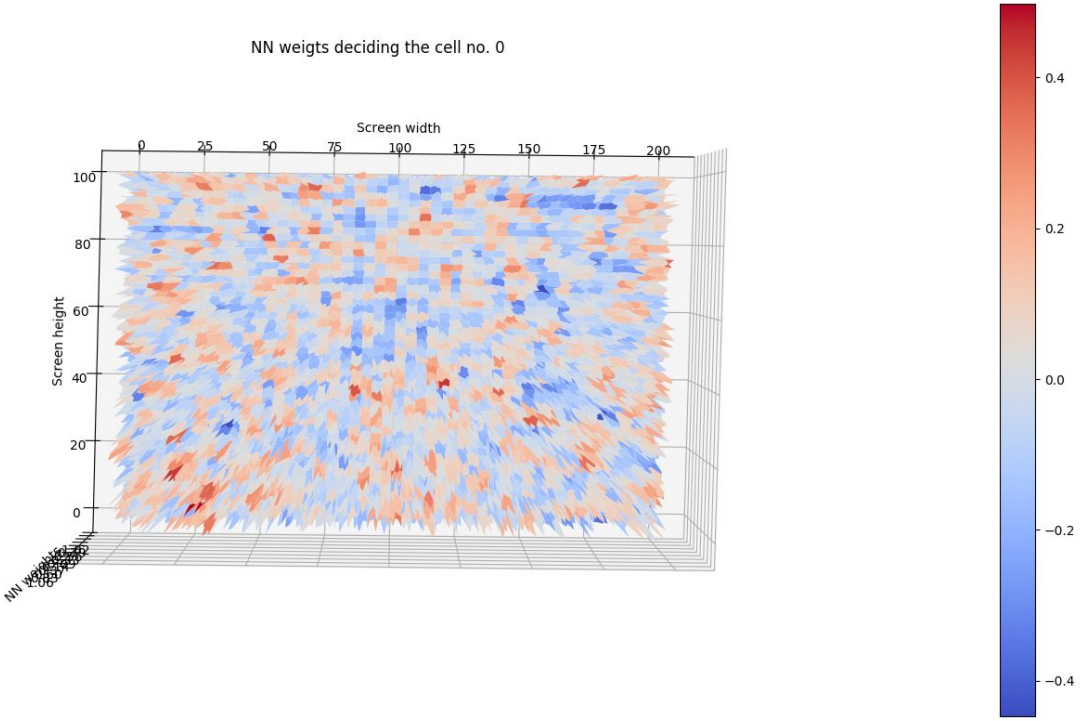
NN architecture

- Input layer 200,0000 nodes
- Output layer 25 nodes
- Sigmoid activation

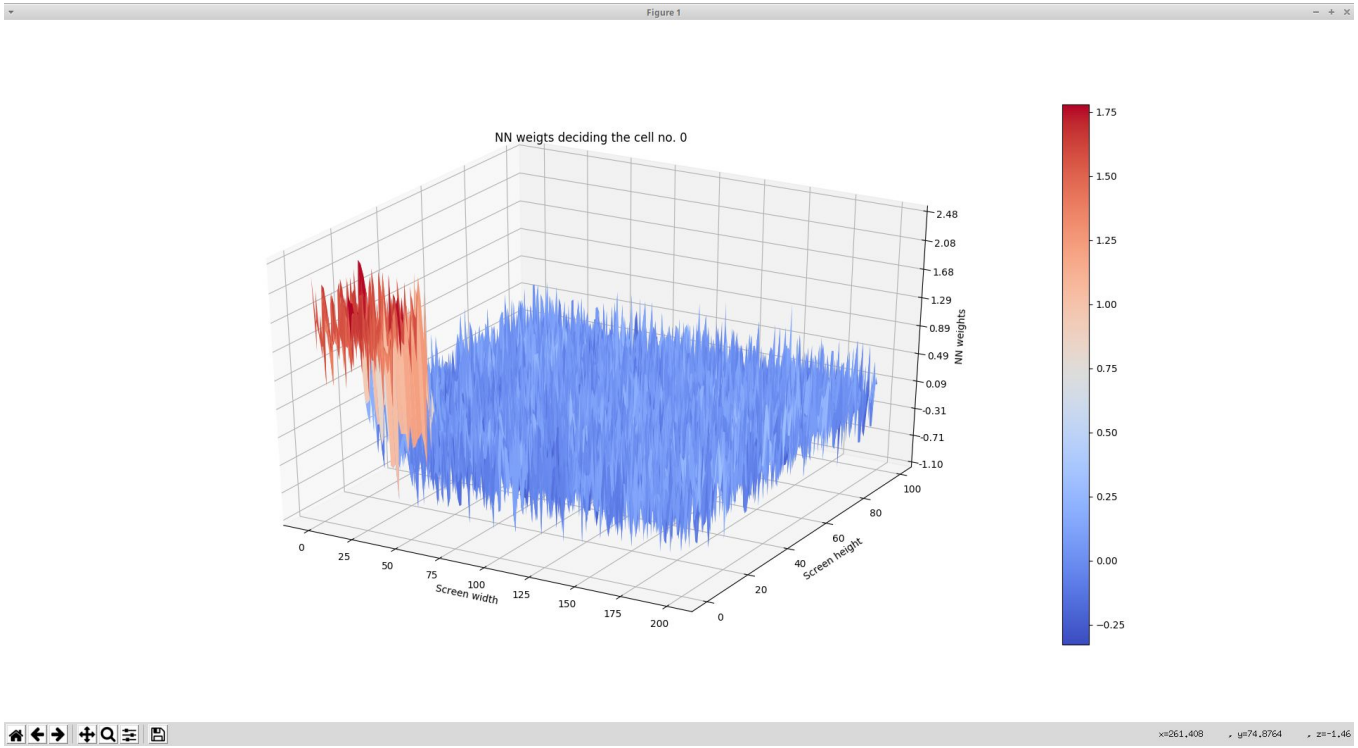
