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How to use computer graphics popularize Tai Chi

Tao Zou

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Rochester Institute of Technology

Thesis submitted to the Faculty of the College of Imaging Arts and Sciences in candidacy for the Computer Graphics Design degree of Master of Fine Arts

Title: How to Use Computer Graphics Popularize Tai Chi
Submitted by: Tao Zou
Date: Oct 15, 2011
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Signature of Author                                      Date
Abstract

TAIMIC is a visual interactive exploration application involving motion capture and 3D animation. It introduces Tai Chi to young generations and could be accessed through the Internet from anywhere in the world.

Tai Chi, a division of Chinese Kong Fu, has been popular in China for hundreds of years. Today Tai Chi has been spreading worldwide. Thousands of people in the world practice Tai Chi every day. However, most of the participants are senior people. As a result, I am creating a way to popularize Tai Chi among young people. My goal for this project is to use computer graphics to attract more young people to Tai Chi.

Thesis URL: www.taozou.net/taimics
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1. Introduction

1.1 Problem Statement

Since last century, computer graphics technology has become significant in our lives. It has deeply influenced young people through video games, websites, and movies. Most young people could not live without digital technology. Recently I found that the ancient practice of Tai Chi is becoming extinct among young people. I observed this factor and want to do something to change the present situation of Tai Chi. I want to bring vigorous blood to Tai Chi. I am thinking about how I can make old Tai Chi “cooler” and more acceptable to young people. First of all, I need to find out what young people like and what is popular with them. I noticed that video games and digital graphic styles are attractive to everyone, so I am interested in using this technology and what I had learned from design school to help young people understand more about the ancient art of Kong Fu. My idea is to create a stylized website to rebrand and popularize Tai Chi. In this website, I will use 3D animation rather than regular video as a tutorial.

1.2 Scope

motion capture

web and application design

3D character

animation and motion graphics

2. Literature Survey

2.1 Books

Tai Chi Chuan: 24 & 48 Postures with Martial Applications
by Liang Shou-Yu and Wu Wen-Ching 1996
One of China’s top-ranked coaches of Tai Chi provides an illustrated guide to the 24 and 48 postures, including tips on breathing, aligning the body, and developing Chi. Martial applications also are surveyed in a presentation notable for its many step-by-step, black-and-white photos that excel in illustrating positions and movements.

24 Postures Tai Chi
by People’s Sports Publisher /CHINA
2.2 DVD

Simplified Tai Chi Chuan With Applications
Starring Shou-Yu Liang, Jwing-Ming Yang, and Kelly Maclean 2005
Scott Cole: Discover Tai Chi AM/PM Workouts
Starring Scott Cole 2009

2.3 Online Resources

http://www.patiencetaichi.com/ Tai Chi 3D 1.1 software

3. Process

3.1 Project Overview

The process includes a four-phase development process: research, design, development, and summaries.

3.2 Project Goals

1. To explore Tai Chi and interpret it by creative interactive graphic solutions
2. To rebrand Tai Chi and introduce it to young audiences
3. To create a series animations about Tai Chi.
3.3 Target Audience

My target audience is young people from 12-to-30 years old who have an interest in new media and computer graphics.

3.4 Software

2D: Adobe Photoshop, Adobe Illustrator, Cole Painter

3D: Maya, Motion Builder

Animation/Compositing: Adobe After Effects

Motion Capture: Organic Motion

Interactive: Adobe Flash

4. Design

4.1 Character Design

For the character design, instead of using complex human-like body shapes, I am using a very simple, geometrical direction to emphasize movement of Tai Chi. Three different approaches represent different types of the human body. In the entire development process, I did not experience many problems with character No. 2 because he has the closest body shape to a human. However, for characters No. 1 and No. 2, since they have strong arms, short legs, and almost no neck, they were quite problematic later in the rigging progress. Their skin is easily distorted, and it was almost impossible to make smooth animation because of the shape of their arms and legs. In the end, I had to go back and make several changes to my original design, extending their legs and arms as much as possible, and I added necks even though these necks still look too short to be seen.
4.2 Animation

Motion Capture

1. Setting up and warming up. It takes about 10 minutes to start up all the hardware and software.

2. Calibrating. Once the lights are up and cameras are ready to record, I need to find a perfect balance point of the exposure. This directly determines the quality of the videos, and the videos determine the accuracy of the motion capture data.

3. Communicating. Making sure the motion actor is facing in the right direction and letting him know the limitations of the motion capture space.

4. Connecting. Letting the actor keep the default starting pose for 5 seconds so the system can recognize him as an actor.

5. Recording.

Animation

My animation actually is much more than some sequences automatically generated from the motion capture system. The problems I encountered in the motion capture process are discussed in 4.5 Technique Issues.

