Evaluation and Reflection

**Assessment of the product**

After two semesters study and work, we finally finish our software which completes data visualization of a part of calculation of Particle filter. Some assessments of the product including good and bad reviews are as follow

* The software of our group has completed most of the requirements.
* The packages for our software are very small, it is easy for customers to download and use.
* Our software can be cross-platform.
* Our software has more than one installation approaches for customers to choose. They could download an installation package or portable version to start using our program.
* Our software complete data visualization, the result of each change in data is straightforward on the graphics.
* Our software can import and export data. We can not only use an existing data to complete data visualization, but also export data according to the image that we have generated.
* Our software only performs 70% of the expected functionality, and other functionalities have not been realized for some reasons including an extra algorithm. We planned to provide more than one algorithms for customers to choose including “Fully adapted Particle filter” in “Auxiliary Particle filter”, but we did not make it at last.
* The speed of the software is not optimized well. The software would run for 1.6 seconds if we put the number of particle is 100. But if the particles increase to 500, it would run for 7.9 seconds.
* Our software’s language choice is not the optimal choice, we had tried some other languages such as python. Using python could optimize operation time but it also adds new problems which increases user load. For the sake of the user, we use JavaScript as the language of our software.
* Our software has not been tested by Alpha text, also named informal acceptance test

**How to improve**

* We still have a lot of room for improvement in language selection. After lots of steps of screening, our choice is JavaScript. But we do not think it is the optimal solution, it is a result considering the balance of code difficulty, package size and some other factors. But from the aspect of the functionality and software instead of development difficulty and the burden of the customers, we would choose multithreading JavaScript or other advanced languages.
* Because the software’s loading time will become longer as the number of the particle increasing., a progress bar can let our customers see its loading process intuitively.
* If the parameters have been modified, the software would generate a new image according to the new data. Sometimes customers may both need the old image according to the old data and new image with its data to contrast. If there is a contrast window which could contrast the data and images between old and new, the software will give customers a more intuitive experience.

**Assess of the process**

Our teammates cooperate better and become more efficient during nearly one year's effort and adjustment. It is no doubt that the accomplishment of the project is a result of our concerted effort. From the perplexed start to the efficient cooperation later on, we experienced a lot. During this period, there is something rewarding and also something that needs improvement. The following passage is the overall assessment of our project.

* The five members of the process unite in a concerted effort, maintain a high degree of activity and attendance.
* The team members communicate actively and contact supervisor when we meet problems, and we are all hard-working and willing to work.
* At first all the members were learning about the basic theory of the Particle filter. We waste too many too much time one the foundation of mathematics and it is not necessary.
* Because we used meaningless a few weeks to learn the math basic together, we slowed down the progress of software design.
* We divided our group into two teams, one is responsible for algorithm implementation of Particle filter, and the other is responsible for software design. This had greatly speeded up our process.
* Our project nearly had no progress during the Chinese Spring Festival. That affected the progress of the follow-up.
* Though we communicated with our supervisor positively and frequently, the math problem of Particle filter is still very hard, cause the final software failure to achieve the desired effect.

**How to improve**

* At first a few weeks, all the meetings with our supervisor are like a math lecture, every member of the group wanted to understand what Particle filter is and its mathematical principles, that was meaningless. If we divide our team in an inchoate time and have a clear division of responsibilities, we would save a lot of time and catch up progress.
* We should work harder during the festival.

**Summary**