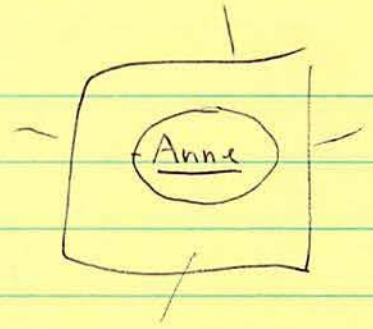


EX 18

Gene Expression w/ Parametric Bootstrap



ratio



rows
= #spots

- ① correlate
- ② class. by people/ints
- ③ find genes that distinguish one type from another

+/- cluster analysis

concerned w/ doing statistics

- Random draw cancer patient
- Healthy vs cancerous tissue
- Large vector of p (genes) w/ ratio
- Treat each as separate samples
- What interested in? - differential expression + co-expression
- Estimate parameters target set of genes using $f(x)$ (mean + covariance)
- Estimate parameters using bootstrap
- How fast does sample size need to grow?



Handwritten text, possibly a title or introductory sentence, written in pencil.

A small handwritten word or phrase, possibly a date or page number.

Handwritten text, appearing to be a paragraph or a set of instructions.

Handwritten text, possibly a list or a continuation of the previous paragraph.

Handwritten text, consisting of several lines of notes or descriptions.

- Ratios - take \log_2
- Truncated set for particular range

mean : μ

covariance : Σ

Apply $f(x)$

Does each gene fit in $f(x)$? $(0, 1)$

Assign cluster label

3 stages - example of subset rule

I. differential expression (if $(\mu) > c$)

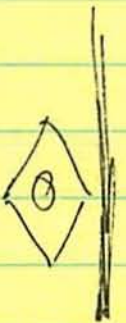
II. which co-expressed - use partitioning methods
- assign genes

III - well matched -ness how close to a center

Look at sample mean + sample covariance

. want estimator to ~~get~~ be consistent

Extremely False Positions



Notes - 18/11/19
- Transcribed out for practice - 18/11/19

11 : 10/11/19
12 : 10/11/19

Apply 7/11/19
13 : 10/11/19
14 : 10/11/19

15 : 10/11/19
16 : 10/11/19
17 : 10/11/19

18 : 10/11/19

19 : 10/11/19

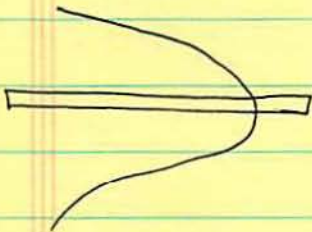
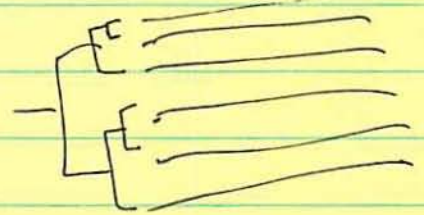
20 : 10/11/19

21 : 10/11/19



Simulation 5

partition homogeneity test



if the set is biased in some way.



Breast Cancer

- 20 women good status +/- chemo.
- 3851 spots w/ no data quality problems
- common reference samples

Question

diff expression +/- chemo
clusters

- Highly
incongruent
women?

