[1] [2] [3] [4] [5] [6] [7]

**Reviews on:**

Bioinformatics

Microarray

Algorithms gene network

Generank

**Bioinformatics book**

Chapters 10,11,12,13,15

**FROM GeneRank paper:**

Measurement variability

Network graph -> undirected

Expression profile correlation coefficient

Differential expression, p-values

Biological process, Cellular component, Molecular function

Degree, out degree (web pages and for genes)

Vectror 1-norm

**MicroArray enriched GeneRank (look at reference list, lots in there):**

The Squared pearson coefficient

Bold face to denote vectors and matricies

Log-transformation

Coefficient of determination

Cluster analysis (k-means, hierarchical etc)

Eigen-vector

Gaussian density

Stochastic matrix

**Vital statistics:**

No new terms

**Making sense of microarray data to classify cancer**

No new terms

**Graph-based iterative Group Analysis enhances microarray interpretation**

Pysiologically

Look at yeast diauxic shift experiment

t-statistic (ref 1)

strong non-parametric RankProducts (ref 2)

metabolic network

(Yeast used as a test case as the biology and GO is very well developed and understood)

**Discovering regulatory and signalling circuits in molecular interaction networks.**

Proteomics

Purturbations

Binomial order statistic

Protein-DNA (protein encoded by one gene can influence the transcription of another by DNA binding)

NP-hard

Simulated annealing

**Functional modules by relating protein interaction networks and gene expression**

Signal cascades

Product feedback inhibition

Superparamagnetic clustering

Physical analog

Magnetic phase transitions of spin systems

Dendogram

Fast decreasing Gaussian decay

Monte Carlo simulation

Cdc15 and cdc28 experiments (mentioned in other papers also)

Transcription factor

Genetics

only looking at expression of a gene doesn't tell all, one gene could code for multiple protiens!

Genes with similar expression profiles often have related functions, could also account for this?

GeneRank can outline significant genes for further study, this can be experiment and time specific, genes at this time in this experiment are highly ranked and their functions should be looked at to get a better understanding of what is happening. Could be used in desease/cure testing.

**Topics for into**

Large sets of data being produced

Microarrays

Yeast as a model organism

GO and protein to protein interactions

Possible ways to handle the data and get useful info from it

Clustering, grouping, networks, sub-networks etc

GeneRank and its advantages

Biological significance

Proofs possible by matching with output of experts or know data outputs from previous experimentation.

Extension and improvement of GeneRank