

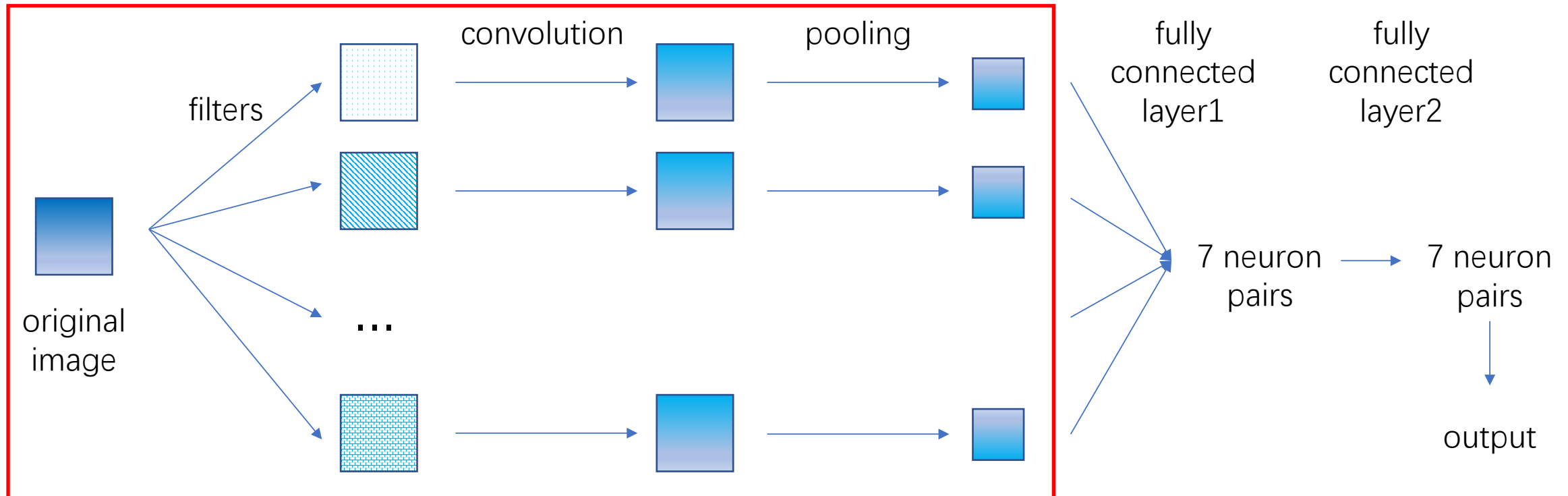
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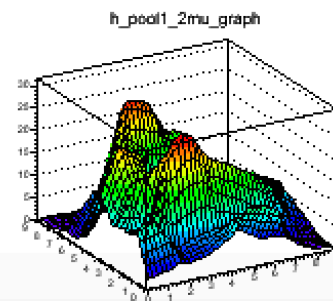
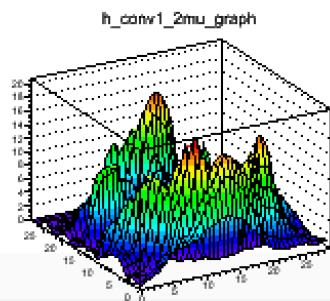
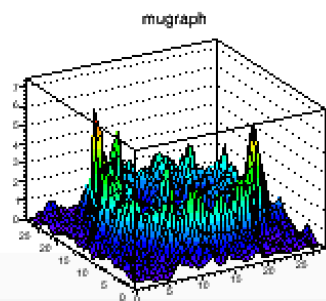
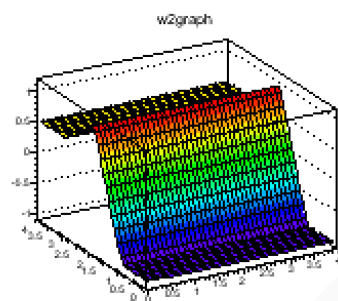
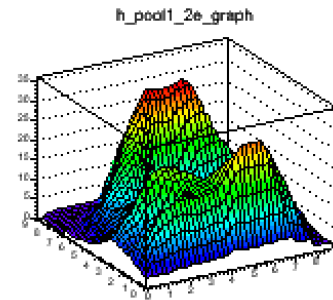
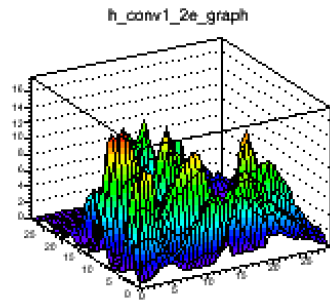
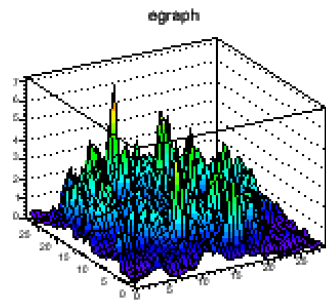
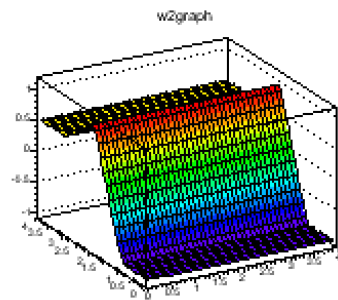
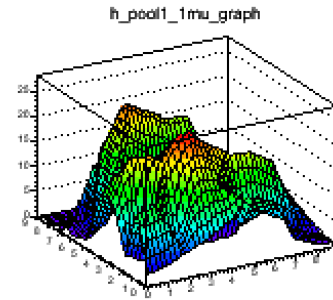
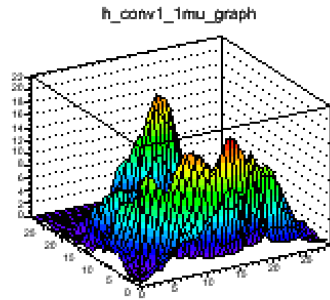
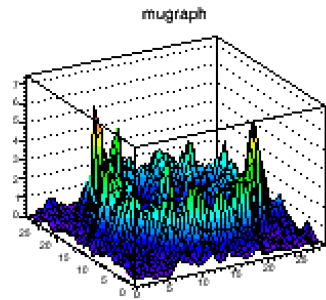
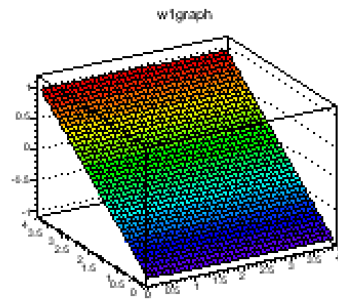
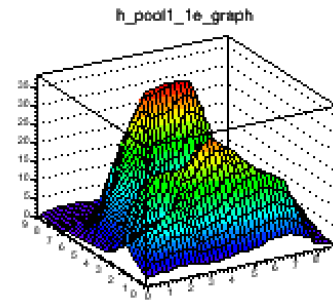
