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# Applying Convolutional Neural Networks (CNNs) for Decoding fMRI Images

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## Abstract

We did what on which data set (using CNNs to decode 3-D image and predict word based on brain image). Our network looks like what. Some additional tricks we used are what. Our performance was what (comparing with baseline logistic regression classifier).

## 1 Introduction

People tried stuff. Some current techniques are what. To do something, we did what. In order to do so, this stuff and that stuff needed to be done. The specific contributions of this paper are as follows. In the end, the project suggests what.

## 2 Dataset

Talk about the dataset.

## 3 Baseline Approach

Talk about it.

## 4 CNN Architecture

Talk about it.

### 4.1 Layers Used

Talk about it.

#### 4.1.1 Layer 1

Talk about it.

#### 4.1.2 Layer 2

Talk about it.

### 4.2 Units Used

Talk about it.

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#### 4.2.1 Unit 1

Talk about it.

### 4.3 Other Techniques or Stuff

## 5 Dealing with 3D

Talk about it.

## 6 Results

Show table. Compare accuracies based on different settings. Compare with baseline and random choice.

### 6.1 Qualitative Evaluation

Maybe talk about sample images.

## 7 Discussion

Our results show something. Some possible improvements might be something.

## References

- [1] Alexander, J.A. & Mozer, M.C. (1995) Template-based algorithms for connectionist rule extraction. In G. Tesauro, D. S. Touretzky and T.K. Leen (eds.), *Advances in Neural Information Processing Systems 7*, pp. 609-616. Cambridge, MA: MIT Press.
- [2] Bower, J.M. & Beeman, D. (1995) *The Book of GENESIS: Exploring Realistic Neural Models with the GEneral NEural Simulation System*. New York: TELOS/Springer-Verlag.
- [3] Hasselmo, M.E., Schnell, E. & Barkai, E. (1995) Dynamics of learning and recall at excitatory recurrent synapses and cholinergic modulation in rat hippocampal region CA3. *Journal of Neuroscience* **15**(7):5249-5262.