In The Name Of God

HW09
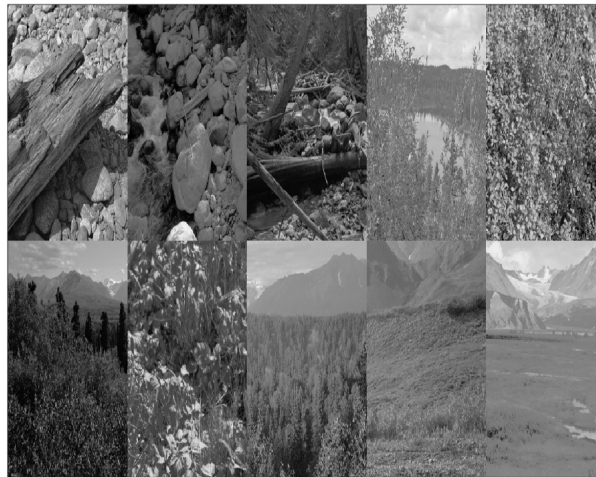
Advanced Neuroscience

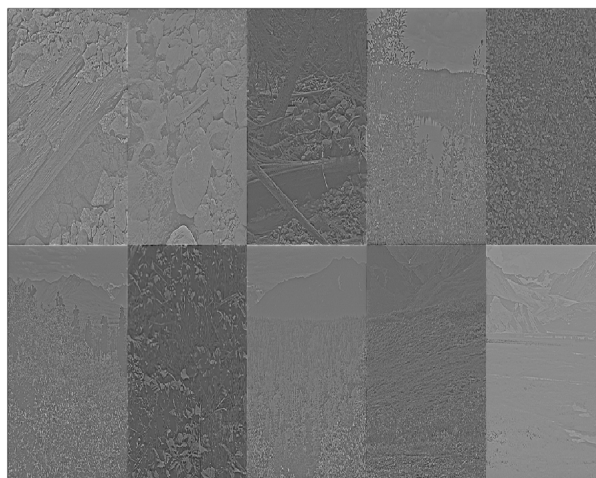**MohammadAmin Alamalhoda**

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■ Part1 - Simulate sparse basis functions of the natural images
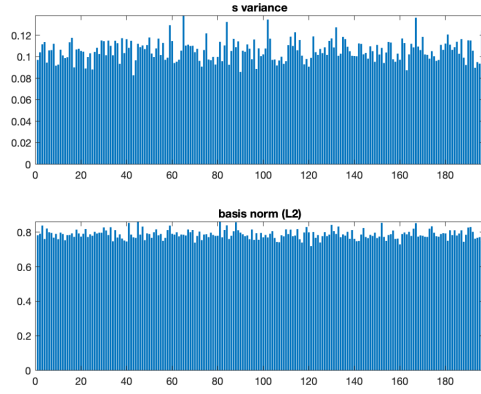
□ Paper images
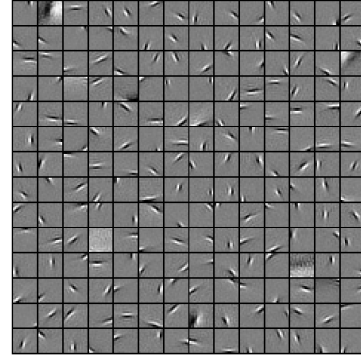

(a) Raw images

(b) Whitened images

Figure 1: Raw and whitened images for calculating the basis functions

(a) Shape of the basis function

(b) Norm and sample variance of the basis functions

Figure 2: Shape, norm, and variance of the basis functions - 196 Basis functions on 16*16 image patches - 10000 trials
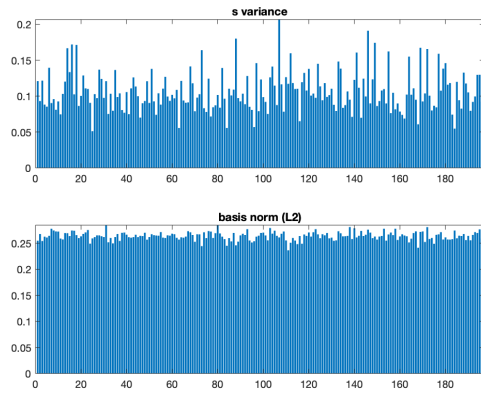

(a) Shape of the basis function
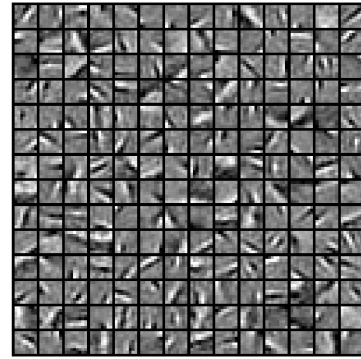

(b) Norm and sample variance of the basis functions

Figure 3: Shape, norm, and variance of the basis functions - 196 Basis functions on 8*8 image patches - 10000 trials

□ Yale dataset images

<table>
<tr><td>(a) Raw images</td><td>(b) Whitened images</td></tr>
</table>

Figure 4: Raw and whitened images for calculating the basis functions