Digital Animation Capstone Proposal:

The emerging art form of 3-Dimensional experimental animation

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I. Executive Summary
II. Introduction/Problem Description

Project Background
Animation has been transformed in the last ten years into a multimedia industry. The approximately hundred-year-old industry has been digitized. The commercial viability of animation has grown, becoming ubiquitous in our daily lives. Faster and more powerful computers, and the more ready availability of animation and art software make it possible for us to see animation everywhere from our cell phones to electronic billboards. With compositing software like AfterEffects, Animation has become a hybrid of live action, graphics, still photography, animation, 3D animation, and typography. The public now views this type of animation as a means to a commercial end.

Experimental animators, or those whose animations are not based in advertising and propaganda, story-telling and entertainment, have also begun to embrace this composite form of animation as well. Experimental animation is animation that begins in the heart of the medium. “The discoveries made by the experimentalists are therefore of constant use to the professional animator because they reveal both in their success and their failure what the medium is capable or incapable of accomplishing.” (Halas & Manvell, 1959)

Problem Description
As animation has become more of a legitimate art form, with museums like the San Diego Museum of Art presenting the Animated Painting series, one can see more and more how artists are trying to push the limits of technique and technology. However, this animation an art and design form (as compared to as an entertainment medium) has only just begun to be explored. With the recent success of 3-Dimensional (3D) in the commercial world (e.g. Toy Story (1995), Shrek (2001)) and easy of access to 3D
software like Maya, the addition of more 3D focused experimental animation would need to be added to the field. Animations, such as these, while not as high budget as a Hollywood blockbuster, have their own place in the continuing evolution and exploration of the technical and creative limitations of 3D animation as a design form, as well as in inspiring those 3D artists and animators in their art. Animation, as a creative design and art form, has not truly reached its potential. What happens now in the realms of 3D experimental animation will pave the way for the future of animation as an art form. Digital animation has the potential to become a mainstream art form that will be accepted by art venues around the world. (This project will focus on revealing this potential in digital animation.)

**Target Audience**
The experimental 3D animation project will be targeted at art connoisseurs, especially those interested and/or educated in modern art. These could include art college graduates, other artists, 3D animators, and those that like to visit art museums. A second target audience would be potential employers, such as animation studios that would be interested in hiring someone that can pull off a unique project of this venue. In this vein, such a project would also appeal to potential clients that may want to contract a project that is of a similar nature.

**Environmental Scan**
Project 1: Molson "Party Ready Bottle"
Author: Cossette
Year: 2009
Duration: 0:46
Source: http://www.mat0.net/work/projects/molson.html, Quick Time video (http://www.mat0.net/work/img/projects/molson/molson_tv.mov)
This short advertisement is not an experimental animation, yet it features an interesting use of abstract 3D models and motion that is similar to what an experimental animator might use. This abstract quality and use of 3D is similar to what the CSUMB capstone would be like. The difference is that it will not be an advertisement.

Project 2: Hypervibes
Author: Dae In Chung
Year: 2008
Duration: 3:00
Source: CalArts School of Film/Video: Experimental Animation: Showcase 2008 (http://fv.calarts.edu/main/streaming/2008/expanim.html)

This short experimental animation was done by a student at CalArts School of Film/Video for their 2008 Showcase. It features a combination of 3D and 2D animation set to music. The animation itself is a study of design and motion that corresponds to the music. The animation uses shades of grey with some color and some simple geometric shapes and lines. The CSUMB project will be in a similar vein with the use of motion, but the models will be more complex than plain geometric shapes.

Project 3: Animusic: Pipe Dream
Author: Animusic
Year: 2004
Duration: 3:30

This professional piece of 3D experimental animation features synthesized music and corresponding 3D instruments. The animation then goes on to show many 3D balls
accurately playing each instrument in synch with the music. The elements of the 3D instruments are automatically generated with a proprietary software called ANIMUSICstudio. While the CSUMB capstone project will not feature such experimental use of 3D software, it will be similar in the uniqueness of the motion and abstract nature of the 3D models featured within the animation.

Project 4: STUDY NO. 9
Author: W.S. Cheng
Year: 2004
Duration: 2:45
Source: CalArts School of Film/Video: Experimental Animation: Showcase 2004 (http://fv.calarts.edu/main/streaming/2004/expanim.html)

This short experimental animation was done by a student at CalArts School of Film/Video for their 2004 Showcase. This simple looking animation uses the very plain concept of taking a series of grey squares on black and moving them in sync to a piece of music. This demonstrates, is in its simplest form, a sort of study of motion and design similar to what the 3D experimental animation capstone will achieve, though this one will use more varied and complex shapes to emphasize their 3D nature.

