

# Journal of Krishna Chaithanya Palavarapu for Fall 2008

November 17, 2008

## **1 Week 1 : September 16**

After the summer break, I am back to school. Dr. Martin said an idea of building a tool for the SETS project. This tool is a graphical user interface, which allows the user to enter the dimension, rank and resolution values for the basepoints. The user can choose Linepoints, Homotopies, Random walk, Alternate Least squares to plot the points. There will be a viewer on the interface, in which the pictures will be displayed. This is the goal for this quarter. So, first of all we have figured out the features required for this tool. We decided to build this tool using TKinter, which is a GUI programming for Python and for the graphics we are learning VTK. This week we are just playing with the functions in VTK. We are just trying to display a picture for now.

## **2 Week 2 : September 23**

We have successfully installed mayaVi, VTK for python. We have ran some examples successfully in which there are some 3D graphics like displaying a cone shaped 3D object. That example also have the features like mousability, zoom in and zoom out. For the coming weeks we need to learn writing the code for the SETS project. There are lots of VTK modules to be known to get the best graphics effect. We need to learn those modules and write code for displaying the PS files, what we have done all these quarters.

### 3 Week 3 : September 30

After installing all the stuff, I am learning the VTK modules from a text book downloaded online and also the documentation provided by the VTK organisation. They have about 300 to 400 modules which does some job. I am in the process of learning them and search those may be useful for our project. I am collecting some modules for which are useful for our project. Basically I am learning the VTK.

### 4 Week 4 : October 7

I started writing some code using some modules in VTK to display some spherical things, since we may need them to show our points what we plotted before. I have used *VTKActor*, *VTKSpheresource*, *VTKCell*. There are some sub classes in them. I tried writing some code, but I am getting some linking errors. I have worked only a little bit on that as last week is a little hectic for me. I am sure I will show you something by the next week.

### 5 Week 5 : October 14

Last week I was working on collecting VTK modules and wrote some code for getting spheres, but we don't need it anymore, since in the wednesday meeting Dr. Martin has assigned different works and solved our problem how to plot the  $(X, Y)$  points on mayavi viewer. So, this week I learned TKinter to code for building a window or frame that basically contains buttons and text boxes. I wrote a simple code for that one and developed it further with the help of Dr. Martin. Now, it can generate basepoints when we push that button taking the input from the text boxes.

### 6 Week 6 : October 21

We have further improved the design of the GUI with more features and made it more user friendly. We still need to make some minor changes on the GUI. Then we have to connect the functions we have written in the previous quarters for Linepoints and Alternate Least Squares with the respective buttons. So we will be able to generate more points. For now we are generating basepoints.

Also we need to work on the functionality to get main theta and ratio. By next week, I hope we may see working Linepoints and Alternate Least Squares functionalities.

## **7 Week 7 : October 28**

This week as I said I have connected Linepoints and Alternate Least Squares buttons with the corresponding functions. It works fine now. We have clubbed our code with Rob's code, so that now we can have the image viewer and the GUI on the same frame. Everything on the GUI works fine now. We are able to save, exit, Generate basepoints, Generate linepoints, able to use Alternate least squares. Coming weeks we have to include homotopy and random walk functionalities to this GUI. We also need to do some clean up and finalize the SETS group GUI.

## **8 Week 8 : November 4**

This week I have modified the Linepoints and Alternate Least Squares to make them more efficient. Now we can give two diagonal points on the plane, then we are able to plot points in the rectangle containing that diagonal. Linepoints is also modified. As final week has come, I and Nam going to work on preparing the user guide for the SETs GUI tool. The user guide is like a help manual for the GUI.