My idea for the interactive application is to make people understand every movement detail while the characters perform Tai Chi. This is achieved by using one main long shot and several close-up shots from different perspectives at the same time. I parent four cameras to different parts of the characters. The camera is moving while the character is moving, so the audience can always focus on the same area. However, the result turned out to be something I did not expect. All close-up shots looked very shaky and made people feel that the characters were floating on air. I tried adding shadow to make them feel more like they are standing on the ground, but the result was still very shaky and make the audience feel dizzy. Finally, I solved this problem by manually animating the cameras to follow each character; the animation is not 100% tied to the characters, but it is quite smooth and easy for audience to view.
Rigging

Rigging the characters went smoothly. I did spend two days teaching myself how to use Motion Builder, and once I understood it, the rigging went very fast, particularly since it comes from Autodesk and connects perfectly with Maya. The process of applying motion capture animation to the characters went very well.

Rendering

I used mainly Toon shader for all of my scenes, just a solid color with a black outline. It was easy to achieve in Maya, and the rendering speed was quick. The harder part was the shadow of the characters. My idea was to make halftone dots on the shadow area. If I did this in Maya, the render result would be either too pixelated or too blurry. My solution was to render out a shadow matte animation from Maya and then replace this matte animation with a still dots texture in After Effects. The result turned out very clear.
Motion Capture
4.3 Interactive Design

Interface design

My direction for interface design is to create something dynamic and graphic novel visual style. It would involve intro animations, background animations, and special effects. However, considering the possibility of the end user’s different bandwidth, screen resolution, and CPU speed, I have to limit my creativity. I have to make sure the home page is under 1024*768, thus limiting the animation size. My first round of home page design was with a smoky, cloudy, and colorful background. All of the smoke was animated, and the Tai Chi logo was made of hundreds of flickering lights. It looked very cool and many people liked it. However, after getting feedback from my committee members, I realized that my home page design is not consistent compared with the treatment on the secondary pages. I finally abandoned the original design and switched the background to a pure black sky and with a halftone logo.

The navigation bar is another area where I had a consistency issue. In the first round, I paid too much attention to how each page looked separately, and I ignored how the navigation menu would work as a system. Each page had its own style navigation bar, which was confusing to the user. After talking with one of my committee members, I will integrate the navigation bar at the bottom of each page so that all pages shared the same navigation bar.
Wireframe

Home Page

Navigation (choose character)

Logo

Legal Line

Secondary Page

Intro Animation

Home Bus

Selection

Navigation
4.4 Development

The project is built in Adobe Flash and contains FLV, images, text, and audio. The production process is divided into two parts: animation and interactive.

Blue Print / Site Map
Samples of Code

```javascript
function xmlcHandler(event:Event):void
{
    removeChild(preloader3);
    TweenLite.to(smask3, 1, {y:-290, ease:Back.easeOut, delay: 1});
    TweenLite.to(smask3, 2, {y:1061.5, ease:Back.easeOut, delay: 1});
    //555555555555

    _videosLoader3 = LoaderMax.getLoader("VideoThreeLoader") as LoaderMax;
    var Loader3:Array = _videosLoader3.getChildren();
    for (var i:Numbe = 0; i < Loader3.length; ++)
    {
        addChildAt(Loader3[i].content, 4);
        Loader3[i].playVideo();
    }
    setChildIndex(Loader3[4].content, 1);
    setChildIndex(Loader3[5].content, 13);
    Loader3[0].content.mask = mask3;
    //Add Cuespoints to each step
    Loader3[0].addAScCuePoint(0.5, "1");
    Loader3[0].addAScCuePoint(3, "2");
    Loader3[0].addAScCuePoint(17, "3");
    Loader3[0].addAScCuePoint(24, "4");
    Loader3[0].addAScCuePoint(39, "5");
    Loader3[0].addAScCuePoint(44, "6");
    Loader3[0].addAScCuePoint(63, "7");
    Loader3[0].addAScCuePoint(75, "8");
    Loader3[0].addAScCuePoint(92, "9");
    Loader3[0].addAScCuePoint(105, "10");
    Loader3[0].addAScCuePoint(121, "11");
    Loader3[0].addAScCuePoint(127, "12");
    Loader3[0].addAScCuePoint(134, "13");
    Loader3[0].addAScCuePoint(137, "14");
    Loader3[0].addAScCuePoint(139, "15");
    Loader3[0].addAScCuePoint(141, "16");
    Loader3[0].addAScCuePoint(144, "17");
    Loader3[0].addAScCuePoint(150, "18");
    Loader3[0].addAScCuePoint(156, "19");
    Loader3[0].addAScCuePoint(164, "20");
    Loader3[0].addAScCuePoint(169, "21");
    Loader3[0].addAScCuePoint(172, "22");
    Loader3[0].addAScCuePoint(181, "23");
    Loader3[0].addAScCuePoint(188, "24");
    Loader3[0].addEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);
}

function cuePointHandler(event:LoaderEvent):void
{
    trace("hit cue point " + Steps);
}
```
```javascript
step () {

var Steps: Number;
var PageID: Number;

import com.greensock.*;
import com.greensock.easing.*;

var Cover: Sound = new Sound(new URLRequest("Sound/rollover_1.mp3"));
var Cut: Sound = new Sound(new URLRequest("Sound/rollout_1.mp3"));
var Cclick: Sound = new Sound(new URLRequest("Sound/click_1.mp3"));

/*Paint1.alpha = 0 ;
Paint2.alpha = 0 ;*/
Characters.alpha = 0 ;
Text3d.alpha = 0 ;
Text3d.x = 1055 ;
Characters.x = -741 ;
AboutInfo alpha = 0 ;
About.alpha = 0 ;
P!nk.visible = false ;
Blue.visible = false ;
Green.visible = false ;
P!nk.alpha = 0 ;
Blue.alpha = 0 ;
Green.alpha = 0 ;
Bold.alpha = 0 ;
Mini.alpha = 0 ;
Slim.alpha = 0 ;
BG.BB.scaleX = 0 ;
BG.BB.scaleY = 0 ;

TweenLite.to(Text3d, 0.5, {x: -4, ease:Quad.easeOut, delay: 1});
TweenLite.to(Characters, 0.5, {x: -4, ease:Quad.easeOut, delay: 1});
TweenMax.to(Characters, 0, {colorTransform:{brightness:0}});
TweenMax.to(Text3d, 0, {colorTransform:{brightness:0}});
TweenMax.to(BackG, 2, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1});
TweenMax.to(Characters, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1.5});
TweenMax.to(Text3d, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1.5});
TweenLite.to(Characters. 1. {alpha:1. ease:Back.easeOut. delay: 1});
```
4.5 Technique issues