Project 5: World Builder
Author: Bruce Branit
Year: 2009
Duration: 9:15
This short film, produced mostly by Bruce Branit of Branit VFX studio in Kansas City, is a combination of live action green screened with a 3D world. It took 2 years to make this 3D world; yet the plot is simple and the dialogue minimal. It is not necessarily an example of experimental animation, as it is more a combination of short film and experimental 3D concepts. This is also not like a college project, as it was done by a professional studio, and took one more year than most CSUMB capstones take. The work however, does provide neat insight into the inner workings of how 3D models are made, and is a poignant and memorable addition to the 3D world. The CSUMB capstone may not be as technically complex, but it will have a similar epic and technically exploratory nature. Another difference would be that the 3D experimental animation capstone would not include live-action per say. It would be less scripted and photorealistic, and more focused on abstract shape and design.
III. Solution Description

Project Description
The experimental 3D animation project will be a short animation based on the idea of abstract forms in space. It will be an approximately 30 second to 2 minute 3D animation. This animation will be set to a sound track, and may include other elements such as photo images, live action, 2D computer elements or special effects; but it will be mostly 3D in nature. It will have a focus character, but neither this nor the environment will be based in reality. Instead, it will be a brightly colored fantasy world animation based on the idea of abstract forms and design moving in space. Using a unique artistic view of the world, an experimental design based animation will be made that can only be done using the medium of the computer.

Project Goals
The goal of this project is to create a short animation based upon the abstract models (e.g. fantasy flowers and forests) previously designed by the student for a past animation class. This is to be an expressive, complex and abstract design based animation that would be worthy of showing at a local art venue, such as the Monterey Museum of Art.

Why this Project’s a Solution
This project will add another unique piece of 3D work to the animation catalogue of experimental animations, therefore expanding the understanding of the technical and artistic capabilities of those interested in 3D animation and techniques. This project will help to make the public more aware of animation as an art form by being publicly displayed at an art venue. This will help to get the public more accepting of the idea of digital animation as an art and design form, not just a commercial vehicle.
Other Possible Solutions
There are many ways that an experimental animation can go besides being based in 3D, and many new or unique ways of combining techniques that could contribute to the art form. A non-digital way of doing this would to be to focus on traditional forms of animation such as painting cells for animation or more uncommon ones such as clay animation. The experimental animation could also be focused on live action and effects, or 2D computer animations and abstractations. All of these would be valid alternates to a 3D experimental animation, and would serve to add to the library of animation techniques and animated artistic expression.

How this Project Differs from Other Similar Projects
There are other 3D experimental animations, but this one would be a unique form of artistic expression as no two pieces of art can be exactly the same. This project would be solely the student’s vision, as compared to another experimental animation that uses 3D, such as the Animusic: Pipe Dream mentioned in the Environmental Scan section of this proposal. This project is also different than other projects, as it’s focus would be to advance the idea of digital animation as an art form while other projects may have a different focus, such as to tell a political message.
IV. Deliverables

Project Deliverables List
All the following deliverables will be included as an electronic version on a CD.

- **3D Experimental Animation**
  The final animation will be 30 seconds to 2 minutes long. It will be in a resolution of HDTV 720p. It will be in a QuickTime .mov format. The bulk of the animation will be made with the 3D software Maya, as it is what is taught at CSUMB.

- **Capstone Website**
  The website will be made with simple html and possible css. It will be posted on the CSUMB myspace server. The website will include a short description of the project, link to a digital copy of the 3D experimental animation and final capstone report, and section for the student’s resume.

- **Capstone Poster**
  This poster will advertise the student’s 3D experimental animation for the capstone festival in May 2010. It will be a large (movie poster size) printed poster created with software such as Photoshop or Illustrator. It will feature images from the final project, as well as a description of the project.

- **Capstone Report**
  This report will be a written document that will detail the process of creating the capstone project. This will include any preproduction materials such as storyboards, concept art, and written descriptions of the 3D experimental animation. There will be a hardcopy of this report.
V. Methodology

Implementation Plan

1) The first part to completing this capstone is to take the classes necessary to lean
   the basics of 3D animation and production. This and the other necessary skills
   are further detailed in the Expertise section of this proposal.

2) While this project is in the planning stages constant research of similar 3D
   projects will be undertaken for inspiration and analysis. Other advice will be
   taken from the people mentioned in the Resources section of this proposal.

3) All supplies mentioned in the Resources section of this proposal must be
   available. If they are not, they need to be brought.

