



## Progress Report Submission for C. J. Taylor

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**A**greed Upon

### With CJT

- Continuation report still to be worked on.
- Bring the EPSRC summer school folder to review the programme.
- Continue work and evaluation of optimisation which handles subsets.
- For experiments where subsets guide registration, perform evaluation not using these subsets, but the entire set. This should allow us to compare 'like with like' and prove that subsets lead to a quicker optimisation regime.

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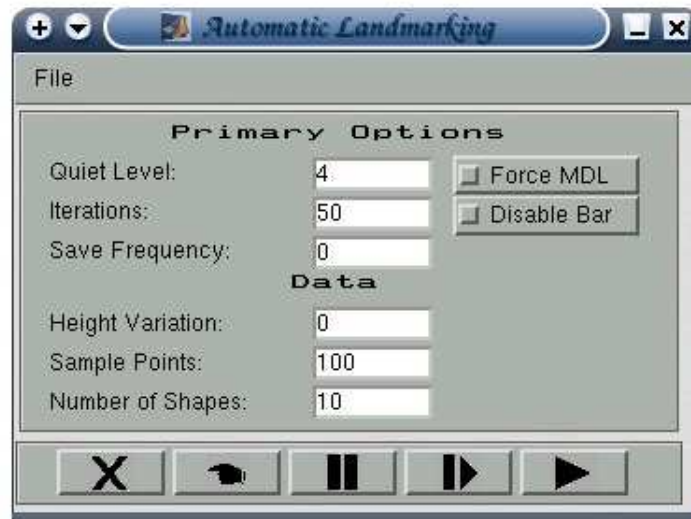
Electronic version: <http://www.danielsorogon.com/Webmaster/Research/Progress>

## **With Tom**

- Initialise bumps at correspondence to discover if they behave sensibly.
- Run shape experiments with lower position variation.
- Look into taboo search (TS).
- Add subsets to GUI
- Start with small experiments before running long shape experiments based on subsets.
- Discover how Kotcheff's objective function behaves for subsets, 11 shapes and 100000+ iterations.
- MDL value should be equal if shapes are reordered, but that is not the case. It needs to be analysed why this is so.

## ***P*rogress Made**

- Continuation report was worked on and it should be finished by the end of the month.
- Taboo search was read about to get to grips with some of its general background.
- Scoring of registration based on subsets can now be calculated using the entire set. Results were sent by E-mail on the 29th of June.
- By altering the shape variation, I managed to get automatic landmarking to work with larger sets, e.g. 11.



The small GUI for automatic landmark selection

- Adaptive precision does not yet produce better results than fixed tolerance. Further work has been done to address that.
- The exciting news is that subsets of shapes make the algorithm quicker. The choice of shapes needs to be less stochastic<sup>1</sup> to achieve the full benefits from this approach.

## **N**ext Stage

- Discuss the pseudo-code document.
- Discuss the objective function for image registration.
- For the shape correspondence problem, discuss MDL encoding of the model residuals. If time allows, discuss the same problem in the context of images and registration.
- Tom has reported that MDL value changes with set permutations. That observation can be investigated once MDL terms are looked at more closely, e.g. when incorporating the discrepancies.

<sup>1</sup>There appears to be a MATLAB optimisation involved, perhaps caching of matrices. It requires data to be more uniform.

- Structure of continuation report to be discussed again although no radical changes have yet been made.
- CJT will need to read Form 5, Form 6 and the supplementary note.
- Summer school notes folder to be glanced at.
- Continuation report to be written up.
- Experiments to continue in line with the previous sections.
- Taboo search to be considered.