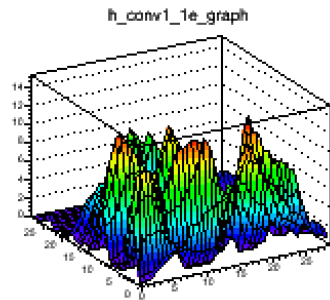
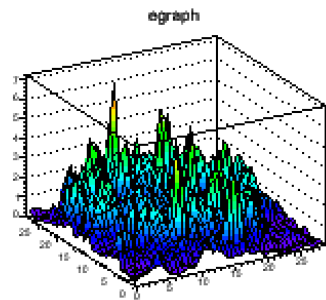
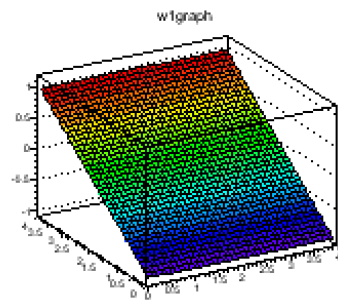
Enze Zhang

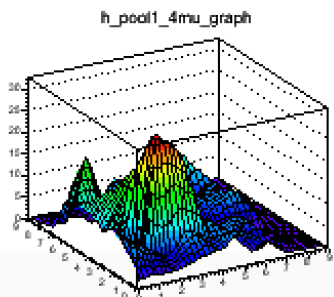
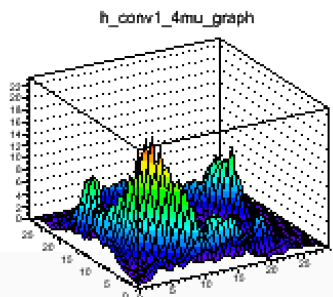
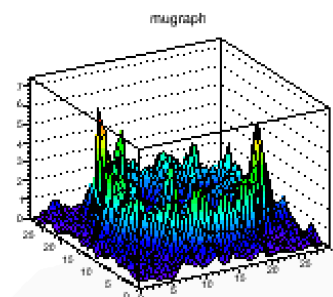
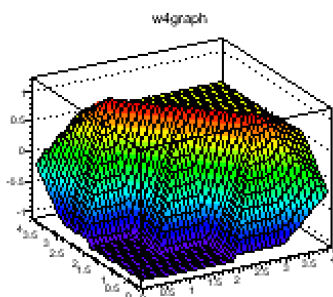
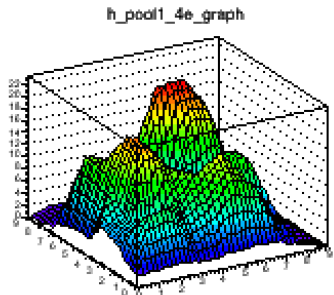
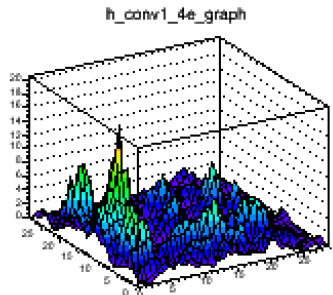
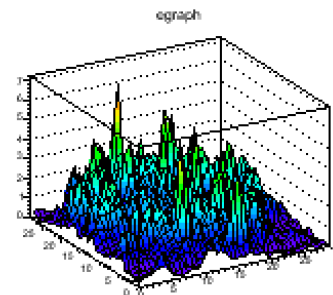
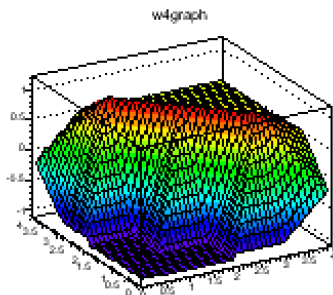
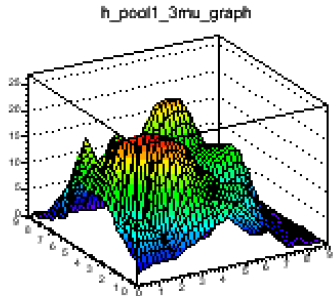
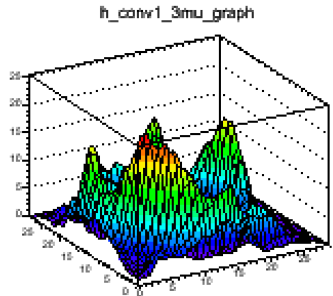
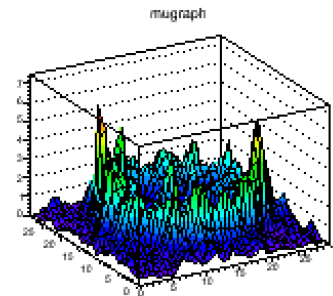
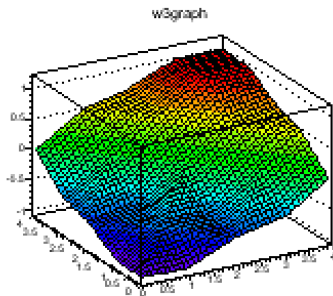
