



Final Project Report

A NEW GUI FOR FAÇADE

Feb 11, 2003

To: Steve DiPaola

From:

Michelle Sotto | Andrew Park | Alain Deschenes

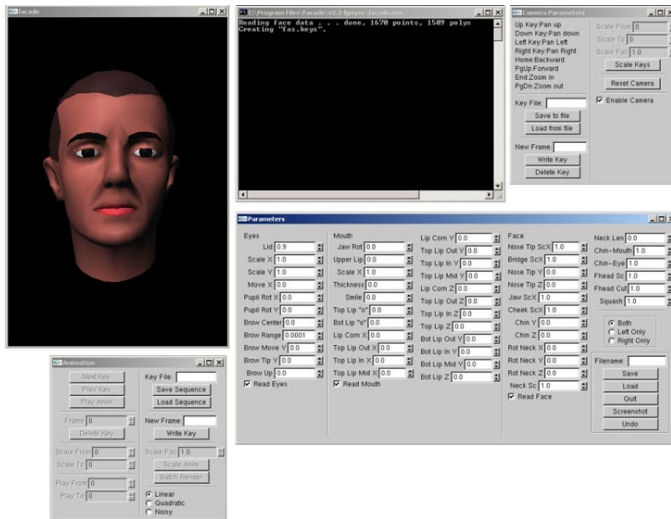
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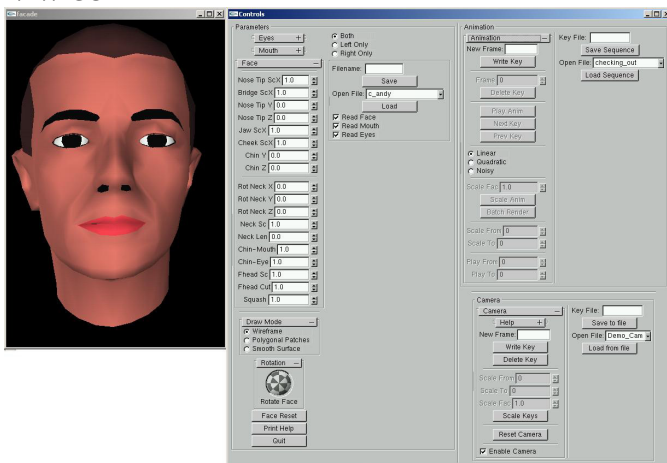
A. Project Summary

The current GUI of Façade had a number of shortcomings due to the limitations of GLUI 1.01. Our team has created a more usable and pleasant interface, which we believe, will enhance the user experience and increase task performance. The overwhelming number of menu windows and functions have now been streamlined into one menu window.

CURRENT GUI



NEW GUI



B. Accomplishments

Our team has improved the graphic user interface of the Façade application. Drawing from our diverse strengths and interests, our team has developed the following three areas:

1. The graphical user interface code has been upgraded to GLUI 2.0 APIs.

Working together, Alain and Andrew ported the current UI code to the GLUI 2.0 API followed by a subsequent code cleanup. This enabled them both to study the current Façade architecture and learn GLUI programming using C++ in detail. The result of this task is a more up-to-date and cleaner code base.

2. New visual treatment for the graphical user interface.

A new user interface for Façade was designed drawing from the combined technical skills of our team.

Three user studies were run in order to inform the design of the new user interface. User feedback directly informed the functional requirements document for the programming team.

3. Implementation, integration and presentation of new design using GLUI 2.0 APIs.

The new design is now finalized and the team will present their work Feb 11, 2003. Priority items have been noted, but have not been developed due to the time constraint. Full documentation has been provided for the benefit of subsequent ITEC 614 classes.

C. User Feedback

Animation window

- Could some sort of timeline be created so you would know where you are in the animation?
- Is there a playback button?

Camera window

- Short cut keys are not appropriate here, could you change it to numerical control?
- What is the difference between backward and zoom out and vice versa for forward and zoom in? Is it the face or the camera that move out?

Miscellaneous

- The main download site for Façade does not have the current version of the application, nor does www.sfu.ca/itec.614, these both should be updated.
- Can the Character library displayed in an Explorer window as thumbnails, so I don't have to memorize the names?
- Can other viewpoints be added?
- Are Façade's file formats compatible with other applications?
- Is there another way to rotate the face?
- Can you add short cut control keys, such as, Ctrl +, ctrl- for common tasks?
- Can the documentation be edited so that when I look for support the names for tools and windows is consistent? I.e. Visualization window or Graphics window?
- Can keyboard shortcuts be implemented? I.e. Ctrl +Z , Ctrl +S

Parameters window

- Can the Parameters window be minimized so that it doesn't obscure the Graphics window?
- Why are the values of the parameters all different?
- Can you select multiple fields, so you don't have to do everything separately?
- Can there be more groupings and subgroupings of controls so things are not so overwhelming?
- Can you change the display of "left", "right" or "both"? The disabled windows are confusing.

Right-click controls

- Why doesn't "reset" work? What does it reset to?
- "Print help" doesn't print, it displays behind the graphics window.
- Can you move the light control out of here?
- How come when you minimize "Help" at the top right the program quits?

Saving files

- Can there be a dialogue box that indicates if my file was saved?
- Can you tell me where my files were saved to?

Windows

- Upon launching the application why do the menus stack on the main window?
- Why are there so many windows? Can some of the information be hidden?
- Can you toggle between windows?
- Can you change the code so that when you minimize a window the program doesn't quit?
- Can you fix the code so that when you edit the command line window, you have to click on that window instead of activating the graphics window?

D. Design Notes

A. Top three priorities that have been identified for development are:

1. To create a drop-down menu that allows the user to see the file names and directories when saving or loading a file.
2. To collate the multiple palettes into one window with rollouts.
3. To create a simple and less confusing tool palette window.