Motion capture

The motion capture process is harder than I expected. It took me a while learning how to set up and calibrate the whole system, and it did not automatically generate perfect animation that I need at beginning. There are too many errors and wrong frames in the raw animation data. I spent two weeks manually animating and fixing them in motion builder.
Coding
Because of the limitations of current Internet bandwidth, I have to divide the whole animation into several small FLVs and then composite all the videos in Flash.

The biggest coding challenge for me was how to dynamically load several FLVs at the same time without having problems. I have been trying to embed FLVs and use basic AS3 video control class to dynamically load FLVs, but both ways are either too slow or have occasional loading errors.

After searching online and consulting with my professors, finally I found LoaderMax, a customized class from Greenshock that might be the best thing to achieve my goal. It is somewhat complex to set up initially, but with Xml control list, it is stable and easy to change afterwards.

Host Server / Video Compression

Unless you paid a lot of money for a flash/video streaming server, most of the current host providers do not allow users to stream video over 5MB. So my server solution is using SorensonSqueeze to find a perfect balance between compression and quality at first and then use a regular server to stream small intro videos and use the free trial flash video server (500MG) to host the remaining big videos.
5. Summary

5.1 Troubleshooting

I learned many new technologies during the whole developing process, such as Motion capture system, collaboration between Motion builder and Maya, Action Script video control class, and Loadermax class.

5.2 Debugging

There are two steps in my debugging process, and the first is offline debugging. I accessed my application locally and made sure every page and function is working properly. The second step is online debugging. I accessed my application via the Internet, repeated the first step, and then tested loading speed and video streaming, made adjustments to the size of the videos and images to get the perfect balance between speed and quality.

6. Usability Testing

Usability testing is a key part of my thesis and extremely helpful in improving the thesis website. My process of usability testing is to ask several of my classmates to sit down and play with my project, while I watch how they navigate around my website. I can tell if it is difficult for a user to navigate, and I can observe when a user notices all the featured buttons. After that I will ask them for feedback to see if they have any trouble navigating through the entire website. My professors also gave me many helpful suggestions in terms of technology and aesthetic.
7. Conclusion

My goal for this project is to give young people a new experience of Tai Chi and interpret Tai Chi with new computer graphics and interactive solutions. Including motion capture, character design, animation, and interactive design, it is a very ambitious goal and I am pleased that finally I achieved it. The results are very good, and I am very happy to see positive responses from young people.

I learned many new technologies during the developing process, such as the Motion capture system, collaborating between Motion builder and Maya, Action Script Video control class, and Loadermax class. The other very important lesson I learned from this project is compromising—even if you had a very meticulous plan, sometimes you have to find another way out. The ability to figure out an alternate solution is key to success in the practical developing process.

In today’s fast-changing new media age, I hope my interactive web-based application will provide young audiences a new interactive way to learn and experience Tai Chi. I am one of those people who spend hours everyday in front monitors, so I hope my application not only shows young people what Tai Chi is by teaching its history and background but actually brings them into this sport physically. I hope it becomes a digital window of Tai Chi. More and more young people will get out and do the physical exercise.

