



Progress Report Submission for C. J. Taylor

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Agreed Upon

- As an exercise, rework the presentation abstract with reference to the comments and suggestions made throughout the meeting. The abstract will be briefly viewed throughout the next meeting.
- The project presentation is expected to be modified according to the comments made in January 12th (and later). There appears to be a sufficiently long time to handle this task because student presentations begin in late February. A practice session with CJT will take place soon.
- Get more experimental results from MATLAB by using a model as reference. This is already known to have been problematic in the past.

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

- Since one of the main objectives of the project is to develop a working benchmarking environment for non-rigid registration, work towards 2-D registration under MATLAB becomes unnecessary. Current such attempts have been aborted to give way to effective 1-D model-based registration.
- Implementation and code need to be discussed in greater depth in a future meeting.
- A literature survey meeting involving CJT, Paul Beatty and possible Steve Williams needs to be scheduled. Friday afternoon is looked at as the most probable option.
- Contact Jennet Batten to ensure inclusion in the IRC mailing list.
- Structure and Function meeting in Oxford next week.

Progress Made

Presentation

- **January Presentation Abstract** has been modified and it needs to be looked at shortly to provide feedback.

http://www.danielsorogon.com/Webmaster/Research/2004_Abstract

It is likely that a new abstract can be submitted to Shelagh and supersede the December 22nd submission.

- Improved and concise presentation slides have been constructed and can be viewed at:

http://www.danielsorogon.com/Webmaster/Research/January_Presentation_Concise

Experiments

- Many new JPEG images, GIF animations and AVI registration clips are available under:

<http://www2.cs.man.ac.uk/~schestr0>

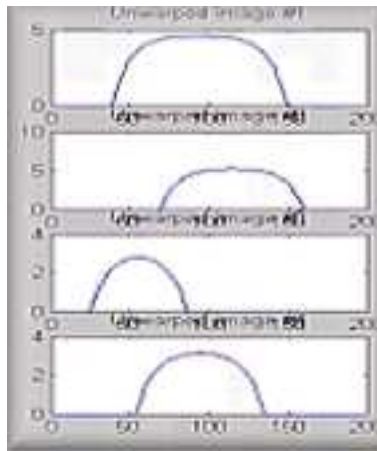
Bump registration clips are available from:

<http://www2.cs.man.ac.uk/~schestr0/Video>

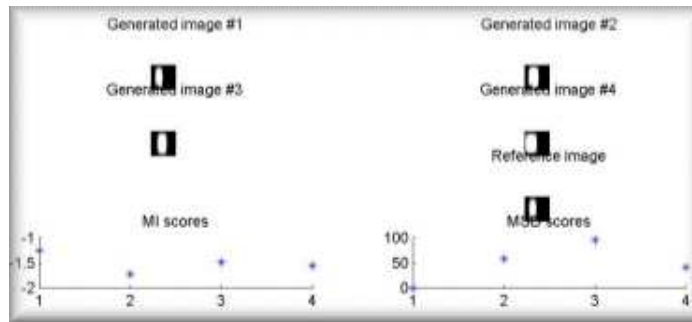
Some results from different experiments are available under the results page.

<http://www.danielsorogon.com/Webmaster/Research/NRR/Results>

- Sets of varying 2-D data (images) are produced and similarity¹ measured. Individual 2-D synthetic objects are available from the links above. It is assumed, however, that it is now worth investigating other schemes in 1-D which better serve the purpose of this research. Kate Smith was contacted to assist with model-based registration.
- Model-based objective function currently leads to significantly inferior results and convergence is slow. Relevant code is being assessed and debugged at present.
- Figures will from now on be included in progress reports when they appear helpful. As reports are never printed out, space is expendable and linkage to the World Wide Web (under PDF format in particular) has shown to be time-consuming.



¹A preliminary step is to evaluate difference using mutual information (Maes and Studholme) and MSD.



Example Figures

- Stephen Marsland has been called in to assist with two-dimensional non-rigid registration MATLAB functions. Such functions could not be trivially located on the shared repository although such functions were definitely used². Important details and issues raised in this brief meeting have been put in a separate document:

<http://www.danielsorogon.com/Webmaster/Research/NRR/Marsland>

This document is worth having a glance at during one of the next meetings. It will potentially prevent effort going to waste in the future.

Journals

- Addition to journals list: *Medical Image Analysis* from Elsevier Science (accessible from SwetsWise). It was included in Prof. Noble's site and it appears to include plenty of papers on registration.
- Access to IJCV was very recently made available through JRULM. It was therefore added to the list journals to be regularly browsed *on-line*. All of the 11 journals initially targeted, plus the aforementioned 12th journal, are now available electronically.
- Major overhaul of journals page makes access to papers even easier and quicker.

<http://www.danielsorogon.com/Webmaster/Research/Links/journals.htm>

²MICCAI 2003 paper suggests this must be the case.

Organisational

- As of last week, miscellaneous meetings³ are recorded at:

<http://www.danielsorogon.com/Webmaster/Research/Meetings/>

- Jennet added me to the IRC mailing list and Paul Bromiley took care of train tickets for the Oxford journey.
- A letter regarding tutorship in Hulme Hall has been posted to the warden, whom I will speak to again within a week.
- The meeting with Steve Williams on Wednesday raised no points of real importance.
- Literature survey meeting took place on Friday.

Next Stage

- Read the revised abstract.
- Quickly go through the presentation slides. Actual presentation with CJT can be given as early as next week.
- Critically evaluate the MATLAB experiments and agree on the next step/s.
- Have a look at the suggestions made by Stephen. Implementation can benefit greatly from discussions stemming from these notes.
- Have a closer look at parts of the literature report which indicate possible misconceptions. This has been suggested later in the meeting on Friday.

³All meetings apart from the weekly meetings with the supervisor.