4) The implantation of the actual experimental 3D animation will be as follows.
   a. Develop the basic experimental animation idea.
   b. Write a draft/description of the idea using a word processor.
   c. Create storyboards and then concept art by combination of hand
      drawings, scan and trace with pen tablet, and using 2D drawing programs
      such as Adobe Illustrator and Photoshop.
   d. Create 3D models for the set, scene blocking, and the animation focus or
      character. This section will be based on work created in steps a., b., & c.
      above. These models will be created with the software Maya, and there is
      also a possibility of 2D models that would be created with software such
      as Adobe Illustrator and Photoshop.
      i. Texturing of models is done in Maya and 2D programs like
         Photoshop.
      ii. Lighting and shadows is also done in Maya.
iii. Possible use of other advanced techniques such as fur, or particle
generation

e. Find sound/music in public domain or create original score using the
software GarageBand. (See more in the Copyright Permissions section of
the Appendix.)
   i. For further information on steps a., b., c., d., & e. see the
      Storyboards, Flowcharts, Diagrams and Charts section in the
      Appendix.

f. Animation of models and scenes.
   i. Key and in-between frame creation (as extrapolated during
      rendering).
   ii. Scene blocking is implemented.
   iii. Possible creation or use of rigs, expressions, or deformers for
        model movement.
   iv. Editing of shots by creation of cameras in Maya. Also possible use
        of programs like AfterEffects or QuickTime for editing and special
effects.

g. Rendering of Animation in Maya on school computers to speed up
   rendering time.

h. Adding any postproduction, such as sound track.
   i. Transfer to format appropriate for digital projection.

5) Communicate with advisors, teachers and other professionals in the field as
   project progresses.
6) Possible entry of project into art show or film festival.

7) Prepare papers and other required materials for capstone.
   a. Final capstone report
   b. Capstone website
      i. Has a short description of project,
      ii. Link to digital copy of 3D experimental animation,
      iii. Link to final capstone report,
      iv. Section for student resume.
   c. Capstone poster that advertises student’s capstone
   d. ITCD website
      i. Will have a description of all required ILP classes taken for major
      ii. Will have link to a project completed for each class.
   e. Other capstone forms

8) Create presentation of final project.

9) Practice presentation of final project.

10) Present final project.
Resources
Personnel
The main advisee of this project will be the digital animation capstone advisor Pat Watson. He is knowledgeable about the concepts of animation and design, as well as the 3D software Maya. He also has knowledge of a fair amount of the other multimedia software that will be used in this project.

The advisor that in charge of the administrative procedures behind the capstone is Dr. Bude Su. She will help keep the students on schedule to complete their capstones in the given timeframe. She will also help with the capstone presentations and reports.

Another teacher that is knowledgeable about the subject of film and animation is Robert Polich. He has knowledge of Maya as well as AfterEffects, and is part of the film department (Teledramatic Arts and Technology).

Other possible resources for this project include other Digital Animation or technology students, and design and animation professionals in the community.