I submitted my thesis to FWA (Favorite Website Awards www.thefwa.com), and I was delighted that my website has been featured in several web-design websites after two weeks. I am very pleased to see myself going through processes from planning to production and finally make the software come alive. I greatly appreciate my committee members for both artistic and technical instruction, and Mr. Yao Lin, who was my motion actor for all the professional Tai Chi moves. Without their help and support, I could not achieve what we finally see now.
Thesis Proposal for the Master of Fine Arts Degree

Rochester Institute of Technology
College of Imaging Arts and Sciences
School of Design
Computer Graphics Design

Title: Thesis Title: How to Use Computer Graphics Popularize Tai Chi
Submitted by: Tao Zou
Date: October 1, 2008

Thesis Committee Approval:

Chief Adviser: Visiting Professor Shaun Foster, Computer Graphics Design

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Signature of Chief Adviser                      Date

Associate Adviser: Assistant Professor Dan Deluna, Computer Graphics Design

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Signature of Associate Adviser                  Date

Associate Adviser: Associate Professor Chris Jackson, Computer Graphics Design

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Signature of Associate Adviser                  Date

School of Design Chairperson Approval:

Chairperson, School of Design: Patti Lachance

__________________________________________  __________________________
Signature of Chairperson                        Date
Abstract
Tai Chi as a branch of Chinese Kong Fu has been popular in China for hundreds of years. Today, Tai Chi has spread worldwide. Thousands of people from the entire world practice Tai Chi everyday. However few of these people are young people. So I am thinking of the ways to popularize Tai Chi. I will use computer graphics to help to attract more young people to Tai Chi. My thesis project will create a website using 3D animation instead of video to teach young people Tai Chi.

Problem Statement / Background
Since the last century, computer graphics technology has become significant in our life. It has deeply influenced young people with video game, website and movies. For most young people, presently we could not live without digital technology. Recently, I found that the old Tai Chi Kong Fu is becoming extinct among young people. I observed this factor and I want to do something to change the present situation of Tai Chi. I want to bring Tai Chi vigorous blood. I am thinking how I can make old Tai Chi “cooler” and easier to be acceptable by young people. First all I need to find out what does young people like and what is popular to young people. I noticed that video game and digital graphics style is attractive to everyone, so I am interested in using this technology and what I learned from design school to help young people understand more about this old Kong Fu. My idea is to create a stylized website to introduce Tai Chi, and I will put a 3D animation tutorial other than regular video on the web. My project also includes a little Iphone application that let user watch and learn Tai Chi on their cell phone. With this application, people could practice Tai Chi any time and anywhere.

Scope

motion capture
web & application
3d character modeling
animation & motion graphics

Literature Survey

http://www.easytaichi.com/

http://www.cloudwater.com
Tai Chi 3D 1.1 software

Project Description / Methodology

My project involves 3D capture, 3D modeling, animation, motion graphics, mobile design and web design. It will be a website created by Adobe Flash and an IPhone application that created by Apple IPhone developer program. The basic principle is using computer graphics technology to give old Tai Chi Kong Fu a fresh digital look, make it younger and more easier to be acceptable by young people, So more young people will be attracted to Tai Chi. I will teach The 24 posture Simplified Form which is a short version of Yang style tai chi, it is composed of twenty-four unique movements, it has less movement and it is easier to learn. Here is my project plan lists as below:

1. I will invite one Tai chi master to our campus. I will record his Tai Chi action data using a motion capture system.

2. I will create two 3D characters using Maya.

3. I will apply the movement data onto the characters and render out the animations from four perspective views (front, back, side, close-up).

4. I will design a web site base on the 3d animation tutorial.

My target audience is ordinary young people who are interested in sports. I will use three people to be my usability testers.

Besides the application, I will also make a 30-second motion graphics animation for promotion. The estimated time for the whole project is about 20 weeks.

Limitations

The accuracy of the motion tracking system is poor. It may cause some problems when I apply it on the character. Based on my technology background, it is very difficult for me to make a rotatable 360-degree viewer, although it will give the audience more direct information and help.

Implications of the Research:

To conclude, my research will assimilate various new technologies from computer graphic design, and combine them together into an interactive application. My research will offers a sample visualized interactive tutorial that could be utilized by ordinary sports fans. With the interactive
method, the audience not only sees Tai Chi as an old Kong Fu style, but also could be a cool sport; they will be involved into the digital environment. With stylize look I wish my application not only gives people useful information, but also attracts more young people coming for this sports. However, my research also has some deficiencies on viewer due to the limitation of hardware.

**Marketing Plan:**

Siggraph 2009

How Design Congerence

**Budget:**

$200

**Target Audience**

Sex: Not limited  
Age :  13-30  
Educational Level: Not limited  
Motivational Level: Not limited

**Scenarios:**

Scenario 1

Jason is a 17-year-old high school student. He is very interested in computer and video game. Besides surfing online 4-5 hours He plays video game 3 hours a day. He is willing to learn some sports to make himself healthier.

Scenario 2

Sara is a 25-year-old office worker. She is working 9 hours a day. She is eager to learn something from a different culture. However she does not have enough time to do sports. My application could help her to practice Tai Chi during the lunch break by Iphone.