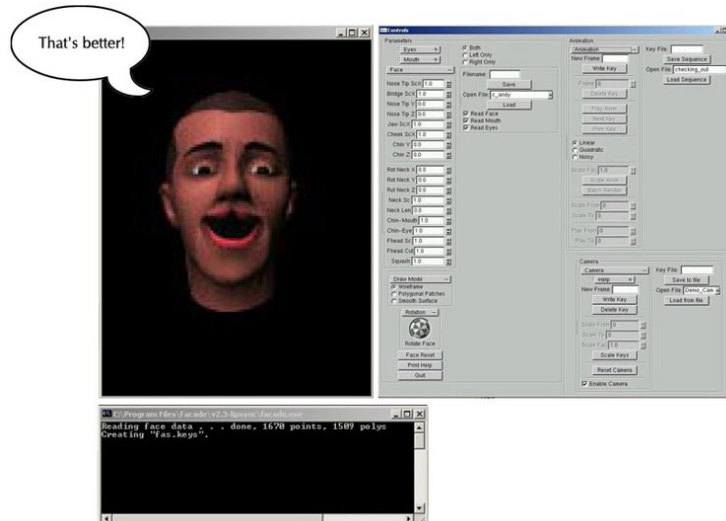
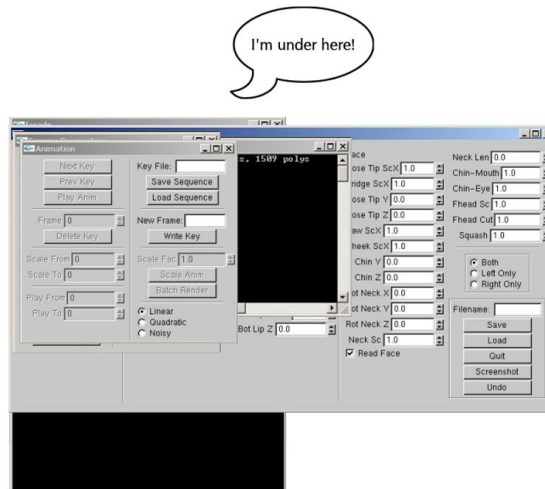
B. User support documents need to be re-written*:

1. ReadMe
2. Tutorial
3. Website

* Not implemented at this phase.

E. Designer's Sketchbook

Design Question: *How can we simplify the interface to reflect the user's needs?*



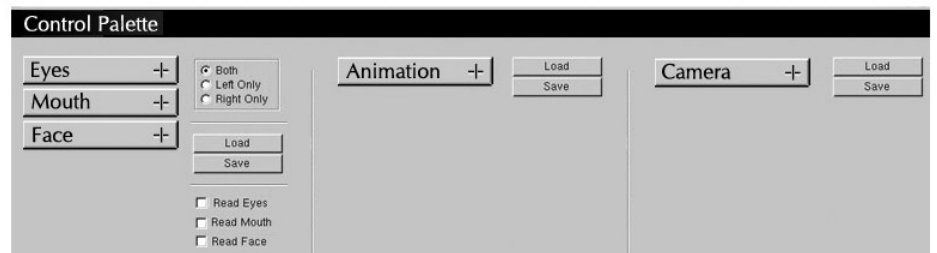
F. Requirements Sketches for Development Team

1.

Old Parameters window with multiple controls.

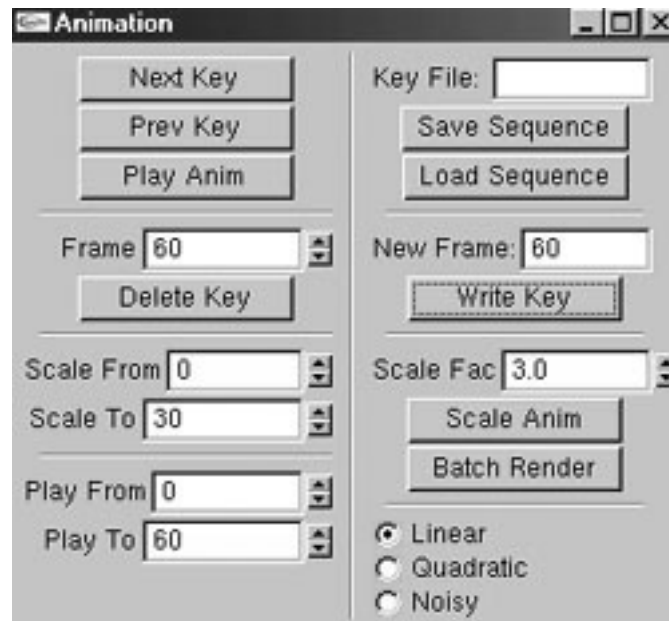


New vision: A simpler, cleaner GUI with checkboxes, spinners, buttons, editable text areas, and rollouts.

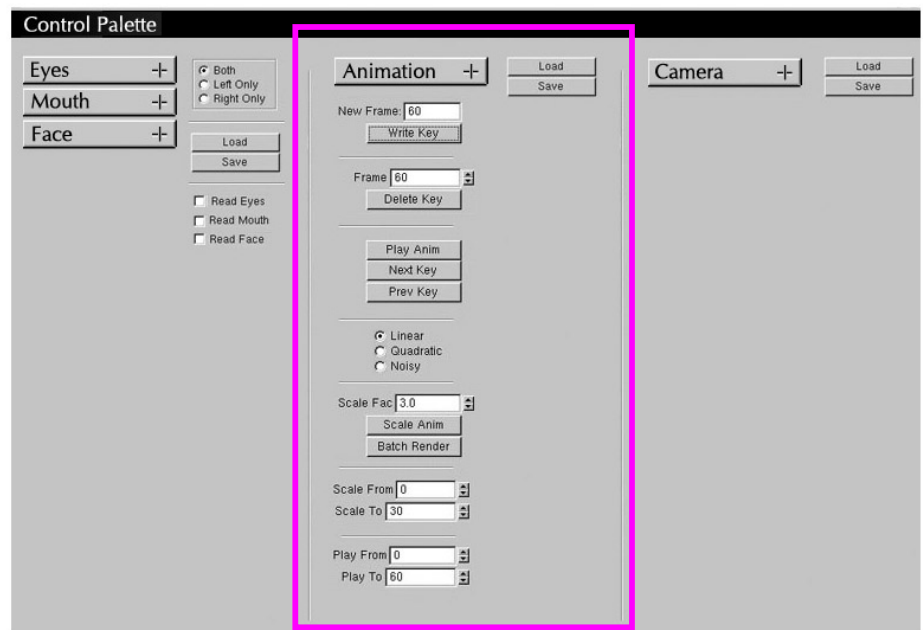


2.

