

DDD Site visit

September 28th, 2016

Overview: lab projects

- ▶ Dynamic Statistical Comparisons
- ▶ The Multiple Testing Party

Dynamic Statistical Comparisons

- ▶ Pilot project: an R package 'dscr', implementing methods in R
 - ▶ useful, but we wanted something more flexible
- ▶ This year, DSC2: a more flexible workflow tool for running pipelines
 - ▶ command line based
 - ▶ still aimed at making R integration particularly easy
 - ▶ update from Gao Wang later

Multiple testing party (credit: J Pickrell)

- ▶ Multiple testing is usually portrayed as a “burden” by statisticians (and others)
- ▶ Our view: multiple testing is really an opportunity!
- ▶ Lab is developing tools for exploiting this opportunity
 - ▶ ... and inviting people to the multiple testing party.

Multiple testing party: completed work

- ▶ Univariate, “adaptive shrinkage” (Stephens, 2016; Xing and Stephens, 2016; Lu and Stephens, 2016).
 - ▶ software packages: `ashr`, `smashr`, `vashr`
- ▶ Multivariate (Urbut, Wang, et al, in preparation)
 - ▶ software package: `mashr`

Multiple testing party: in progress

- ▶ RNA-sequencing application (update from Lu/Gerard)
- ▶ From correlations to causation. . . (just beginning; update from Marcus)