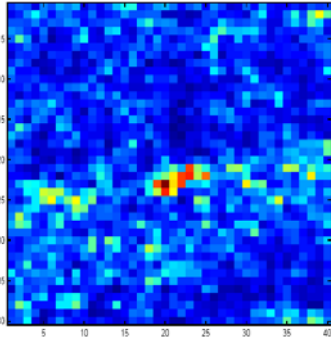


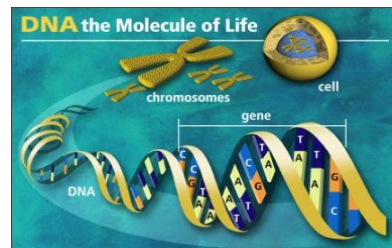
Research Opportunities in Mathematical Statistics



Projects in mathematical statistics offer an excellent opportunity of applying knowledge in various fields of mathematics to the real-life areas such as signal processing, classification and statistical genetics. Projects in mathematical statistics also offer **excellent employment opportunities** both in industry and academia.

Dr. Pensky has an active research program in mathematical statistics including the following areas of applications:

1. Recovering a signal on the basis of noisy observations.
This problem is related to nonparametric regression and has direct applications in electrical engineering (audio signal or image processing). The problem is well studied when data is equispaced. However, the challenge is to pursue the model in the case of missing or irregularly spaced data.
2. Classification of high-dimensional vectors based on small number of measurements.
The objective of the project is classification of high-dimensional data (images, micro-arrays, etc.) when only few of them are available for training. The advantage of this project is that it falls into a very popular area of data mining and provides excellent employment opportunities.
3. Statistical Genetics.
The objective of this project is to identify differentially expressed genes in a time-course microarray experiment, and to subsequently analyze and cluster differentially expressed genes.



Graduate students interested in this area should take the following courses:

Measure and Probability (MAA 6238)
Mathematical Statistics (MAP 6111)
Scientific Computing (MAT 5711)

Dr. Pensky is collaborating with scientists in various institutions all over the world, including Italy, France, Israel, and Cyprus. Funding for a graduate student is currently available.