Old Animation window.

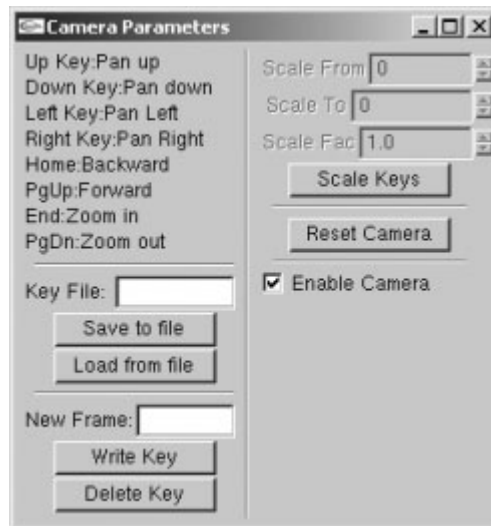


New Animation display.

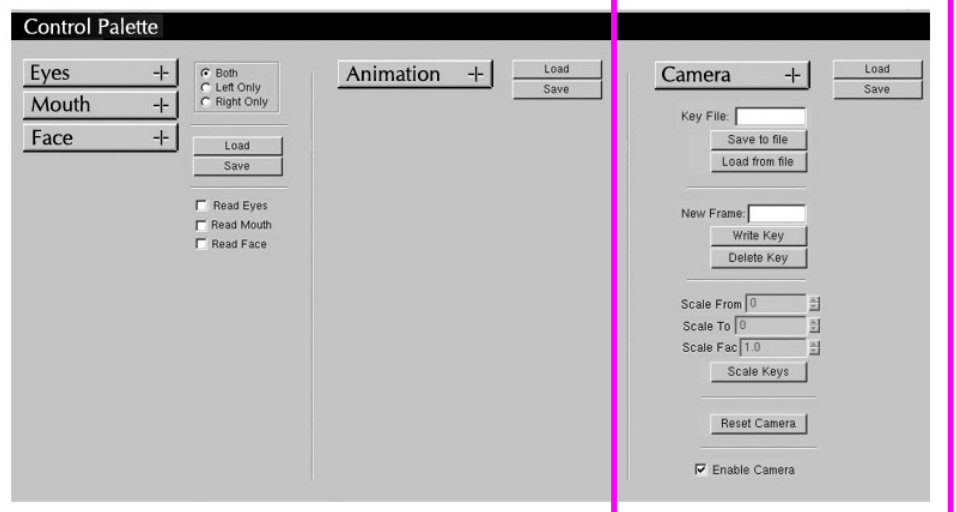


3.

Old Camera window.

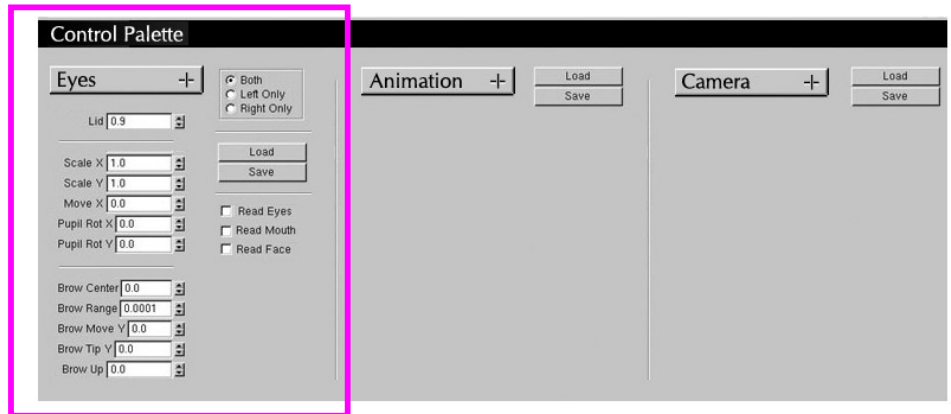


New Camera display.



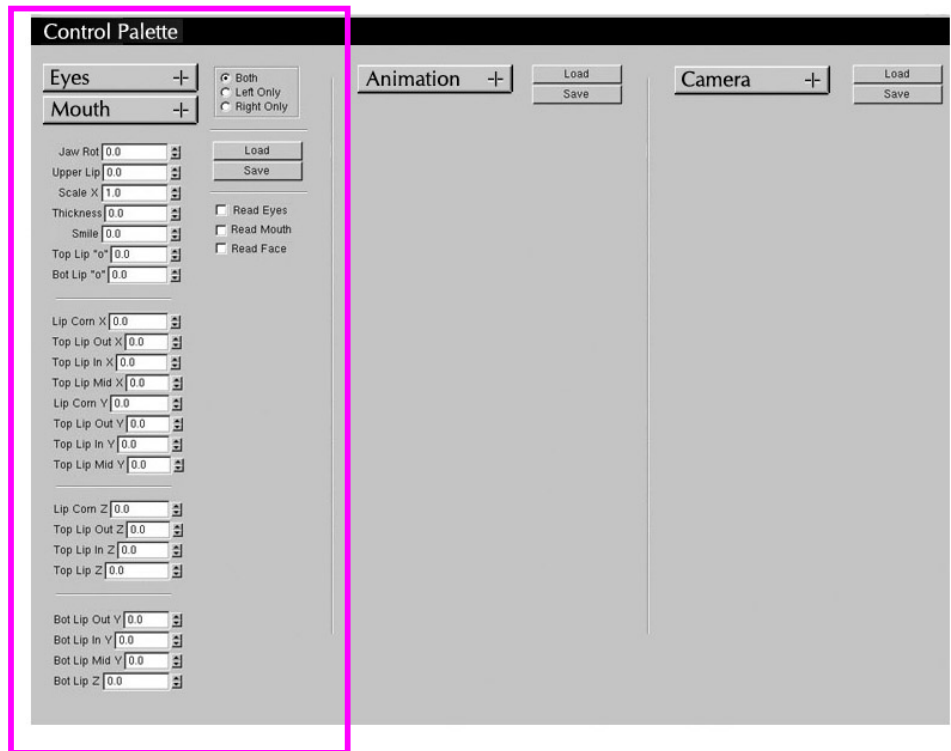
4.

