Perceptual & Cognitive Computation Summer School  
*Topic: Practicum on Natural Image Statistics for Vision*

August 16 – 20, 2004  
MIT, Cambridge

Organizers: Aude Oliva & Ruth Rosenholtz, Brain and Cognitive Sciences, MIT.  
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I – Introduction

The purpose of the short training sessions is to give participants the opportunity to learn simple image statistics methods related to the coding and/or discrimination of natural image categories, while performing tests on an image database of their choice. Each session is structured around an introductory lecture followed by matlab-based exercises and discussion. Participants come to the sessions with their own image database and laptop, explore the results of a given image algorithm on their images and share its interpretation with the other participants. Matlab code will be provided. The last day, each participant presents to the group. All sessions are held from 10 am to noon, August, Monday 16 to Friday, 20, building NE-20-451.

II- Program

Session 1: Monday, 16.  
Statistics of natural image categories:  
Part 1 - Descriptive statistics (Aude)

Session 2: Tuesday, 17.  
Statistics of natural image categories:  
Part 2 - Principal components (Aude)  
Fisher-Discriminant analysis (Ruth)

Session 3: Wednesday, 18.  
Representing Natural Image: Sparse coding (Aude)

Session 4: Thursday, 19.  
Inferential image statistics (Ruth)

Session 5: Friday, 20.  
Participants’ presentation.

III- Participants

Soonmin Ba, Graphics CSAIL, MIT  
Monica Castelhano, Cognitive Sc., MSU  
Michelle Greene, BCS, MIT  
Anat Levin, CS & Eng, Hebrew Uni.  
Michael Mack, Computer Science, MSU  
Mike Mangini, BCS, MIT  
Aaron Pearson, Cognitive Science, MSU  
Javid Sadr, Psychology, Harvard  
Gregory Shakhnarovich, CSAIL, MIT  
Sara Su, Graphics CSAIL, MIT  
Edward Vessel, Neuroscience, NYU  
Galit Yovel, BCS, MIT

IV- Readings


Coffee and pastries will be provided everyday from 9:30 am to 10 am.