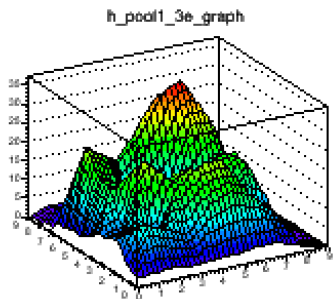
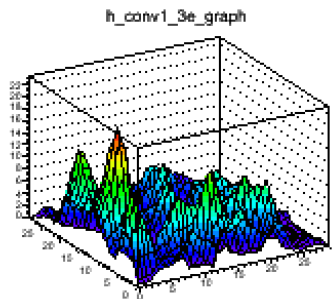
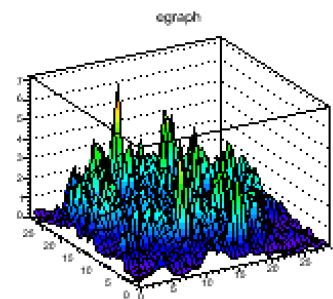
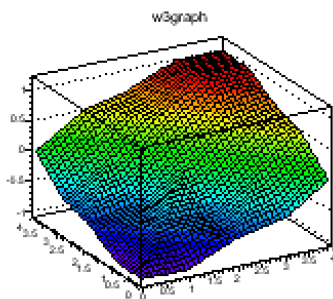
2017/09/20

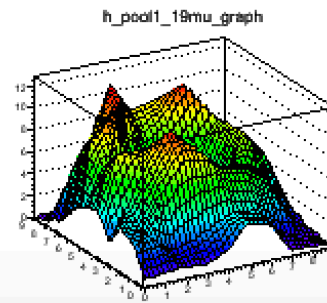
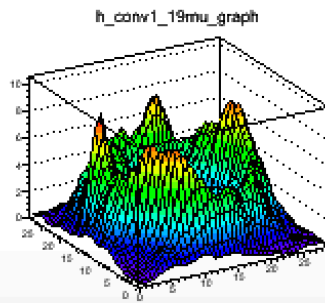
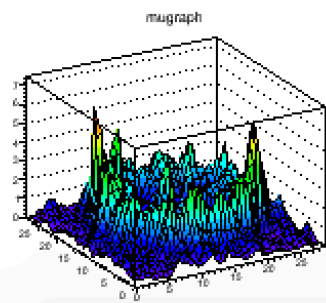
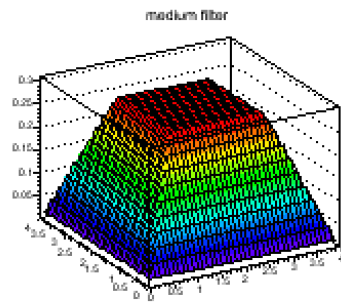
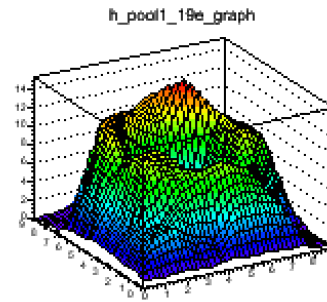
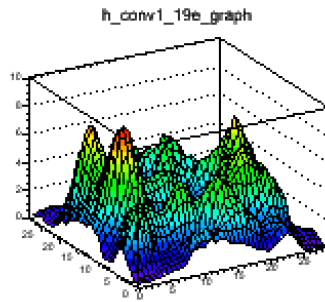
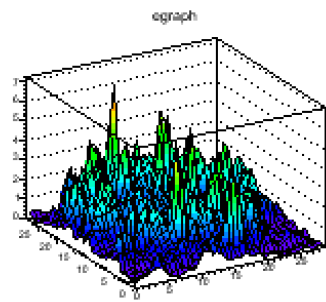
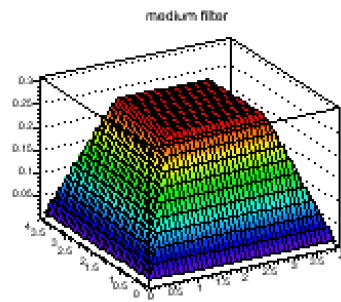
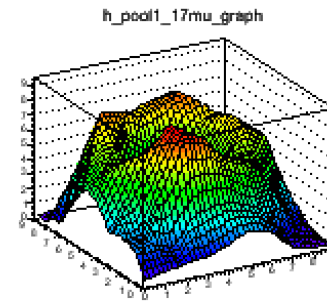
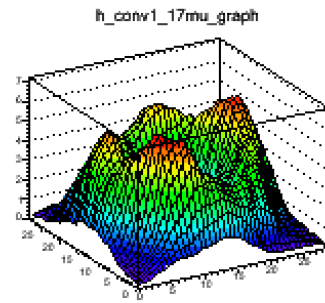
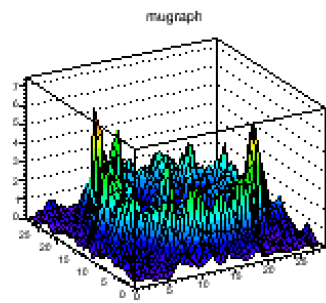
