Plot_TI_fields

Plotting the TI fields

This script, first, loads the database of the TI fields collected to find an optimal configuration of electrodes to stimulation of the vmPFC.
Then, fields are sorted for focality of their stimulation.
After that, we choose a field, which is not only focal, but also has one of the highest thresholds.

Threshold correponds to the value of the median activation within the vmPFC (half of the voxels within the target are activated on the level of the threshold or higher).
Focality tells us the percentage of the voxels activated higher than the threshold that are located within the target in comparison with the whole brain.

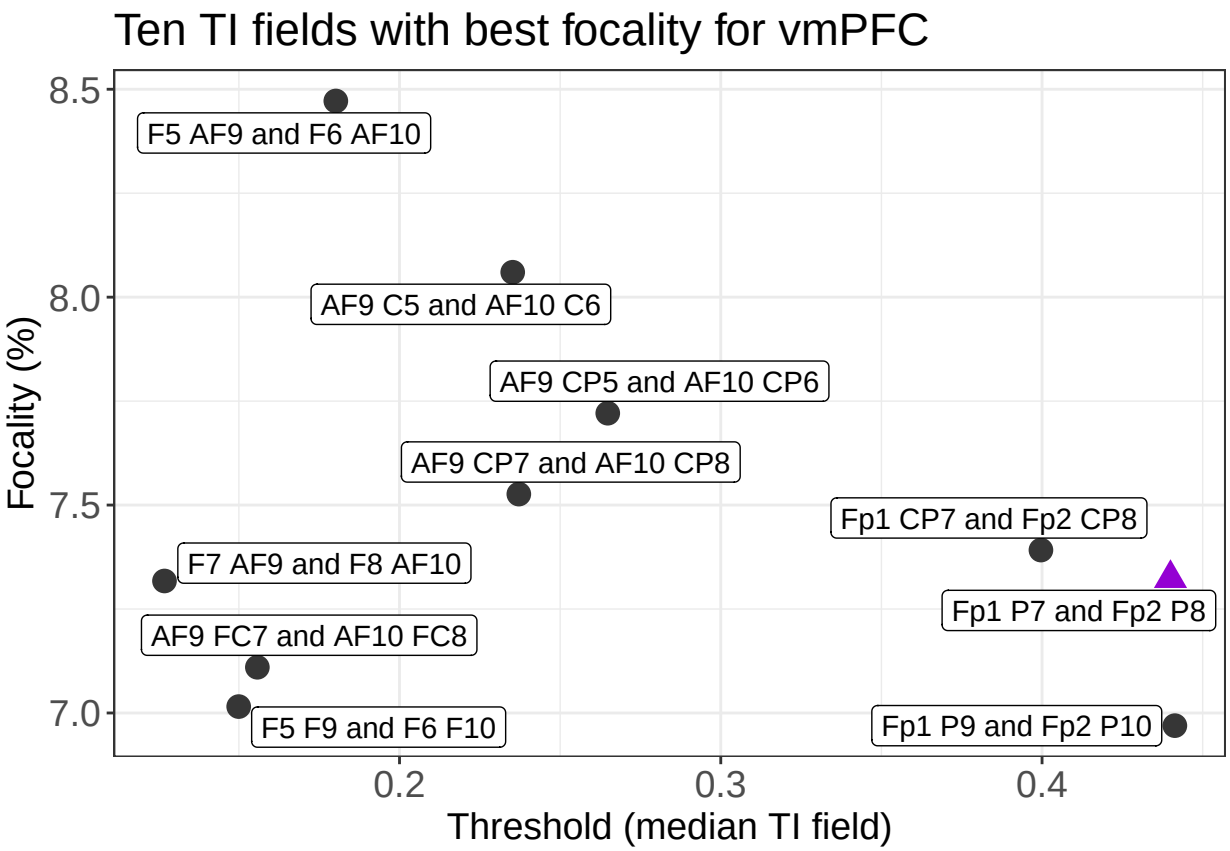
```
setwd('C:/Users/vbeliaev/Documents/TI_fMRI/pre_registration_paper/methods/modelling/paper_scripts')
dat = read.csv('fields_729.csv')

dat_sort = dat[order(-dat$focality),]
dat_sort_red = dat_sort[1:10,]

dat_show = dat_sort_red[,c(1, 3, 6, 10, 11)]

knitr::kable(dat_show, caption = "Fields with highest focality")
```

Table 1: Fields with highest focality

Field	threshold	focality	mean_tar	sd_tar
Configuration_F5_AF9_F6_AF10.cache	0.1801748	8.471809	0.1872619	0.0292690
Configuration_AF9_C5_AF10_C6.cache	0.2352343	8.059914	0.2414826	0.0374475
Configuration_AF9_CP5_AF10_CP6.cache	0.2648175	7.720890	0.2667183	0.0405314
Configuration_AF9_CP7_AF10_CP8.cache	0.2371387	7.526364	0.2387397	0.0374259
Configuration_Fp1_CP7_Fp2_CP8.cache	0.3996529	7.391785	0.4097785	0.0416486
Configuration_Fp1_P7_Fp2_P8.cache	0.4399784	7.323671	0.4459903	0.0445266
Configuration_F7_AF9_F8_AF10.cache	0.1268448	7.317441	0.1317132	0.0219828
Configuration_AF9_FC7_AF10_FC8.cache	0.1557518	7.109931	0.1608434	0.0271868
Configuration_F5_F9_F6_F10.cache	0.1499426	7.015390	0.1550789	0.0190383
Configuration_Fp1_P9_Fp2_P10.cache	0.4413434	6.969515	0.4460745	0.0439275

Field which has high focality and high median field is ‘Fp1 P7 Fp2 P8’
This field will be highlighted on the plot

Generating a plot for these results


Ten TI fields with best focality for vmPFC
8.5
8.0
7.5
7.0
Focality (%)
F5 AF9 and F6 AF10
AF9 C5 and AF10 C6
AF9 CP5 and AF10 CP6
AF9 CP7 and AF10 CP8
Fp1 CP7 and Fp2 CP8
F7 AF9 and F8 AF10
Fp1 P7 and Fp2 P8
AF9 FC7 and AF10 FC8
F5 F9 and F6 F10
Fp1 P9 and Fp2 P10
0.2
0.3
0.4
Threshold (median TI field)