**Supplies, Space**

<table>
<thead>
<tr>
<th>Supplies</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Computer and mouse</td>
<td>The student has a Mac laptop and 3 button mouse with the requisite software for this project.</td>
</tr>
<tr>
<td>*Imaging editing software</td>
<td>The student has Photoshop, Fireworks, and Corel Painter.</td>
</tr>
<tr>
<td>*Microsoft office</td>
<td>The student has Word and PowerPoint which will be used for capstone presentation, reports, and taking notes for animation planning.</td>
</tr>
<tr>
<td>*3D animation software</td>
<td>The student has Maya.</td>
</tr>
<tr>
<td>*Pen tablet</td>
<td>The student owns one.</td>
</tr>
<tr>
<td><strong>Movie making software</strong></td>
<td>The student has iMovie HD for film editing, Audacity for sound, and GarageBand for making music.</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Pen, pencils, colored markers, paper, scissors, glue etc.</strong></td>
<td>The student has these supplies which may be used for creating storyboards, concept art and etc.</td>
</tr>
<tr>
<td><strong>Scanner</strong></td>
<td>The student will use this to scan drawings for the project into the computer.</td>
</tr>
<tr>
<td><strong>External hard drive</strong></td>
<td>The student has 2, 1TB external hard drives that will be used to store backups of the large files that will be rendered during the project.</td>
</tr>
<tr>
<td><strong>School computer labs</strong></td>
<td>The school lab will be utilized as they have multiple copies of Maya on which rendering can be done faster. The student also plans on using the school’s licenses of AfterEffects to edit the project.</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>Research for similar projects will be done on the Internet and at the school library. There may also be research done on the Internet and at the library for instructional material for 3D or other software.</td>
</tr>
</tbody>
</table>
**Expertise**
The student has adequate knowledge of all the software mentioned in the Resources section of this proposal. This knowledge comes from the classes mentioned below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Purpose for Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>CST 300 + L Major ProSeminar</td>
<td>This class introduced the major, and gave a short overview of what a capstone project is like.</td>
</tr>
<tr>
<td>CST 328 Digital Art and Design</td>
<td>These classes taught digital art tools, such as Illustrator, and the basics of digital design, art, and animation. These design concepts can be used for the final project.</td>
</tr>
<tr>
<td>CST 428 Digital Art Workshop</td>
<td></td>
</tr>
<tr>
<td>CST 201 + L Media Tools</td>
<td></td>
</tr>
<tr>
<td>VPA 310 Mixed Media Drawing</td>
<td>These were essential classes, as they have helped with the student’s artistic skills that will be necessary for creating the 3D experimental animation.</td>
</tr>
<tr>
<td>VPA 315 Life Drawing</td>
<td></td>
</tr>
<tr>
<td>High school art classes</td>
<td></td>
</tr>
<tr>
<td>CST 231 + L Problem Solving and Programming With C++</td>
<td>These classes have helped with basic programming and understanding more of the mechanics behind the programs and computers if a technical problem comes up. This will be helpful for making the capstone website.</td>
</tr>
<tr>
<td>CST 338 Software Design</td>
<td></td>
</tr>
<tr>
<td>CST 337 Computing Architectures &amp; Environments</td>
<td></td>
</tr>
<tr>
<td>CST 101 Technology Tools</td>
<td>These classes taught presentation and report skills. This will help with presenting the capstone and creating capstone reports and presentations. CST 101 also taught simple html skills. This will be helpful in making the capstone website.</td>
</tr>
<tr>
<td>CST 211 Technical Communications</td>
<td></td>
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<tr>
<td>CST 212 Technical Presentations</td>
<td></td>
</tr>
<tr>
<td>TAT 337 + L Video Productions</td>
<td>This class taught the production process behind making an animated film. This class taught camera operation, lighting, audio, and editing. These skills can be used when creating the project.</td>
</tr>
</tbody>
</table>
As shown in the chart above the main skill of using the Maya software was acquired in the 3D classes (pink row) taught by Pat Watson. The student also plans to become more skilled in AfterEffects by taking TAT 421 and 423 with Robert Polich. The student's artistic and design skills have also been honed in art and design classes taken in high school and at CSUMB.

All of the skills mentioned above will be used to help create the 3D experimental animation.
Risk Analysis
One reason this project may not be completed is due to loss or corruption of animation files because of large size or long rendering times. Other technical problems with Maya may also occur, as the software is massive and a lot of work could be lost if a problem beyond the student’s and advisor’s skills to fix happens. It is possible that both the original and backup copies of project files could be lost or stolen which would also make the capstone hard to complete. Working with AfterEffects can also be problematic in terms of rendering. It is possible that the project may have problems if the school computers don’t have enough memory (RAM) to render the animation. This could happen if a scene is too complex. Another problem with getting the project in an art show or film festival is that it may not be completed on time, or submission paperwork may not be completed on time. Also, there could be problems on the art show approach if a sponsor/show backs out at the last minuet.

Other general reasons for not completing this capstone on time include personal emergencies (illness etc.), school closure (weather etc.), and other unlikely external or internal reasons.
VI. Testing and Evaluation Plan

Functional Testing

Usability Testing

Evaluation Plan
VII. Budget
VIII. Timeline
IX. Appendixes

PowerPoint or Web Presentation

Letter or Memo of Understanding from Client/Sponsor

Reference List


Images:


Resume

Storyboards, Flowcharts, Diagrams and Charts

Specifications
Advisor's Suggestions
The following are suggestions that the capstone advisor, Pat Watson, made for this capstone proposal project.

First Draft:
Mariko, for the time being, don't send me a paper that has blank sections in it. Just send what's requested for the week's work. Your project background reflects your old ideas on the project. Revise that. Your problem description needs to deal with the fact that animation is emerging as an art and design form rather than an entertainment medium. Your problem description needs to focus on the fact that animation hasn't been explored as a creative art form to anywhere near its potential and that's what you intend to do. Your target audience statement is OK. Your QT link for the Molson ad took way too long to load. Next time, print the link so I can do a cut and paste into my browser. I think your comparison examples are well-selected and represent your ideas well. Please do a better job of preparing your paper, as your links were difficult to start and the writing needs some work (not a lot, but some refinement that comes from better editing and...
clearer focus). I believe you have the skills to play in the big leagues, please make sure your writing reflects that skill.

Mariko: Your problem statement should focus primarily on the general public perception that animation is an entertainment genre. Your problem statement should address the fact that you're attempting to expand the public acceptance of animation as an art form and you intend to submit the finished product to local art venues (Steinbeck Center, Monterey Museum of Art and other galleries) to advance the idea that digital animation is an art form.
X. Advisor Signoff Page