**Instruction**

**Overview**

Particle Filter Simulator is an interactive software that implement the data visualization of Particle Filter algorithm.

**Functions**

1. Basic function

* There are four parameters sliders provided to adjust under the button "Start".
* Users could drag to adjust settings.
* When finish adjusting, click the button "Start" to start calculation
* The software will run the algorithm background with those parameters.
* When calculation finished, the software will operate and replace the old image with a new one.
* When users open the software, it will automatically generate an image based on the default parameters set by the developer.
* Due to the specificity of the algorithm, the image generated by same parameters may be entirely different.

1. I/O function

* The software provides the function to import and export data. They are under the “File” menu.
* Users can use the export function to get the data of the current image and parameters.
* The exported data can be imported again. When importing data finished, user will be informed to click the button "Refresh" to generate a new image.
* Export/import data is in .json format, contains xThat & xTrue matrix and parameters.

1. Advanced function

* Users can do multiple operations on one image with buttons on top of it.
* Zoom bars for x/y axis are provided for users to view specific part of the image.
* Data zoom function is designed for users to zoom the specific area they concentrate on. They can click “Area zooming” then drag the mouse to select the region they want to see.
* Restore area zooming is provided to restore the image changed by former data zooming. Users can click "Restore area zooming" to use this function. It only undoes the area zooming one step at a time.
* Click the button "restore" to restore all configuration items, including data zooming.
* Click the button "data view" to view the data of the image. (Including X-Hat and X-True)
* Click the button “Save as image" to save and export the image. (The default format is PNG)

1. More details

* Users can use the option "Always on Top" in "view" to keep the software interface on the top.
* Users can hover the cursor over the coordinates of the image to see the data of the current point.

For more details, please visit https://github.com/HenryJaQiu/GRP-17-18-Group6