**Cis/Trans automatic annotation tool**

/mnt/icebreaker/data2/home/jluningham/Projects/bfGWAS\_SS

Source code in src

Perl script in bin

Script to obtain gene\_info:

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Scripts/make\_exp\_files2.R

(reads the gene expression file, creates a unique expression quantitative trait for each gene, and records chr/start pos/end pos to provide as arguments for the tool)

Automatic creating predicted GREX in Test data under development in same source codes

**Running BVSR on a list of genes**

Pipeline of steps and scripts: /home/jluningham/Projects/BFGWAS/ROSMAP/genomeWide\_exp\_pred\_pipeline.sh

Initially, I ran the BVSR approach on a list of genes that had non-zero prediction on PrediXcan so we could make direct comparison. I then applied the process to a list of all remaining genes. The results from these two training phases are in two folders under YangFSS:

Predixcan genes:

/mnt/YangFSS/data/ROSMAP\_GWAS\_Segments

In this folder, the results for the BVSR quantitative expression training models are in folders for each gene titled ${gene}\_GWAS\_MCMC2

Remaining genes:

/mnt/YangFSS/data/ROSMAP\_Expr\_BVSRM

In these folders, the results for the BVSR training models are in folders for each separate gene titled ${gene}\_GWAS

**Simulation Pipeline**

Generate data: /mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/dat\_gen.sh

Analysis pipeline with run\_makeSim.sh:

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/Simulation\_pipeline.sh

The pipeline:

1. creates dosage file from 5 blocks
2. need to submit dat\_gen.sh
3. gets score statistic file for all generated data
4. run BVSRM on all generated data

Within pipeline:

- Get predicted expression for n\_cis = {0,2,5}

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/Predict\_Expr.R

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/Predict\_expr\_train.R

- Get predicted expression for prop\_cis = {.3 .5 .7}

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/Predict\_Expr2.R

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/Predict\_expr\_train2.R

R2:

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/getR2.sh

/mnt/icebreaker/data2/home/jluningham/Projects/BFGWAS/ROSMAP/Simulation/getR2\_train.sh

Simulated PIP: getPIP\_sim.sh

Simulated TWAS: power\_analysis.sh

Results scrips: train\_test\_comparison.R

sim\_plots.R

get\_EN\_eQTL.R