Uk3

2017-03-23

Here we plot the correlation matrix and the first 3 eigenvectors of Uk3.

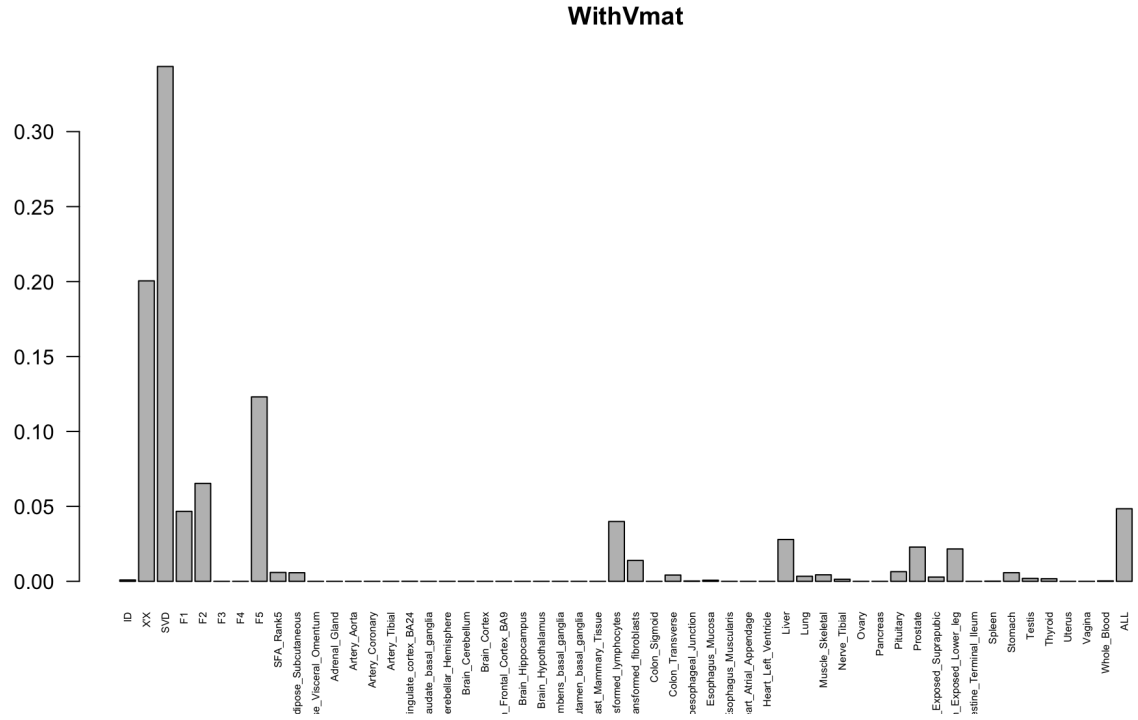
What is Uk3? A data set? Please briefly explain.

Begin by loading these packages into your R environment.

```
library(gplots)
library(ggplot2)
library(colorRamps)
library(fields)
library(lattice)
```

TO DO: *Briefly explain here what this code chunk does. It looks like it is loading the data and/or results and then generates a brief summary of the data in a bar chart.*

```
covmat = readRDS("../../Data_vhat/covmatwithvhat.rds")
z.stat = read.table("../../Inputs/maxz.txt")
names  = colnames(z.stat)
pis    = readRDS("../../Data_vhat/piswithvhat.rds")$pihat
pi.mat = matrix(pis[-length(pis)],ncol = 54,nrow = 22,byrow = T)
names  = colnames(z.stat)
colnames(pi.mat) =
  c("ID","X'X","SVD","F1","F2","F3","F4","F5","SFA_Rank5",c(names,"ALL"))
barplot(colSums(pi.mat),main = 'WithVmat',las = 2,cex.names = 0.5)
```

