# UFO visualization (UFOVIS) – Project Proposal

October 26, 2005

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## Introduction

The National UFO Reporting Center (http://www.nuforc.org) provides a site where people may report Unidentified Flying Objects (UFOs). This site collects information from observers about the location, time, shape and description of UFO sighting. These records may be accessed on the website but are currently just tables of information. While this site allows visitors to view information by event date, state, shape and date posted, patterns between these parameters are not easily detected in a table format.

## Project Goals

The goal of UFOVIS is to provide a way to see patterns in the data geographically and temporally. This visualization could potentially be utilized by the National UFO Reporting Center as well as those who visit the site.

## Related Work

**Indian Emigration to California - 1960-2000:** by Vijay Viswanathan
http://www.sims.berkeley.edu/~vijay/InfoViz/project/GraphApplet.html

This visualization, by SIMS graduate Vijay Viswanathan, shows the Indian Emigration patterns to California between 1960 and 2000. This project is of interest to UFOVIS because of the relationships between the data elements: geographical location, time and quantity. The color range of the map, darker for more and lighter for less, allows an easy way to see which counties have a higher Indian population. The color range also makes it easier to see how the Indian population for the state of California changed over time. However, it is difficult to determine the changes for each individual county over time. Perhaps a future iteration could include a way to retain the history of the previous time selection while viewing the current year.

**Election 2000 and 2004 Red and Blue States maps:**
http://www.usatoday.com/news/politicselections/vote2004/countymap2000.htm

This visualization shows the United States Presidential election results for 2000 and 2004. Each state is either blue, indicating more Democratic votes than Republican votes or red, indicating more Republican votes than Democratic. This map is of interest to UFOVIS because it shows the relationship between: geographical location (state, county), color and voting results. Furthermore, this map offers different views of the data (by county, race, state Senate, state house, etc…) and options to "drill-down" for more detail. These features may be useful for UFOVIS to provide focus and context to our visualization. One drawback of this map, however, is that it does not show the relative population sizes of these states, which is an important factor for determining the popular vote. This map does not adequately show the relative number of votes between states and counties (unless you drill down) and cannot show whether the states

were won with a slim margin. To better display a relationship to the number of votes, color gradations could be used, as in the map shown here: http://www.princeton.edu/~rvdb/JAVA/election2004/

**Timemaps.com:**
http://www.timemap.net/epublications/2002_animations/2002_shilla_animation.s`wf
This visualization uses animation and interactive features to show how the ancient political history of Korea changed over time. This visualization is particularly interesting to UFOVIS for its use of animation and color to show how different events are related to moments in time and location. Different colors are used to represent the tribes, and the animation shows how the boundaries of these tribes changes over the years in relation to particular political events which are shown in narrative on the sides. Red dots are used in the timeline at the bottom to show where there are clusters of political events happening around the same time periods, and to help situate the event at a particular point in time. The interaction provided by clicking on the timeline or on the tape-deck like console, lets you quickly move to particular moments in time. One critique of this visualization is that it can be a bit difficult to read the moving blocks of narrative, or to remember what happened before, without rewinding or pausing the animation. Perhaps this could be improved by allowing the user to decide when to move on to the next "scene" by having him/her click on a "next" button when they've finished reading the information presented on the screen.

**Data**

The data that will be used for the visualization is located at:
http://www.nuforc.org/webreports.html This data lists accounts of UFO sightings by date reported, city, state (we are focusing on US only data), shape of the UFO, time of day, duration, and a summary description.

**Timeline and Tools**

| **Task** | **Tools** |
|---|---|
| Data collection, clean up and analysis (to get familiar with the data set) | Open source scraping tool |
| Brainstorm visualizations/ Decide on visualization to mockup | Pen and paper or whiteboard |
| Mockup visualization design for presentation and user testing | Flash MX or Photoshop |
| User testing on revised mockup (3 users) | Usability methods |
| Revise design based on user/ instructor/ class feedback | Peer and User and Peer feedback |
| Implement design using flash frontend and database backend | Flash or timemap.com, mySQL or Microsoft Access |
| | |

**Anticipated Results**

With this visualization, we expect to see whether there are clusters of sightings in certain times and locations. It will also be interesting to see if people in the same location and time are seeing the same things in terms of shape of UFO and other description notes. We also expect

to see if there are any particular anomalies in the data, perhaps indicating false reports, or other interesting phenomena.

**Wish List Results**

Given the time limitations we may not be able to use the entire data set as data cleanup may take a considerable amount of time. We will focus on more current postings and add more data if time permits. It would also be interesting to investigate correlations between the UFO data and other data such as: moon cycles, weather, flight patterns or other atmospheric phenomena.