

Assignment description

- You need to develop an App for indoor localization using RSS signals from WiFi using Bayes filters.
- NO motion sensors (IMU) need to be used for this assignment.
- You will need to gather training data from your own location according the layout you propose (and got approved). Then, you will need to evaluate the accuracy of your method **online** and provide a confusion matrix with accuracy results. By online, we mean that you must use your phone to run the code in real-time (as opposed to gathering the data with your phone, offloading it to a laptop and processing the data off-line)
- Maintain social distance guidelines.

- Submission: BrightSpace
- File name:
sps<year>_<group_id>_report2_optionX.pdf
- Max 2 pages including figures, tables and references. Single or double column. We will NOT look at any information beyond 2-pages.
- Only one member of the group needs to submit the report.
- At the top of the report mention
 - your group id, names and student ids, phone used, and version of android
 - provide pointers for code you copied/modified.
 - describe who did what in a concise manner.

Guidelines for Report: Bayesian (max 2 pages)

- The first part of the report should include the names, ids, load distribution, etc. mentioned in the prior slide. Be concise.
- Data collection
 - Sampling rate, sampling time per cell, were all samples gathered handling the phone in the same direction?, number of APs observed etc.
 - Figure with your map layout.
- Data Processing
 - Filters used for APs and RSS (if any)
 - Do NOT explain Bayes. Only describe how you filter APs and RSS values (if you decide to do that). If you do not filter them, state why.
- Sample Radio Maps
 - Figure 1: pmf of RSS for 2 cells where the distributions are similar (i.e. cells are hard to localize)
 - Figure 2: pmf of RSS for 2 cells where the distributions are different (i.e. cells are easy to localize).
 - Explain the figures and the reasons for the similarity & difference.
- Evaluation
 - Describe how you stop the iterative Bayes process (number of tries?, reaching steady state?).
 - Describe if you use a parallel or serial approach for the iterative Bayes process.
 - Snapshot of App
 - Confusion Matrix (at least 10 attempts per cell).
- Discussion (bulletpoints)
 - What is hard? What is novel? i.e. new methods that were not described in class.