New Eye Rollout.



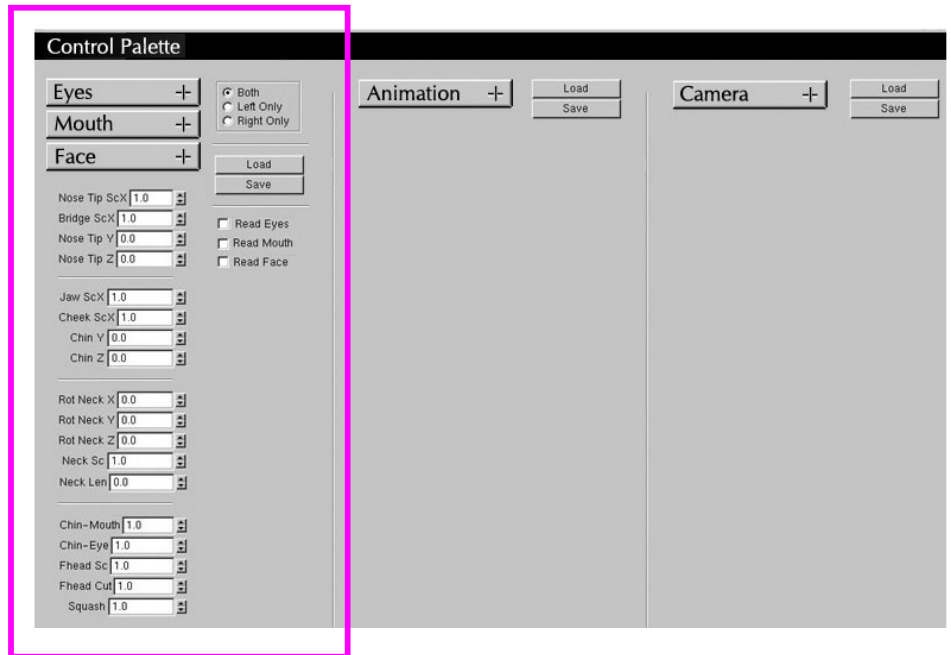
5.

New Mouth Rollout.



6.

New Face Rollout.



G. Developer Notes

A. Code

- Upgraded Façade code from GLUI 1.0 to GLUI 2.1. New GLUI is better in terms of speed and features.
- The three control windows have been merged into one window. The contents are now in several rollouts that are collapsible panels.
- Drop-down list boxes created for all load/save items.
- All compilation warnings in the code are now clean.
- Initial positions of the windows have been altered so that they do not overlap onto the main window.
- The "Reset" control is functional. With the reset you can go back to the default face any time.
- Right-click menu to the panel with buttons.
- "Rotation" control added so you can spin the face.

B. Architecture

- There are now 3 directories* to store the different type of data files, instead of one:
 - ./Anim -> animation key files
 - ./Camera -> camera key files
 - ./Library -> different faces*There should be another directory for textures. Not implemented at this phase.
- Façade now compiles with installed GLUT libraries and header files as opposed to the ones that were shipped with Façade. The ones that shipped with Façade were quite old so we might get performance improvements by compiling with the newer version of the library. Also, if we are not modifying GLUT, why should we distribute it?
- Change made to all files including GLUT:

```
#include "GL/glut.h"
#include "GL/glaux.h"
to
#include <GL/glut.h>
#include <GL/glaux.h>
```

Appendix 1: User Profiles

Participant	Software proficiency in 3D Modeling and Animation Software
<p>Sara Coldrick scoldrick@sfu.ca</p> <p><i>Graduate Student, Interactive Arts, SFU</i> <i>Teaching Assistant, Computer Animation, SFU</i></p>	<p><u>Intermediate to Advanced:</u> 3D Studio Max and Maya</p> <p><u>Other Software:</u> Flash, After Effects, Photoshop, Premiere, and Dreamweaver</p>
<p>Joseph Schuurman</p> <p><i>Undergraduate Student, Interactive Arts, SFU</i> <i>Lab Assistant, Computer Animation, SFU</i></p>	<p><u>Intermediate to Advanced:</u> 3D Studio Max, Maya, LifeForms, Flash, Premiere, and AfterEffects.</p>
<p>Marina Kassianidou marinaek@stanford.edu</p> <p><i>Smart Library Lead, Façade Documentation Lead</i></p>	<p>Façade user.</p>

Appendix 2: Feedback from Marina Kassianidou

marinaek@stanford.edu

Smart Library Lead, Façade Documentation Lead

So, here are some issues that I think would be interesting to try to explore. I'm basically describing each issue and then posing lots of questions that I find interesting about it.

Parameters window:

The controls on this window are actually pretty easy to use once you play around with them a bit to figure out exactly what part of the face each parameter controls.....or, at least, I find them pretty easy to use. The potentially confusing part has to do with the actual values for each parameter. The value ranges differ from parameter to parameter, i.e. some parameters go from 0 to 1, others from -0.3 to 0.3 etc. The only way the user can know what the acceptable value range for each parameter is, is by looking at the list of parameters in the manual. I'm not sure how much sense these ranges make to people, especially novice users. Do the ranges scare off/confuse novice users? How much intuitive sense do they make? Would it be better if all parameters had the same range of values, e.g. 0 to 100 (the actual graphics implementation doesn't have to change to support this feature.....you'd only need to map between the actual range and the "visual" range that you are presenting to the user.....I hope this makes sense....I'm not sure if I'm explaining it well enough). Given the different value ranges, is it easy for users to remember particular settings, i.e. that to get an angry face they need to set a specific parameter to 0.133 and another parameter to 2, for instance?

We can compare the current textboxes and value ranges with a slider control. So, instead of using textboxes, suppose that we used sliders. The users would then move the slider across a range of values to adjust a parameter. A slider provides an additional visual element. Is it easier for the user to remember how far down the slider she went as opposed to remembering a number? Would novice users find a slider more appealing? Would expert users prefer just typing in numbers?

