

***TouchDesigner Workshop:  
interactive visuals for performance  
Beginner and Intermediate level  
22-23 april 2017 10am-5pm  
SITEWORKS 33 saxon st. Brunswick 3065***

*download free version here (Mac or PC):*

<https://www.derivative.ca/099/Downloads/Default.asp>

*TouchDesigner interface basics:*

<https://www.derivative.ca/Education/BestWorkshopVideos088/>

***Day1 morning***

***TouchDesigner overview - explanation of operator types, audio input, demonstration of a sound reactive work, use of external tracking devices (leap motion), perform mode (think powerpoint!), interface construction and projector output***

***Case study***

*“Leap motion puppet”*

*using the leap motion controller to animate a digital puppet - ramp is animated by analysing incoming audio signal.*

***Animating an image with audio***

d1\_ex1: analysing audio peaks - analyse CHOP - lag CHOP

compare pre and post lag values - merge CHOP - trail CHOP

read an image and use audio values to animate- moviein TOP-transform TOP-composite TOP

add a button to transform image in y - button component-trigger CHOP

what is noise? Switch to animate with noise CHOP-switch CHOP

*How to save and share your component*

d1\_ex2: using the webcam - videoin TOP

underwater effect - noise TOP - speed CHOP - displace TOP

use an animated black and white image to animate time-timemachine TOP

texture 3d TOP - timemachine TOP

d1\_ex3: 2 methods for converting audio to image - chopto TOP - audiospectrum CHOP - displace TOP

d1\_ex5: 2 methods for converting audio to geometry - line SOP - chopto SOP - audiospectrum CHOP

***Day1 afternoon***

***Introduction to 3d***

d1\_ex7: 3d scene - light COMP - camera COMP - render TOP - box SOP

Lighting - spot lights - projector maps

d1\_ex8: audio reactive face animation - create 2 face textures, apply as material to sphere

animate with audio-sphere SOP-analyze CHOP-logic CHOP-switch TOP

importing geometry - animating with audio-camera, light COMP-render TOP

transforming geometry - animate 2 shoes with audio-create floorplane-grid SOP-lighting

d1\_ex9: demo of character rigging in houdini-import puppet geometry and animate with mouse

Panel CHOP - uv coordinates

leap motion - animate head with leapmotion channels-leapmotion CHOP-leapmotion TOP

## *Day2 morning*

Case Study: ANF-93 <https://vimeo.com/109052990>

### **Audio Particles**

d2\_ex1: compositing noise CHOP and wave CHOP with audiospectrum CHOP  
-lookup CHOP - pattern CHOP - explanation of samplerate.

d2\_ex2: we use the audio spectrum as vertical emission velocity for particles - particle SOP

### **converting between image, CHOP and geometry (part 2)**

d2\_ex4: using an image to displace points on a grid - grid CHOP - topto CHOP - sopto CHOP  
displace points on an animated cylinder along its normals - tube SOP - switch SOP

### **More python**

d3\_ex7: changing keyframe values in a DAT using chop execute DAT

d4\_ex4: create a table of random positions and colors with a python script for random placement of a light - Ray SOP - creep SOP - a video mapping trick for making a light travel along a surface.

## *Day2 afternoon*

Case study: "playing with fire" - interactive installation - particle attractor and kinect

<https://vimeo.com/70735873>

### **Particles and kinect**

d3\_ex2: particle attractors tracked to hands - kinect world space/screen space - point SOP  
particle SOP

### **geo instancing**

d2\_ex6: record mouse movements and instance geometry - trail CHOP  
geometry component - instancing  
add attenuated noise - noise CHOP - pattern CHOP  
GPU vs. CPU - geo instance vs. copy SOP

d2\_ex7: geo vortex - use animated noise to control rotation, ramp to control opacity and colour  
- noise CHOP - speed CHOP - ramp TOP - topto CHOP  
- GPU transparency in TouchDesigner

### **GLSL**

d2\_ex5: Shadertoy importer - how to write a GLSL vertex shader for displacement

d3\_ex3: rendering kinect rgb point cloud input

### **PBR**

D2\_ex3: into to PBR rendering - soft reflections, ambient occlusion.

Substance shader - shader writing tool - substanceshader TOP

## **Payment Details**

<https://www.trybooking.com/book/event?eid=273685>