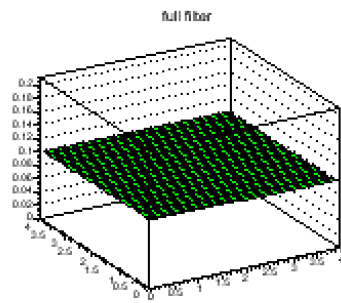
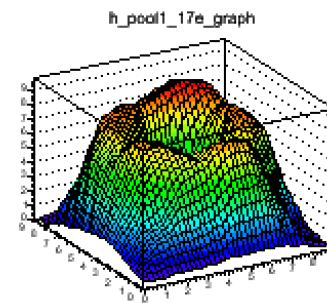
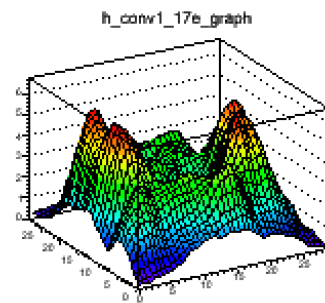
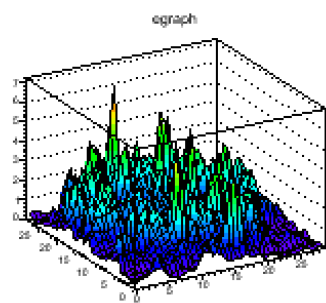
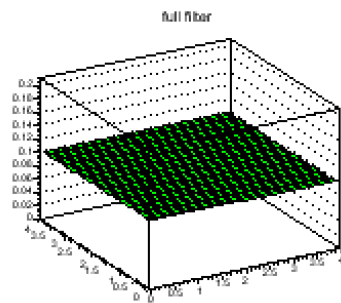
Plot trained filters and processed images

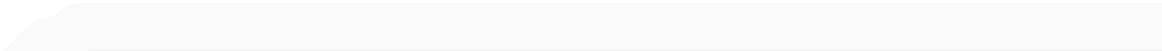
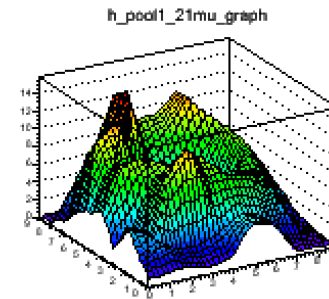
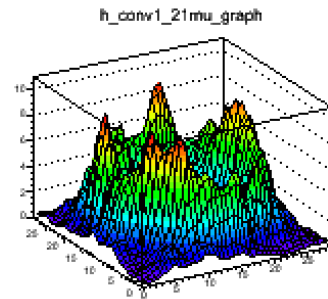
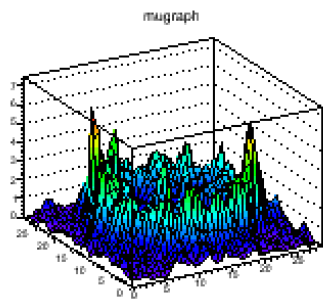
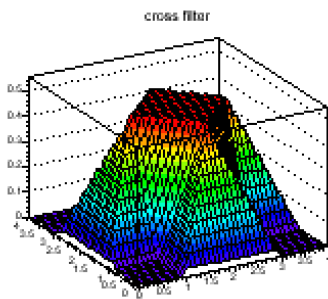
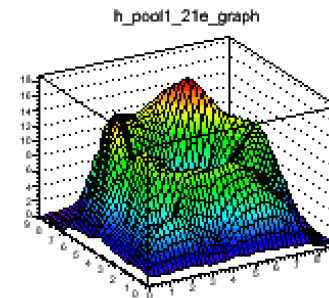
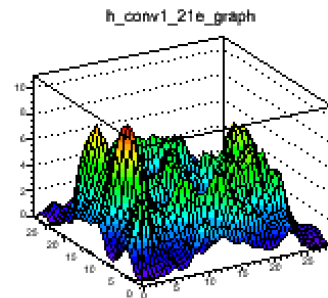
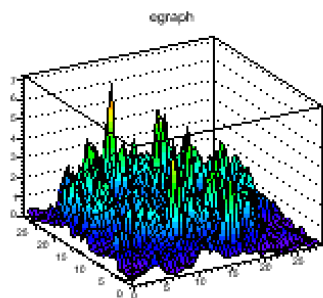
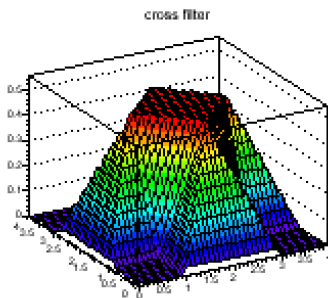
- Filters: include 8 angle filters (different for electron/muon), 3 custom filters (*full*, *medium* and *cross*, same for electron/muon)











Summary of the whole project

1. Generate electron muon events with WCSim.
2. Read the output root file from WCSim, project the PMT charge information into 2D images and store them in root files.
3. Distinguish images of different sets and write down all the images in each set to a text file for training.
(Here I tried to find an approach to read the root files directly into machine learning algorithm, but failed.)
4. Train and test with Theo' s algorithm.
5. Make a plot of the filters and middle-step outputs.