As far as the range of parameter values goes, should we limit each parameter to a certain range? How likely is it that the users will want to create some really messed up faces by going beyond the acceptable range of values? It'd be interesting to observe what kinds of faces the users try to create. Would they enjoy features that allowed them to create weird looking faces? Or, would a reasonable range of values make them feel safer, i.e. make them feel that they cannot mess up their face?

I think the parameters window needs a clearer visual separation between parameters. The parameters of the eyes, mouth and face are already separated somewhat but I think a clearer/more obvious visual distinction might be better. Also, the "Both, Left Only, Right only" section can be more obvious. Maybe it needs a title stating what "Both", "Right only" and "Left only" refer to. I'd be curious to see what a novice user will make of the Both, Left Only, Right Only labels.

Animation window:

This again I find pretty easy to use. I think that someone that already knows the terminology, i.e. keys, frames etc, can quickly figure out what to do. Other animation programs I've worked with, like Maya and Flash, use a visual timeline....by clicking on the timeline you can select a frame. I find this visual timeline convenient because I can see the spacing between the frames....it helps me visualize the animation in a sense. Of course, I used Façade a lot so I'm comfortable using it. But it'd be interesting to see what expert animators that use Façade for the first time think. Also, how do people use the scaling? Does it make sense to them or should the labels be clearer?

Camera window:

I didn't really use the camera features while I was working on Façade. I played a bit with the camera today to see how it works. My first question is, what's the difference between "Backward" and "Zoom Out"? They both seem to have the same effect. I tried playing around with it to see if they behave differently at times but I couldn't see anything. I'm guessing that, implementation-wise, in one of them the face moves whereas in the other one the camera moves. However, does that lead to any visual differences? If not, then maybe there's some redundancy here. Same with "Forward" and "Zoom In"....they seem to have the same effect visually. It'd be interesting to see if this confuses the users.

That's all I've come up with so far. If you need clarification or further details let me know. Also, if these comments are not helpful and you need my thoughts on some other aspect of the GUI, let me know.

I'd be interested to hear how the usability study goes. If you need anything else, feel free to email me.

-Marina

Appendix 3: Rough User Notes

To: Al and Andrew
From: Michelle
Date: Feb. 3rd
Re: GUI Notes

Hi Guys:

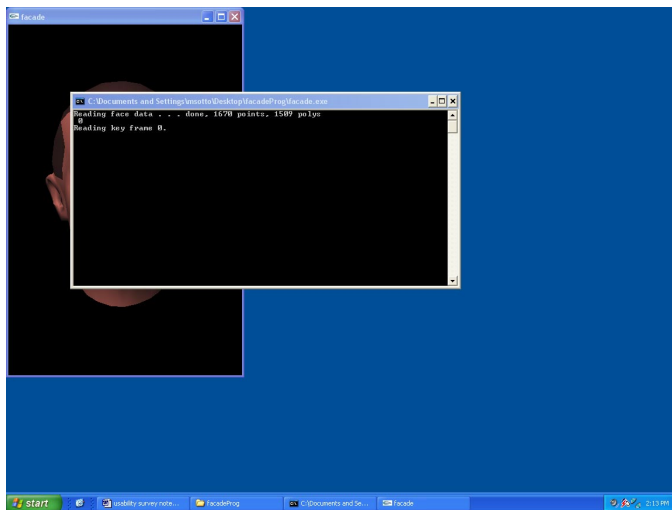
Sorry about the delay, it is crunch time. Here is a rough outline of my notes. Blue indicates items we discussed after class. Hopefully, you were able to work on some of them in the interim. If not, no worries, I am sure we are all swamped. Anyways, these are the comments. Please email the document back with your notes typed in under each request like this: possible, not possible, with Glui 2.0 and use the highlighter function. If you can, indicate with the Possibles your comments. You can also comment on the other stuff not pertaining to the GUI as you are users as well and we are trying to capture the entire user experience, at least roughly. I'll compile the responses and format the final report.

-michelle

Initialization of application:

Problem: Having the menus not stack on the graphics window.

Suggestion: Resizable windows, or specified documentation in readme.



Parameters window

Problem: Parameters window obscures Graphics window.

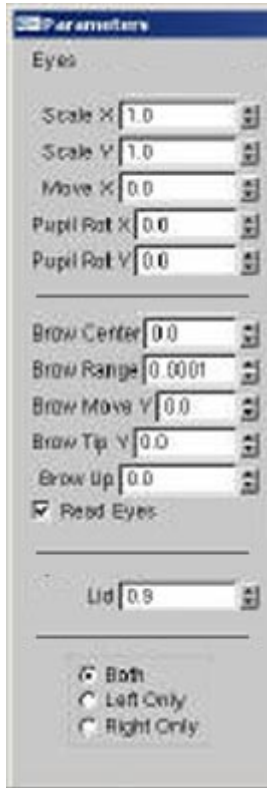
Suggestion: Making the values of the parameters consistent.

Suggestion: Having a preset parameters for certain facial expressions more clearly displayed.

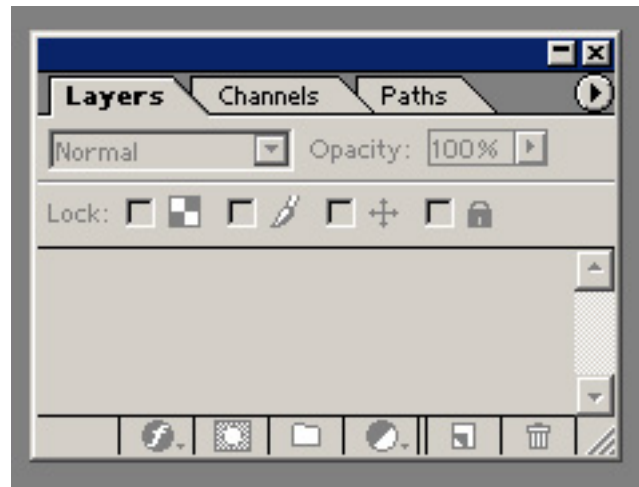
Suggestion: Sliders for text boxes.