**Software and Hardware Requirements**

• Macintosh G5  
• IBM Compatible PC with at least a Core2 processor  
• Windows VISTA or Windows XP Professional  
• 80 GB free disk space and 2 GB main memory
Appendix

ActionScript

Code For Intro Page

stop();

import com.greensock.*;
import com.greensock.easing.*;

Characters.alpha = 0;
Text3d.alpha = 0;
Text3d.x = 1055;
Characters.x = -741;

Pink.visible = false;
Blue.visible = false;
Green.visible = false;
Pink.alpha = 0;
Blue.alpha = 0;
Green.alpha = 0;
Bold.alpha = 0;
Mini.alpha = 0;
Slim.alpha = 0;
BG.BB.scaleX = 0;
BG.BB.scaleY = 0;

TweenMax.to(BackG, 0, {colorTransform:{brightness:0}});

setTimeout(Start, 100);
Code For Main Page

stop ();

var Steps:Number;
var PageID:Number;

import com.greensock.*;
import com.greensock.easing.*;

var Cover:Sound = new Sound(new URLRequest("Sound/rollover_1.mp3"));
var Cout:Sound = new Sound(new URLRequest("Sound/rollout_1.mp3"));
var Cclick:Sound = new Sound(new URLRequest("Sound/click_1.mp3"));

/*Paint1.alpha = 0 ;
Paint2.alpha = 0 ;*/
Characters.alpha = 0 ;
Text3d.alpha = 0 ;
Text3d.x = 1055 ;
Characters.x = -741 ;
AboutInfo.alpha = 0 ;
About.alpha = 0 ;

Pink.visible = false ;
Blue.visible = false ;
Green.visible = false ;
Pink.alpha = 0 ;
Blue.alpha = 0 ;
Green.alpha = 0 ;
Bold.alpha = 0 ;
Mini.alpha = 0 ;
Slim.alpha = 0 ;
BG.BB.scaleX = 0 ;
BG.BB.scaleY = 0 ;

/*TweenMax.to(Lights, 0, {colorTransform:{brightness:0}});
TweenMax.to(BackG, 0, {colorTransform:{brightness:0}});
TweenMax.to(Glow, 0, {colorTransform:{brightness:0}});
TweenLite.to(Text3d, 0.5, {x:-4, ease:Quad.easeOut, delay: 1});
TweenLite.to(Characters, 0.5, {x:-4, ease:Quad.easeOut, delay: 1});
/*TweenMax.to(BackG, 0, {colorTransform:{brightness:0}});
TweenMax.to(Glow, 0, {colorTransform:{brightness:0}});*/
TweenMax.to(Characters, 0, {colorTransform:{brightness:0}});
TweenMax.to(Text3d, 0, {colorTransform:{brightness:0}});
/*TweenLite.to(Paint1, 1, {alpha:0.45, ease:Back.easeOut, delay: 1});
TweenLite.to(Paint2, 1, {alpha:0.5, ease:Back.easeOut, delay: 1});*/

TweenMax.to(BackG, 2, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1});
/*TweenMax.to(Lights, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 0.7});
TweenMax.to(BackG, 2, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1});
TweenMax.to(Glow, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1});*/
TweenMax.to(Characters, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1.5});
TweenMax.to(Text3d, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut, delay: 1.5});
TweenLite.to(Characters, 1, {alpha:1, ease:Back.easeOut, delay: 1});
TweenLite.to(Text3d, 1, {alpha:1, ease:Back.easeOut, delay: 1});
TweenLite.to(About, 1, {alpha:1, ease:Back.easeOut, delay: 1});

Dummy2.buttonMode = true;
Dummy3.buttonMode = true;

Dummy1.addEventListener(MouseEvent.CLICK, goToOne);
Dummy2.addEventListener(MouseEvent.CLICK, goToTwo);
Dummy3.addEventListener(MouseEvent.CLICK, goToThree);

function goToOne(evt:MouseEvent):void {
Dummy1.removeEventListener(MouseEvent.MOUSE_OVER, over1)
Dummy1.removeEventListener(MouseEvent.MOUSE_OUT, out1)
Cclick.play();
gotoAndStop(10);
}
function goToTwo(evt:MouseEvent):void {
    Dummy2.removeEventListener(MouseEvent.MOUSE_OVER, over2)
    Dummy2.removeEventListener(MouseEvent.MOUSE_OUT, out2)
    Cclick.play();
    gotoAndStop(20);
}

function goToThree(evt:MouseEvent):void {
    Dummy3.removeEventListener(MouseEvent.MOUSE_OVER, over3)
    Dummy3.removeEventListener(MouseEvent.MOUSE_OUT, out3)
    Cclick.play();
    gotoAndStop(30);
}

setTimeout(Wait, 1500);

function Wait() {
    Dummy1.addEventListener(MouseEvent.MOUSE_OVER, over1);
    Dummy1.addEventListener(MouseEvent.MOUSE_OUT, out1);
    Dummy2.addEventListener(MouseEvent.MOUSE_OVER, over2);
    Dummy2.addEventListener(MouseEvent.MOUSE_OUT, out2);
    Dummy3.addEventListener(MouseEvent.MOUSE_OVER, over3);
    Dummy3.addEventListener(MouseEvent.MOUSE_OUT, out3);
}