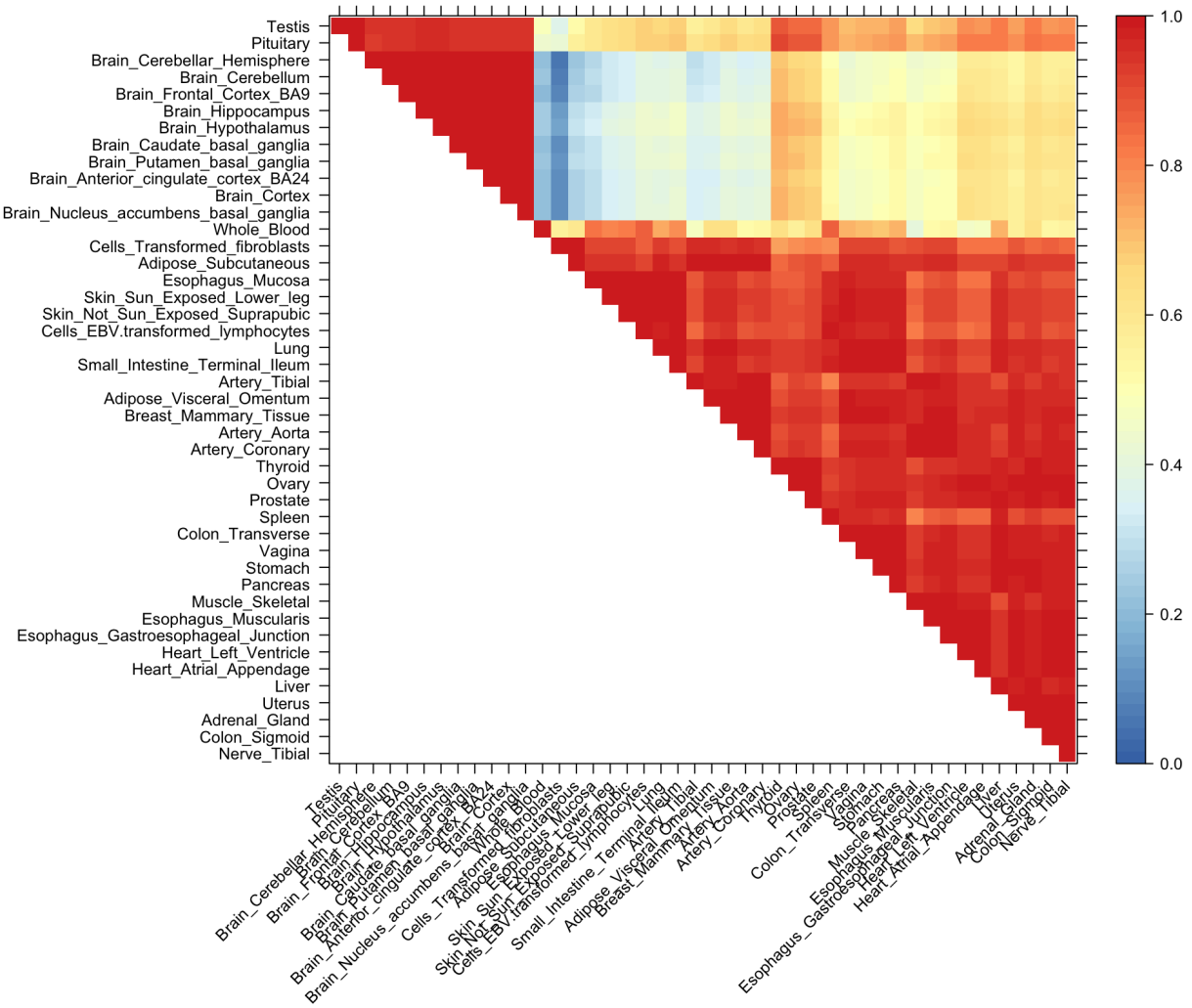


TO DO: *Briefly explain here what this code chunk does.*

```
k = 3
hclust.2 = function (d, method = "average", members = NULL)
  hclust(d, method, members)
x = cov2cor(covmat[[k]])
x[x < 0] = 0
colnames(x) = names
rownames(x) = names
h = read.table("../../Data/uk3rowindices.txt")[,1]
```