Problem: Can you select multiple fields? So you don't have to do everything separately?

Suggestion: More groupings between parameters. I.e. Eyes, mouth... and Sub-groupings within the new Eyes window. See below:

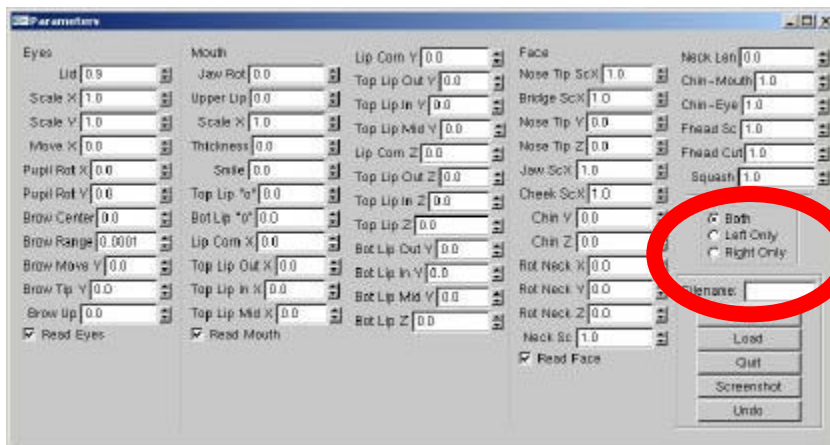


Suggestion: Or, what about if each sub-grouping displayed as a layer? See below:



Parameters window cont'd

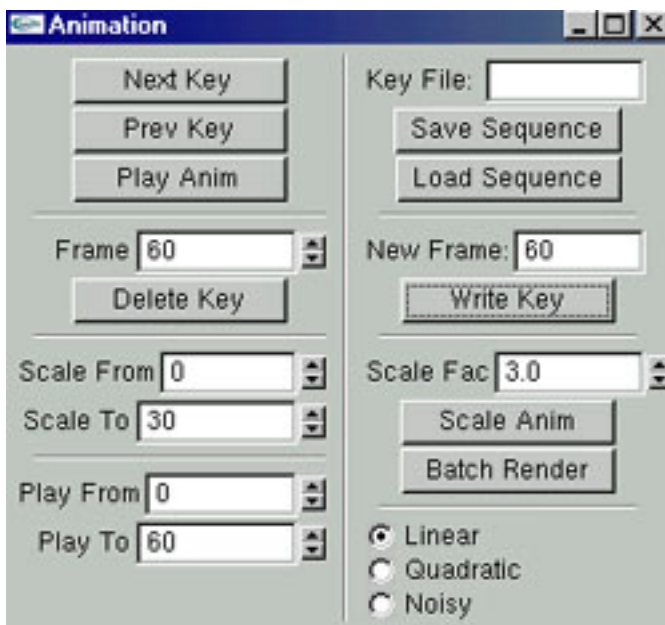
Problem: The left, right or both disables certain fields and is confusing to users.



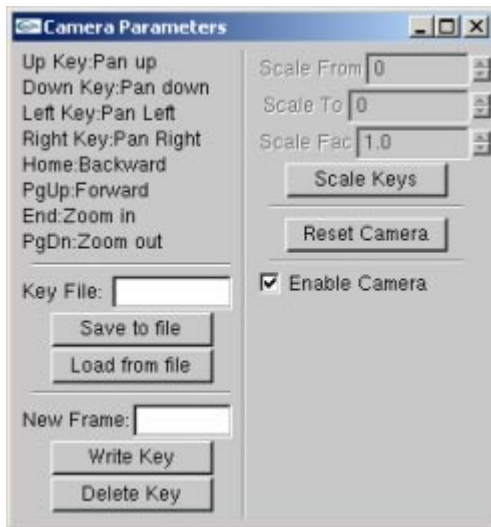
Animation window

Problem: Having a timeline would be helpful to know where you are in the animation.

Problem: Playback button.



Camera window



Problem: Short cut keys not appropriate here. Would like numerical control.

Problem: What is the difference between backward and zoom out? Does the face or camera move out? Is this redundant? Same as forward and zoom in.

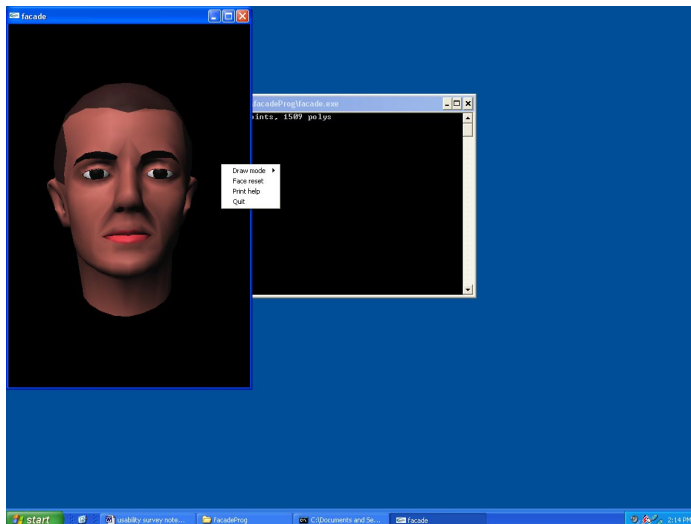
Right-hand click controls

See below:

Reset doesn't work.

Print help doesn't print, it displays behind.

Light on right mouse down is weird and should be changed.



Miscellaneous:

Stanford site does not have the current version of Façade. The URL on www.sfu.ca/itec.614 should be updated.

Character library displayed in explorer window.

A random button so you can generate a face to edit.

Select multiple points on face. ie. Control points on the wireframe mode.

Perspective viewpoint plus other viewpoints should be displayed as in 3D max. ie. Front, left, right...

Would like to export files to industry formats.

Short cut control keys ie. Ctrl +, ctrl - etc...

Rotating the face should be controlled by a keyboard short cut and not controlled by the left-mouse control. ie. Alt +

Windows

Too many windows. Some information should be hidden.