NN weights : BW video



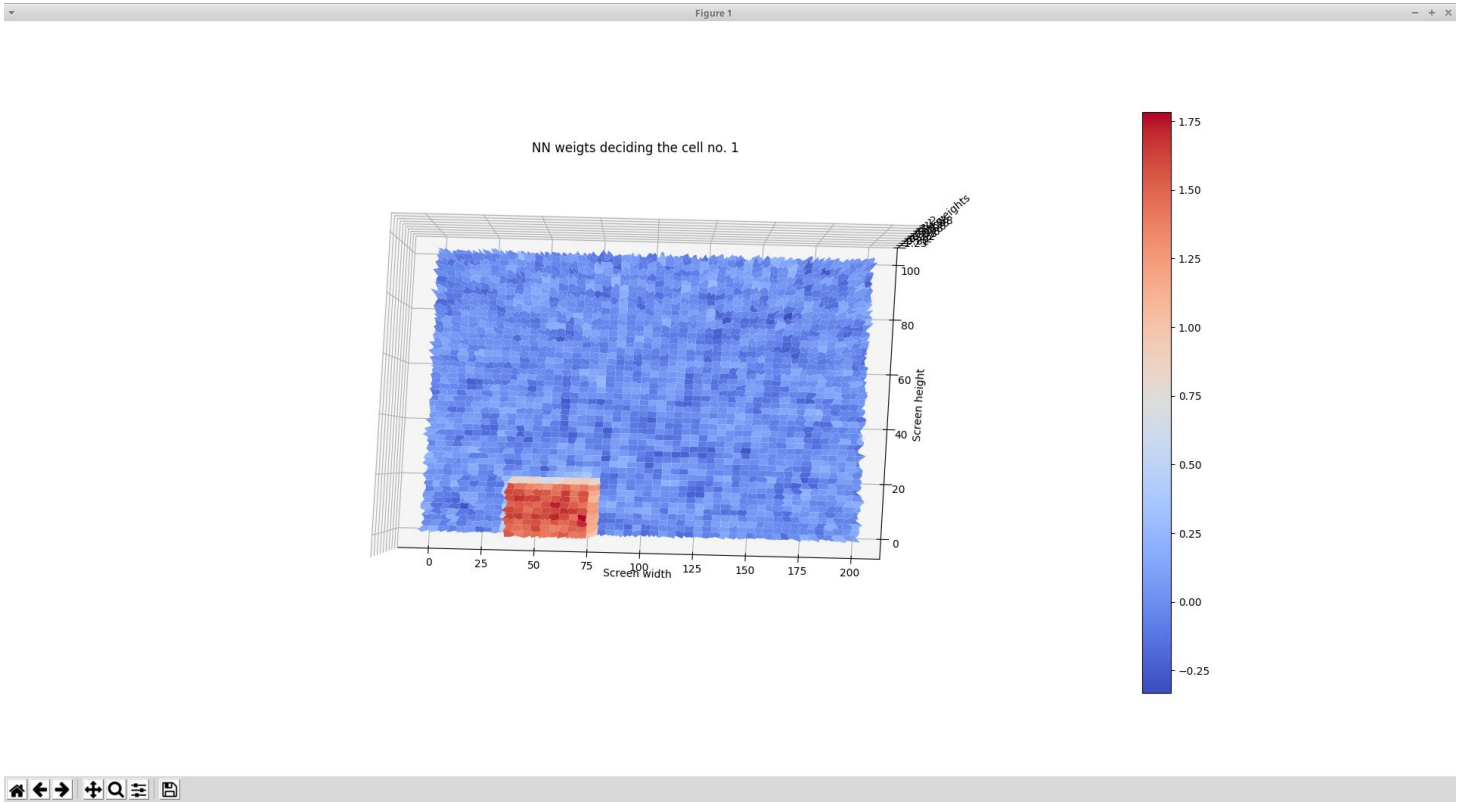
NN weights : BW video



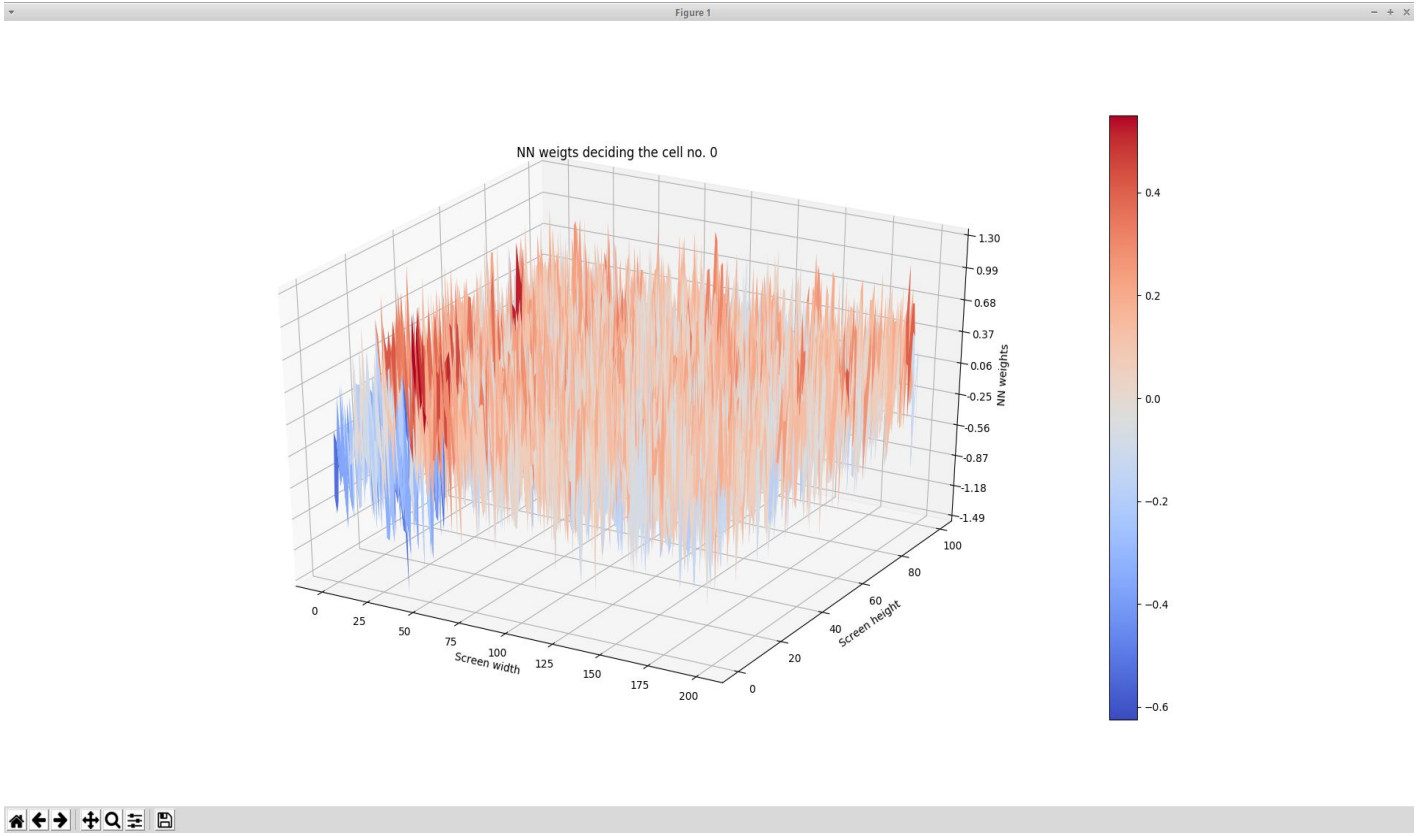
NN weights : Random video