About.addEventListener(MouseEvent.CLICK, ABOUT);
AboutInfo.Dummy.addEventListener(MouseEvent.CLICK, ABOUTend);
Link.addEventListener(MouseEvent.CLICK, golink);

function ABOUT(evt:MouseEvent):void {
    About.alpha = 0;
    /*TweenMax.to(Lights, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
    TweenMax.to(BackG, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});*/
    TweenMax.to(Characters, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
    TweenMax.to(Text3d, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
}
TweenLite.to(AboutInfo, 0.5, {alpha:1, ease:Circ.easeOut});
TweenLite.to(AboutInfo.Aback, 0.5, {alpha:0.8, ease:Circ.easeOut});
AboutInfo.x = 512;
}

function ABOUTend(evt:MouseEvent):void {
    About.alpha = 1;
    /*TweenMax.to(Lights, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
    TweenMax.to(BackG, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});*/
    TweenMax.to(Characters, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
    TweenMax.to(Text3d, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
    TweenLite.to(AboutInfo, 0.5, {alpha:0, ease:Circ.easeOut});
    AboutInfo.x = 1442;
}

function over1(evt:MouseEvent):void {
    TweenLite.to(Bold, 0.7, {alpha:0.6, delay:0.5, ease:Back.easeOut});
    Green.visible = true;
    TweenLite.to(BG, 0, {x:241.9, y:109.5});
    TweenLite.to(Green, 1, {alpha:1, ease:Back.easeOut});
    /*TweenMax.to(Lights, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
    TweenMax.to(BackG, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});*/
    TweenMax.to(Characters, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
    TweenMax.to(Text3d, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
    TweenLite.to(BG.BB, 0.25, {scaleX:1.2, scaleY:1.2, ease:Back.easeOut});
    BG.gotoAndPlay(2);
    Cover.play();
}

function out1(evt:MouseEvent):void {
    TweenLite.to(Bold, 0.7, {alpha:0, delay:0.5, ease:Back.easeOut});
    TweenLite.to(Green, 0, {alpha:0, ease:Back.easeOut});
    /*TweenMax.to(Lights, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
    TweenMax.to(BackG, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});*/
}
TweenMax.to(BackG, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenMax.to(Characters, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenMax.to(Text3d, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenLite.to(BG.BB, 0.25, {scaleX: 0, scaleY: 0, ease: Back.easeOut});
BG.gotoAndPlay(24);
Cout.play();
}

function over2(evt:MouseEvent):void {

TweenLite.to(Slim, 0.7, {alpha: 0.6, delay: 0.5, ease: Back.easeOut});
Blue.visible = true;
TweenLite.to(BG, 0, {x: 506.9, y: 58.5});
TweenLite.to(Blue, 1, {alpha: 1, ease: Back.easeOut});
/*TweenMax.to(Lights, 1, {colorTransform: {brightness: 0.5}, ease: Quad.easeOut});
TweenMax.to(BackG, 1, {colorTransform: {brightness: 0.5}, ease: Quad.easeOut});*/
TweenMax.to(Characters, 1, {colorTransform: {brightness: 0.5}, ease: Quad.easeOut});
TweenMax.to(Text3d, 1, {colorTransform: {brightness: 0.5}, ease: Quad.easeOut});
TweenLite.to(BG.BB, 0.25, {scaleX: 1.2, scaleY: 1.2, ease: Back.easeOut});
BG.gotoAndPlay(2);
Cover.play();
}

function out2(evt:MouseEvent):void {

TweenLite.to(Slim, 0.7, {alpha: 0, delay: 0.5, ease: Back.easeOut});
TweenLite.to(Blue, 1, {alpha: 0, ease: Back.easeOut});
/*TweenMax.to(Lights, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenMax.to(BackG, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});*/
TweenMax.to(Characters, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenMax.to(Text3d, 1, {colorTransform: {brightness: 1}, ease: Quad.easeOut});
TweenLite.to(BG.BB, 0.25, {scaleX: 0, scaleY: 0, ease: Back.easeOut});
BG.gotoAndPlay(24);
Cout.play();
}

function over3(evt:MouseEvent):void {

TweenLite.to(Mini, 0.7, {alpha:0.6, delay:0.5, ease:Back.easeOut});
TweenLite.to(BG, 0, {x:383.9, y:158.5});
Pink.visible = true;
TweenLite.to(Pink, 1, {alpha:1, ease:Back.easeOut});
/*TweenMax.to(Lights, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
TweenMax.to(BackG, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});*/
TweenMax.to(Characters, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
TweenMax.to(Text3d, 1, {colorTransform:{brightness:0.5}, ease:Quad.easeOut});
TweenLite.to(BG.BB, 0.25, {scaleX:1.2, scaleY:1.2, ease:Back.easeOut});
BG.gotoAndPlay (2) ;
Cover.play();
}