Being able to toggle between windows.

If you try to minimize any window the program quits.

You can't edit the CLR unless the graphics window is active.

Rename the windows to conform to the README and Manual. ie. Visualization window or Graphics window? Which is it? Isn't it a Window?

Frequently performed tasks

Can they be implemented?

Keyboard shortcuts ie. Ctrl +Z , Ctrl +S

Saving files

No dialogue box indicating if saved. No idea where the file saved to. Would be helpful if explorer box launched to visually locate files.

Confusion upon initialization. Feels like there is something wrong. When confronted with the CLR, doesn't read the code. Drawn to face.

Unless you read the readme or manual people just fiddle. Don't know what to do.

Clicks on face and rotates. Doesn't rotate like in max or maya.

No one wanted to do the readme or manual. Just wanted to explore with exposed tools.

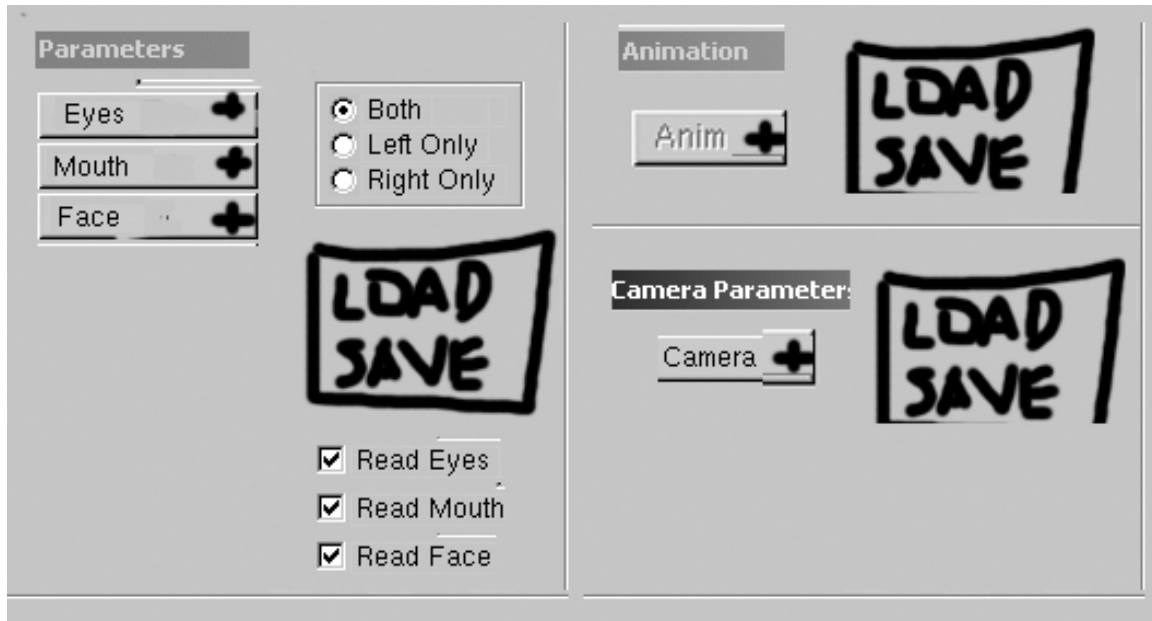
Arc rotate different from Max.

First comments are on how different it is from Max.