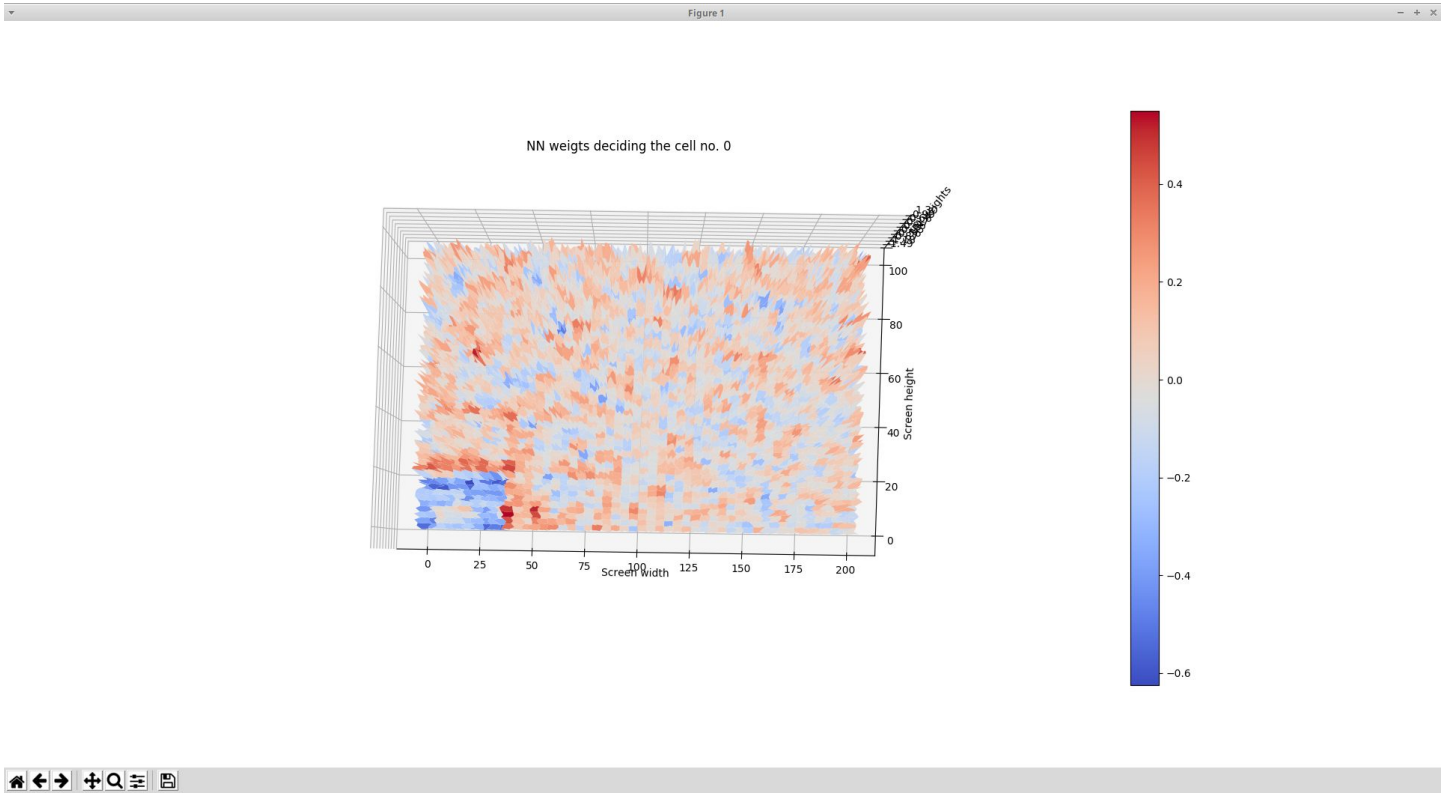
NN weights : Random video



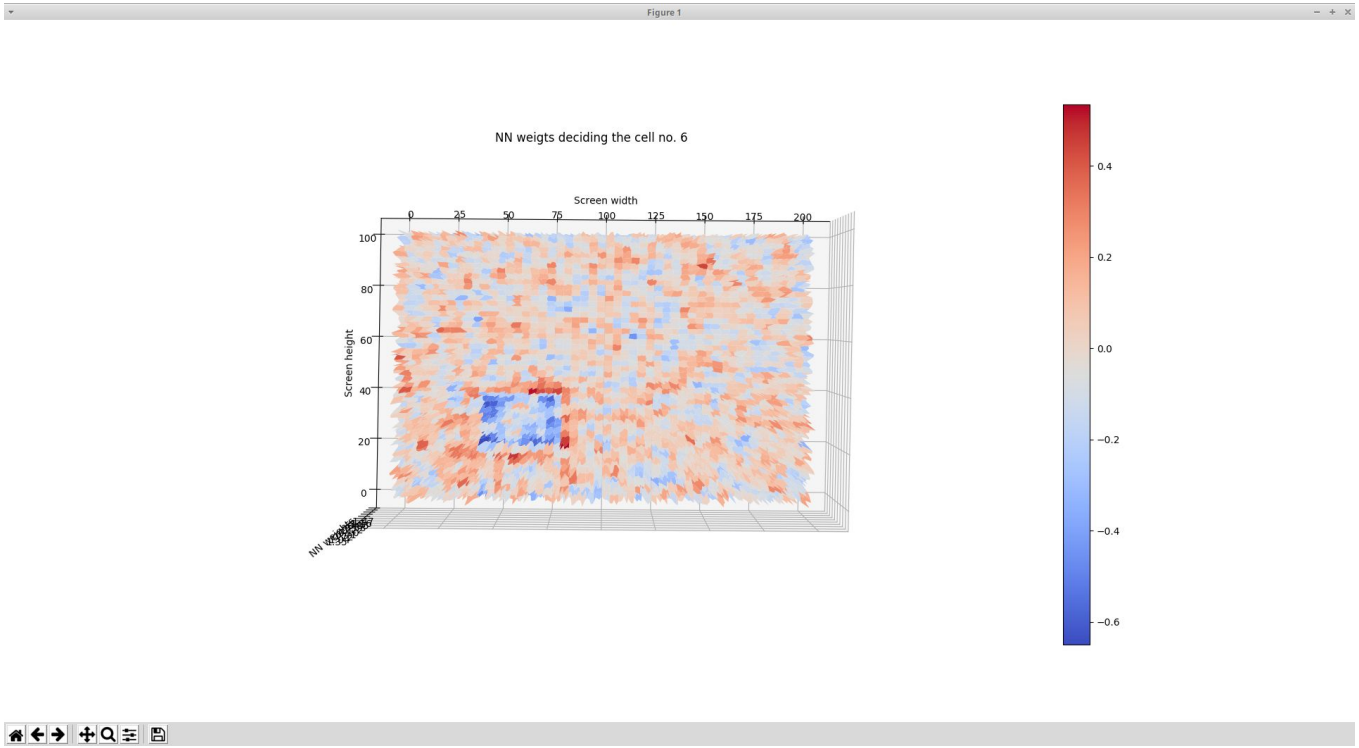
NN weights : multiple videos



NN weights : multiple videos



NN weights : multiple video



Accuracy (Without any hidden layers)

BW video	100%
Random video	95%
Multiple video	90%

Failed experiments

- Actual experimental data with shallow neural network

  Reason: A shallow NN is not enough to handle the experimental data

- Multiple videos with a deep neural network

  Reason: We don’t have enough data to train a deep NN