function out3(evt:MouseEvent):void {

TweenLite.to(Mini, 0.7, {alpha:0, delay:0.5, ease:Back.easeOut});
TweenLite.to(Pink, 1, {alpha:0, ease:Back.easeOut});
/*TweenMax.to(Lights, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
TweenMax.to(BackG, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});*/
TweenMax.to(Characters, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
TweenMax.to(Text3d, 1, {colorTransform:{brightness:1}, ease:Quad.easeOut});
TweenLite.to(BG.BB, 0.25, {scaleX:0, scaleY:0, ease:Back.easeOut});
BG.gotoAndPlay (24) ;
Cout.play();
}

function golink(evt:MouseEvent):void {

navigateToURL(new URLRequest("http://www.taozou.net/"));
}
}
Code For Video Page

stop();
import com.greensock.*;
import com.greensock.loading.*;
import com.greensock.events.LoaderEvent;
import com.greensock.loading.display.*;
import com.greensock.easing.*;
import net.stevensacks.preloaders.CircleSlicePreloader;
//preloader
var preloader:CircleSlicePreloader = new CircleSlicePreloader(12,10);
preloader.x = stage.stageWidth / 2;
preloader.y = stage.stageHeight / 2;
addChildAt(preloader, 15);

//properties
PageID = 21;
Mask_2.visible = false;
var _xmlLoader:XMLLoader;
var _videosLoader:LoaderMax;
Smask2_1.y = 610.9;
Smask2_2.y = -161.05;

//animation;

//loaders;
LoaderMax.activate([VideoLoader]);

_xmlLoader = new XMLLoader(“video2.xml”,{name:”videos”,onProgress:progressHandler2,onComplete:_xmlCompleteHandler});
_xmlLoader.load();

///Handlerlers ;

//Video
function progressHandler2(event:Event):void
{

/*addChildAt(preloader, 15);*/

function _xmlCompleteHandler(event:Event):void
{
    removeChild(preloader);
    TweenLite.to(Smask2_1, 1, {y:1157, ease:Back.easeOut, delay: 1});
    TweenLite.to(Smask2_2, 1, {y:-391, ease:Back.easeOut, delay: 1});

    _videosLoader = LoaderMax.getLoader("VideoTwoLoader") as LoaderMax;
    var Loaders:Array = _videosLoader.getChildren();

    for (var i:Number = 0; i < Loaders.length; i++)
    {
        addChildAt(Loaders[i].content, 2);
        Loaders[i].playVideo();
    }

    setChildIndex(Loaders[0].content,8);
    setChildIndex(Loaders[5].content,13);
    Loaders[2].content.mask = Mask_2;

    //Add Cuepoints to each step
    Loaders[0].addASCuePoint(0.5, "1");
    Loaders[0].addASCuePoint(3, "2");
    Loaders[0].addASCuePoint(17, "3");
    Loaders[0].addASCuePoint(28, "4");
    Loaders[0].addASCuePoint(39, "5");
    Loaders[0].addASCuePoint(44, "6");
    Loaders[0].addASCuePoint(63, "7");
    Loaders[0].addASCuePoint(78, "8");
    Loaders[0].addASCuePoint(92, "9");
    Loaders[0].addASCuePoint(105, "10");
    Loaders[0].addASCuePoint(121, "11");
    Loaders[0].addASCuePoint(127, "12");
    Loaders[0].addASCuePoint(134, "13");
    Loaders[0].addASCuePoint(137, "14");
Loaders[0].addASCuePoint(139, "15");
Loaders[0].addASCuePoint(141, "16");
Loaders[0].addASCuePoint(144, "17");
Loaders[0].addASCuePoint(150, "18");
Loaders[0].addASCuePoint(156, "19");
Loaders[0].addASCuePoint(164, "20");
Loaders[0].addASCuePoint(169, "21");
Loaders[0].addASCuePoint(172, "22");
Loaders[0].addASCuePoint(181, "23");
Loaders[0].addASCuePoint(188, "24");

Loaders[0].addEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);

function cuePointHandler(event:LoaderEvent):void
{
    Steps = event.data.name;

    trace("hit cue point " + Steps);
}

//Intro Animation
T2.scaleY = 0;

TweenLite.to(T2, 0.25, {scaleY:1, ease:Bounce.easeOut, delay: 0.5}) ;

Nav2.one.addEventListener(MouseEvent.CLICK, G_one2);

function G_one2(evt:MouseEvent):void
{
    mySlider_mc2.removeEventListener(MouseEvent.MOUSE_DOWN, moveSlider2);
mySlider_mc2.removeEventListener(MouseEvent.MOUSE_UP, stopSlider2);
mySlider_mc2.removeEventListener(Event.ENTER_FRAME, changeVideo2);
Loaders[0].removeEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);
_videosLoader.empty(true, true);
gotoAndPlay(11);
}