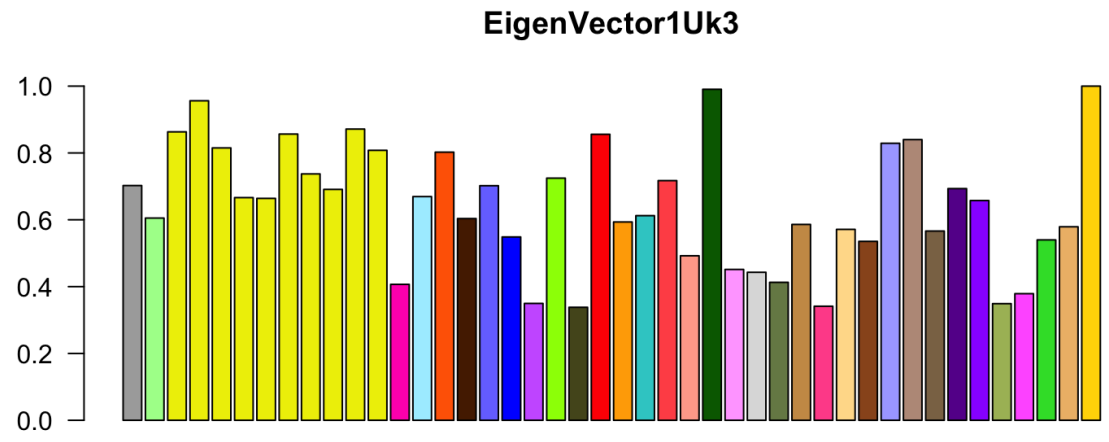
Now we produce the heatmap. Note that this is flipped in the paper:

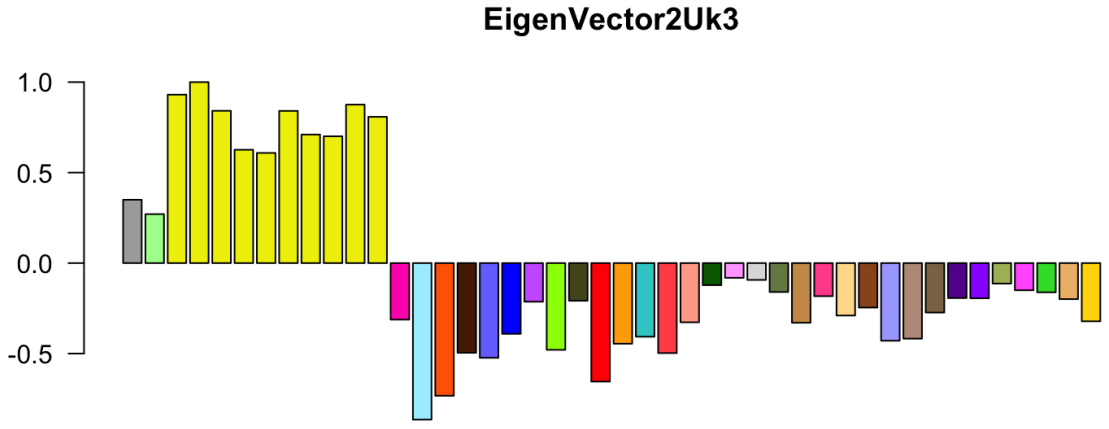
```
smat = (x[(h),(h)])
smat[lower.tri(smat)] <- NA
clrs <- colorRampPalette(rev(c("#D73027","#FC8D59","#FEE090","#FFFFBF",
                               "#E0F3F8","#91BFDB","#4575B4")))(64)
lat = x[rev(h),rev(h)]
lat[lower.tri(lat)] <- NA
n = nrow(lat)
levelplot(lat[n:1,],col.regions = clrs,xlab = "",ylab = "",
          colorkey = TRUE,at = seq(0,1,length.out = 64),
          scales = list(x = list(rot = 45)))
```