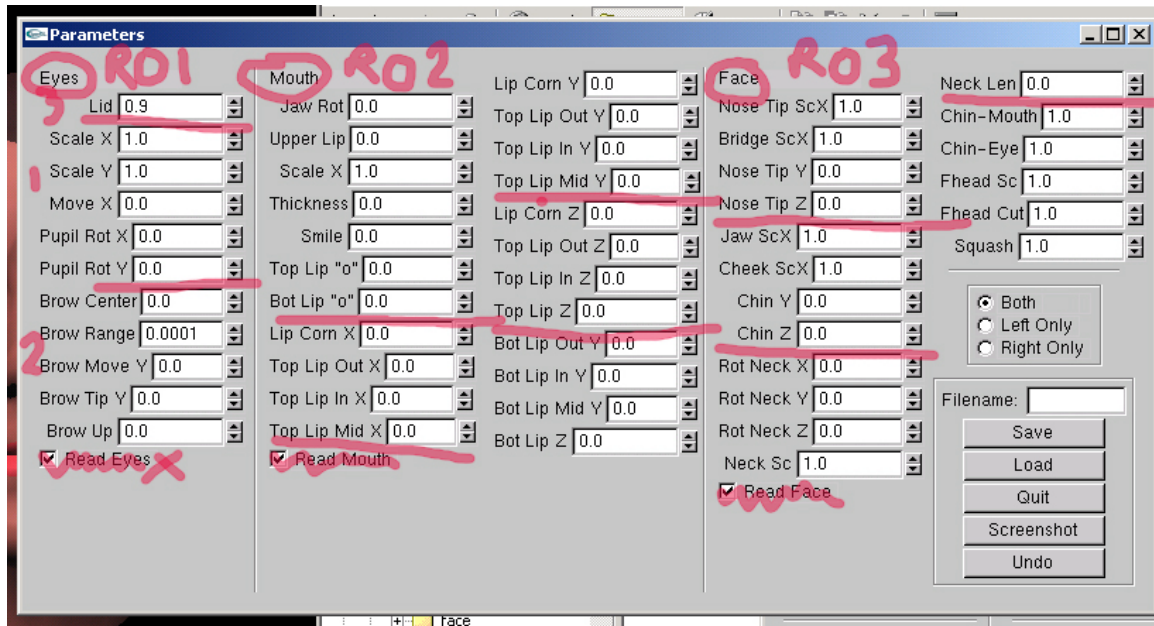
Appendix 4: GUI Notes

To: Al and Andrew
From Michele and Steve
Date: Feb. 10, 2003

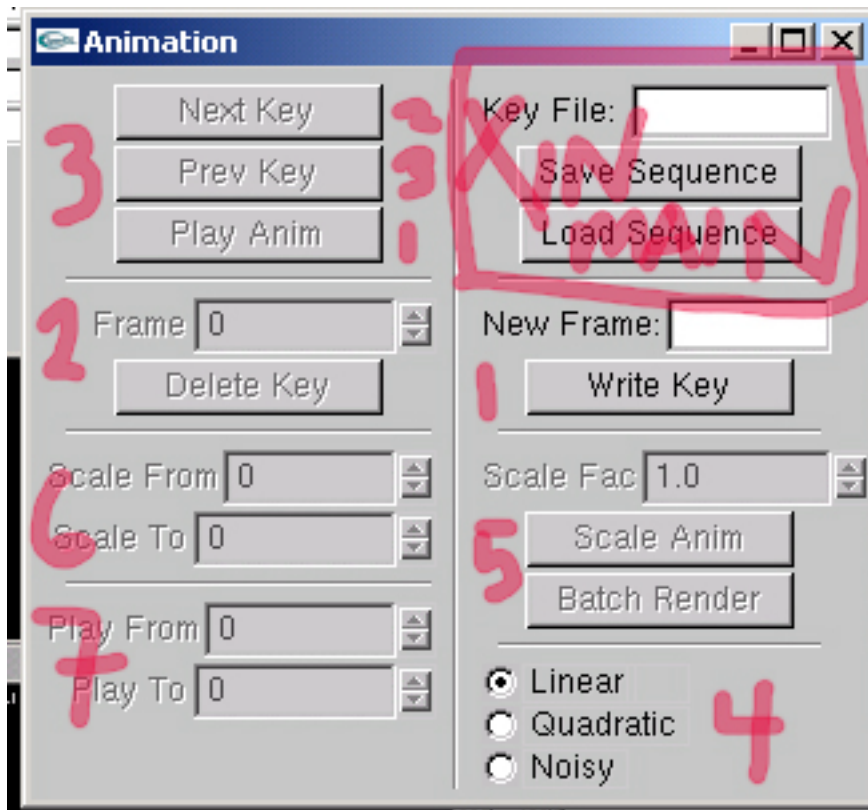
- 1) Here's the new design. It is approximate, so use your best judgment and feel to make changes if you think it works better.
- 2) Only one main window now with rollouts. Here is the new : main window.



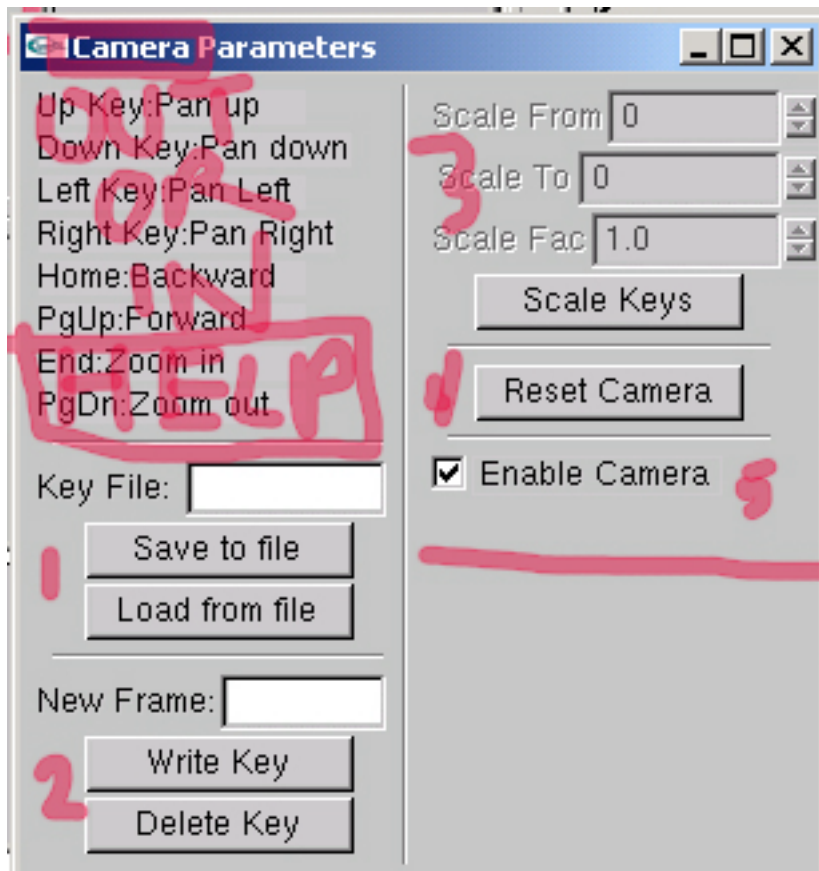
- 3) Where we have the big LOAD SAVE handwritten button is where the new file (open/load/save) widgets using your new drop down ui. There are 3 of them the parameter, camera and animation files. We are taking them out of the rollouts and putting them in the appropriate sections (parameter, camera and animation). Whatever you think works best here, since we do not know exactly what it looks like.
- 4) You see that we have split the eyes, mouth, face, animation, and camera controls into rollouts. The rollout buttons go where their named buttons with the handwritten + sign.
- 5) These rollouts have screen shots below, the red lines are where you can put dividers in, the numbers indicated the ordering (1 on top) if the ordering differs from what is there now. There are 3 rollouts from the parameters area EYES, MOUTH and FACE. Delete from all the rollouts the any non dial controls, so on parameter controls are in the roll-outs. As you see we have moved the files save/load, the both/left/right controls and the read face/mouth/face out of the rollouts and into the parameter section of the main window. We also want you to remove the other buttons - quit, screenshot and undo from the rollout - we are unsure as to whether we need them but if you think they are useful but them in the main dialog box.



Same stuff for the animation window. Use the same separators as now but change the order as you see here. Obviously all rollouts are now one long column not the two columns you see in this old view. SO just line them all up from top (1) to bottom. (This (1 column) is true for all the rollouts now.



Same here for camera. You should take the camera help out or put them in there own sub rollout called help.



Now there are 3 windows. 3d, main and command. We were thinking you should make the command window much short (for about 10 lines of text). If you can effect the opening positions of these windows, it should be the 3d window starting from the upper left, with the command window below it), then the new main window flush with the top of the 3d window and to the rights.

Questions email or call.