Nav2.three.addEventListener(MouseEvent.CLICK, G_tree2);
function G_tree2(evt:MouseEvent):void
{

mySlider_mc2.removeEventListener(MouseEvent.MOUSE_DOWN, moveSlider2);
mySlider_mc2.removeEventListener(MouseEvent.MOUSE_UP, stopSlider2);
mySlider_mc2.removeEventListener(Event.ENTER_FRAME, changeVideo2);
Loaders[0].removeEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);
_videosLoader.empty(true, true);
gotoAndPlay(31);
}

back.addEventListener(MouseEvent.CLICK, back2);
function back2(evt:MouseEvent):void
{

mySlider_mc2.removeEventListener(MouseEvent.MOUSE_DOWN, moveSlider2);
mySlider_mc2.removeEventListener(MouseEvent.MOUSE_UP, stopSlider2);
mySlider_mc2.removeEventListener(Event.ENTER_FRAME, changeVideo2);
Loaders[0].removeEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);
_videosLoader.empty(true, true);
gotoAndPlay(1);
}

SL.addEventListener(MouseEvent.CLICK, SL2);
function SL2(evt:MouseEvent):void
{
    mySlider_mc2.removeEventListener(MouseEvent.MOUSE_DOWN, moveSlider2);
    mySlider_mc2.removeEventListener(MouseEvent.MOUSE_UP, stopSlider2);
    mySlider_mc2.removeEventListener(Event.ENTER_FRAME, changeVideo2);
    Loaders[0].removeEventListener(VideoLoader.VIDEO_CUE_POINT, cuePointHandler);
    _videosLoader.empty(true, true);
    gotoAndPlay(32);
}

var isPlaying2:Boolean;

isPlaying2 = true;
PAPL.PA.alpha = 1;
PAPL.PL.alpha = 0;
SD.wave.alpha = 1;

PAPL.addEventListener(MouseEvent.CLICK, clickPlayPause2);

function clickPlayPause2(evt:MouseEvent):void
{
    if (isPlaying2)
    {
        PAPL.PA.alpha = 0;
PAPL.PL.alpha = 1;
        for (var i:Number = 0; i < Loaders.length; i++)
        {
            Loaders[i].pauseVideo();
        }
        isPlaying2 = false;
    }
    else if (!isPlaying2)
    {
        PAPL.PA.alpha = 1;
    }
PAPL.PL.alpha = 0;
for (var r:Number = 0; r< Loaders.length; r++)
{
    Loaders[r].playVideo();
}
isPlaying2 = true;

var soundVolume2:Number = 1;
var muted2:Boolean = false;

SD.addEventListener(MouseEvent.CLICK, clickSD2);

function clickSD2(evt:MouseEvent):void
{
    var st2:SoundTransform;

    if (muted2)
    {
        for (var i:Number = 0; i< Loaders.length; i++)
        {
            Loaders[i].volume = 1;
        }
        SD.wave.alpha = 1;
        muted2 = false;
    }
    else
    {
        for (var u:Number = 0; u< Loaders.length; u++)
        {
            Loaders[u].volume = 0;
        }
        SD.wave.alpha = 0;
        muted2 = true;
    }
}
// ---- VIDEO SLIDER -------
var videoPlaying2:Boolean = true;
// position the slider in the middle of the slider bar
mySlider_mc2.x = bar_mc2.x;
mySlider_mc2.buttonMode = true;

/// create the event listeners for the slider
mySlider_mc2.addEventListener(MouseEvent.MOUSE_DOWN, moveSlider2);
mySlider_mc2.addEventListener(MouseEvent.MOUSE_UP, stopSlider2);
mySlider_mc2.addEventListener(Event.ENTER_FRAME, changeVideo2);

function moveSlider2(evt:MouseEvent):void
{
    var myBoundaries2:Rectangle = new Rectangle(bar_mc2.x,bar_mc2.y,bar_mc2.width,0);
    evt.target.startDrag(true, myBoundaries2);
    for (var t:Number = 0; t< Loaders.length; t++)
    {
        Loaders[t].pauseVideo();
    }
    videoPlaying2 = false;
}

function stopSlider2(evt:MouseEvent):void
{
    stopDrag();
    videoPlaying2 = true;
    for (var p:Number = 0; p< Loaders.length; p++)
    {
        Loaders[p].playVideo();
    }
}

function changeVideo2(evt:Event):void
{
    var ratio2:Number = bar_mc2.width / Loaders[0].duration;
    var barEnd2:Number = bar_mc2.x + bar_mc2.width;
    if (videoPlaying2)
    {
        for (var t:Number = 0; t< Loaders.length; t++)
        {
            Loaders[t].pauseVideo();
        }
        videoPlaying2 = false;
    }
}
evt.target.x = bar_mc2.x + Loaders[0].videoTime * ratio2;
if (evt.target.x >= barEnd2)
{
    evt.target.x = barEnd2;
}
else
{
    for (var p:Number = 0; p< Loaders.length; p++)
    {
        Loaders[p].gotoVideoTime(Math.round((mySlider_mc2.x - 117.9) * Loaders[p].duration/ bar_mc2.width));
    }
}
}

function Start()
{
    gotoAndPlay(2);
}