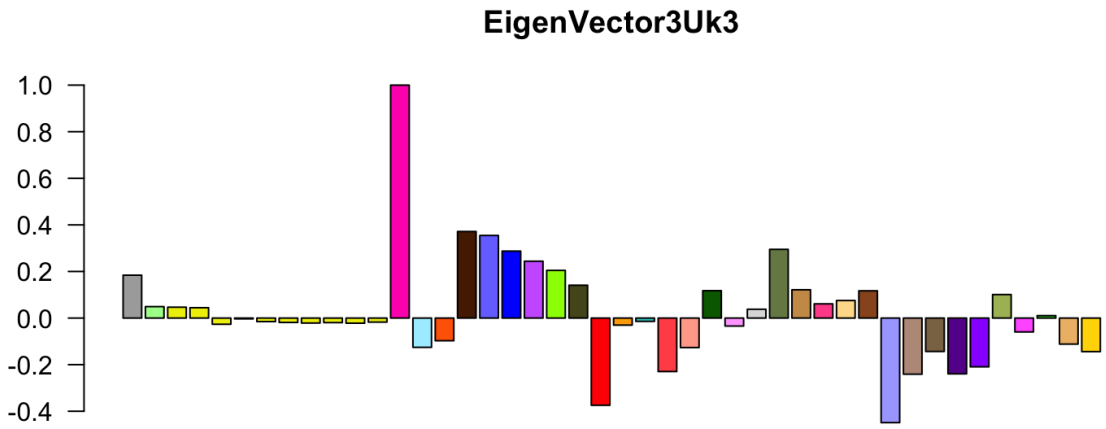


Now let's do the eigenplots:

```
missing.tissues = c(7,8,19,20,24,25,31,34,37)
color.gtex = read.table("../../Data/GTExColors.txt",sep = '\t',
                        comment.char = '')[-missing.tissues,]
k=3
vold=svd(covmat[[k]])$v;u=svd(covmat[[k]])$u
v=vold[h,]
names=names[h]
color.gtex=color.gtex[h,]
for(j in 1:3)
  barplot(v[,j]/v[,j][which.max(abs(v[,j]))],names="",cex.names = 0.5,
          las = 2,main = paste0("EigenVector",j,"Uk",k),
          col = as.character(color.gtex[,2]))
```


EigenVector1Uk3
1.0
0.8
0.6
0.4
0.2
0.0


EigenVector2Uk3
1.0
0.5
0.0
-0.5



Session information.

```
print(sessionInfo())
# R version 3.3.2 (2016-10-31)
# Platform: x86_64-apple-darwin13.4.0 (64-bit)
# Running under: macOS Sierra 10.12.3
#
# locale:
# [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
#
# attached base packages:
# [1] grid      stats     graphics  grDevices utils     datasets  methods
# [8] base
#
# other attached packages:
# [1] lattice_0.20-34    fields_8.10        maps_3.1.1
# [4] spam_1.4-0         colorRamps_2.3     ggplot2_2.2.1.9000
# [7] gplots_3.0.1
#
# loaded via a namespace (and not attached):
#  [1] Rcpp_0.12.10       knitr_1.15.1       magrittr_1.5
#  [4] munsell_0.4.3      colorspace_1.3-2   stringr_1.2.0
#  [7] plyr_1.8.4         caTools_1.17.1     tools_3.3.2
# [10] gtable_0.2.0       KernSmooth_2.23-15 htmltools_0.3.5
# [13] gtools_3.5.0       assertthat_0.1     lazyeval_0.2.0
# [16] yaml_2.1.14        rprojroot_1.2      digest_0.6.12
# [19] tibble_1.2         codetools_0.2-15   bitops_1.0-6
# [22] evaluate_0.10      rmarkdown_1.3      gdata_2.17.0
# [25] stringi_1.1.2      scales_0.4.1       backports_1.0.5
```