threedit .. editing programs

VTK and TCL/TK 3D shape editing and registration gui programs.

without any form of guarantee
really! .. This is a collection of editing programs developed for a Licentiat thesis (Brian Lading; 'Face modelling - 3D object tracking and segmentation'), you can use them as they are or as base for copy&paste.

editor programs

You’ll need the VTK and the TCL/TK packages for these programs to work. (Since, some of, this is programmed for an old version of VTK, version 4.2, you’ll probably also need to update parts of the code.)

shape editor   Edit 3D VTK shapes.
texture coordinates  Map an image onto a 3D VTK shape.
triangulator   Manually triangulate a surface.
registrator    Registrate 3D surfaces, landmarking, warping and registration.
showStuff    Simple programs for different visualization purposes.
3D shape editor

Figure 1: tcl/vtk 3d shape editing tool. Included: add points, delete points, delete regions, move points, add triangle, delete triangle, smooth surface, simplify surface, split triangles (ie open mesh).

...... xxxxxx ........

--- general ---
'v': view ... center shape
's': surface
'w': wireframe
'q': quit

--- landmarks ---
'l': add a new landmark
'n': choose nearest landmark
'm': move choosen landmark to current position

--- edit ---
'a': add a point to be moved or removed
't': add a point marking top corner of 'region'
'b': add a point marking bottom corner of 'region'
'c': clear all edit points
'd': delete current point
'1': mark triangle vertex 1
'2': mark triangle vertex 2
'4': mark triangle vertex 3

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texture coordinate editor

(a) Points picked on 3D model and in 2D image.
(b) Warping applied. Ready for additional fine tuning points.

Figure 2: tcl/vtk tcoords editor, interactively set points on 3d shape and corresponding points in image. Thin plate spline warp plus a fine tuning functionality.

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Texture Mapper
-- add points (IN SAME ORDER) to shape and image --
key 'a': add point to 3d shape
key 'd': delete point selected in model viewer
key 'r': delete ALL points in image
key 't': pick point id. translate tcoords with 'z,x,c,v'.
key 'z': move selected id one pix to the left
key 'x': right
key 'c': down
key 'v': up
key 'left mouse': add point to 2d image
........ xxxxxx .........
triangulator

Figure 3: Manually triangulate a point cloud, good for small surfaces or special requests.

... xxxxx ... 
'a': pick triangle vertex number 1
'b': pick triangle vertex number 2
'c': pick triangle vertex number 3

'p': view as points
's': surface
'w': wireframe

t': add triangle (after points are marked with keys a,b and c)
d': delete selected point
(buttons for 'delete triangle', and 'add triangle')
... xxxxx ...
Figure 4: Manually select landmarks on both shapes (or load these) Align (similarity or rigid transform) or warp (thin plate spline). Registrate with closest surface point registration.

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--- general ---
'v': view ... center shape
's': surface
'w': wireframe
'q': quit
--- landmarks ---
'l': add a new landmark
'n': choose nearest landmark
'm': move chosen landmark to current pointer position
--- edit ---
'a': add a point to be moved or removed
't': add a point marking top corner of 'region'
'b': add a point marking bottom corner of 'region'
'c': clear all edit points
'd': delete current point
'1': mark triangle vertex 1
'2': mark triangle vertex 2
'4': mark triangle vertex 3
--- stuff ---
regA2B: ... copy closest surface point on B to A structure ...