3/16/16

This note is written down to reflect the files in this folder, mainly for CDC 16 paper.

Current simulation compares LIFO-DBF with consensus and centralized method.

/figures/data\_exchange/CDC 16 contains mov\_sen\_mov\_tar\_robot\_15-Mar-2016.mat and sta\_sen\_sta\_tar\_robot\_14-Mar-2016.mat. they are saved workspace and can be used to recover the comparison plots.

Some issues to look into:

* Why the pdf does not concentrate on the true target position after tens of steps? anything wrong in the code or in theory? My problem is actually the parameter identification. So I guess in future work, I need to focus on consistency of ML estimate, not the pdf.

Works to do:

* Add comments to code
* The computation for moving target case is very long. Improve it.
* Think about a clever way to replace upd\_cell, which takes huge storage space.
* In the comparison of three filtering methods, it needs further thinking about at which step the estimated target position should be used for comparison. When using consensus method, it seems to make more sense to use the consensused pdfs. However, this requires that we change the algorithm of the LIFO-DBF a little bit. Current LIFO-DBF algorithm compares individual pdf that only incorporates the ego robot’s current observation. So in current code, consensused pdf is based on the last time step, then the ego robot’s observation is used. Which is okay, but I guess when presenting the results, people usually will think that the consensused pdfs should be the same among all robots. So probably I should change from current order: exchange -> new observation -> individual pdf to new order: new observation -> exchange -> individual pdf.
* Probably need to use ML estimate and prove its consistency, thus requiring the change of the consistency proof.