ISBE
Imaging Science and
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Progress Report Submission
for C. J. Taylor

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It is expected that this week a browse through the experiments should suffice. Below are relatively technical details that above all aim to achieve completeness, though valuable conclusions are appended in the last section.

Agreed Upon

- Read Carole's paper and Tim's paper.

- Increase level of interaction with Carole.

- Perform longer experiments, e.g. 10000 iterations over the data.

- Consider animating the warps to be displayed as videos.

- Allow the viewing of data after alignment and after perturbation.

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- Find out the reason why optimisation does not steadily go downwards.

- Choose an image reference that is closest to the mean.

- Plot the degree of displacement/variation against the quality of registration to infer something about the robustness of our method.

Progress Made

- Many large experiments were performed and the results made available in the Experiments page.

- Incorporation of simple bump generation to increase the functionality of AART.

- HTML experiment logs were extended.

- Random handle generation was made possible to speed-up experimentation.

- Perturbation and alignment states can be viewed as suggested in the previous section.

- The cause for elevation in optimisation value is the overly high precision required. The problem was taken care of.

- Chosen reference became the product of more sophisticated tests. Random reference, data closest to mean, data farthest from mean or and fixed reference can be picked from the corresponding menu.

- Precision became a variable parameter. Increasingly higher precision can be used as well.

- Significant layout changes were applied to the application.

- An external settings file was set up to ease the use of the application.

- Cloning option was added to AART and it is no longer a singleton.

- Automatic Code documentation option is finally working. It is accessible from within the application as well.

- The application can now be run at lower priority. This helps in minimisation of interference to users on the same CPU.

- Experimentation schemes are support to assist experiment setups.

Next Stage

- View the previous experiments, analyse them and decide on future experiments.

- Boost up the performance and speed of the registration algorithm.

- There are several technical issues that need to be addressed, but they are not worthy of being listed in this report.

Conclusions

- Given a large number of iteration, the model-based objective functions performs well.

- The model-based objective function scales well for sets as large as size 20.

- A wiser optimisation regime makes the model-based objective function manageable in 1-D.

- The method currently devised appears to be quite robust. Only on one occasion did the results appear unsatisfactory.