MAT 594P - Composing Media Pieces for the AlloSphere

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Monday/Wednesday 10AM-12PM, CNSI 2809

Description

MAT 594P is a hands-on studio and tutorial course that will teach you the basics of the AlloSphere software systems. The course is structured to make multimodal media content for the AlloSphere instrument with software modules designed for you so that you will be able to make immediately.

The course will continue the summer workshops, with the “making” part of the course a media project for the AlloSphere. The course is designed as a companion to MAT 240 that teaches the theory and concepts behind the software synthesis and processing techniques we will be applying in 594P. In 594P, we will be working with both audio and visual content as well as interactivity.

Software modules are designed to go from basic visual/audio techniques in sound/audio synthesis and processing. The modules will give you basic templates that will allow you to configure holistic systems for visual, audio and interactive compositions. Prototyping modules will be provided in Max/Cosm, LuaAV, and the Gamma, GLV, and AlloCore C++ libraries. We will also cover how to interface these modules with the Device Server for interactivity.

Course Topics

The topics covered throughout the course include:

**AlloSphere Usage**
- Rules and regulations
- Introduction to computing system and other hardware

**Sound/Signal Synthesis**
- Harmonics and waveforms
- Sample playback/recording?
- Networks - Modulation (AM, FM), Additive, Subtractive
- Randomness
- Polyphony - Notes, Grains

**Visual/Spatial Synthesis**
- Math - Vectors, Matrices, Quaternions (what they do)
Geometric - Particle Systems, Curves, Isosurfaces, Meshes
Lighting - Spherical, Plane, Spot

Graphical Interfaces
MVC - Data, View, Mouse/Keyboard, Events
Widgets - Sliders, Buttons, NumberDialer
Spatial Organization - View tree, Tables, Anchor/Stretch

Immersive Audio/Visual/Spatial Scenes
Navigator
Camera, Stereographics
Ambisonics, Reverb
Synchronization of audio and visual data

Interactivity
Open Sound Control (OSC)
Mapping
Sensors
Device Server

Course Schedule

In general, workshops will be held on Monday teaching basic concepts and the following Wednesday will be spent towards making the final project.

27-Sep  Max/COSM Workshop 1
Control of basic audio/visual modules: Timing, arithmetic, iteration, conditionals, randomness, trajectories, notes, masses, texture, motion
Homework – Start an audio/visual study using modules

29-Sep  Max/COSM Making 1
Lecture on the compositional process – AlloSphere tour of projects
Continue Study - Hands on composing of an audio/ visual study using modules.

4-Oct   Max/COSM Workshop 2
UI input: QWERTY, GUI. Signal-based control: LFOs, modulation, patching. Homework – Extend audio/visual study with new techniques

6-Oct   Max/COSM Making 2
Hands on composing of an audio/ visual study using modules

11-Oct  LuaAV Workshop 1
*Max/COSM STUDY DUE
Basic audio/visual modules simple waveforms, complex waveforms, LFO techniques. Homework – Start an audio/visual study using
modules

13-Oct  **LuaAV Making 1**
Continue Study - Hands on composing of an audio/visual study using modules. **Homework** – Continue working on 1st LuaAV audio/visual study

18-Oct  **LuaAV Workshop 2**
*LuaAV Study 1 due*
Audio/visual modules, FM and AM synthesis, additive synthesis, subtractive synthesis, more complex graphics techniques
**Homework** – Start 2nd LuaAV audio/visual study using new modules

20-Oct  **LuaAV Making 2**
Hands on composing of 2nd audio/visual study using modules
**Homework** – Continue working on 2nd LuaAV audio/visual study

25-Oct  **LuaAV Workshop 3**
More complex graphics techniques, Cosm spatial
**Homework** – Extend 2nd LuaAV audio/visual study with new techniques

27-Oct  **LuaAV Making 3**
*LuaAV Study 2 due*
Begin planning a larger project for final project in the AlloSphere

1-Nov  **Gamma/GLV/AlloCore Workshop 1**
Basic audio/visual modules simple waveforms, complex waveforms, LFO techniques **Homework** – Continue working on final project

3-Nov  **Gamma/GLV/AlloCore Making 1**
Work on project incorporating software from different platforms
**Homework** – Continue working on final project

8-Nov  **Gamma/GLV/AlloCore Workshop 2**
Audio/visual modules, synthesis techniques FM and AM synthesis, additive synthesis, subtractive synthesis, more complex graphics techniques **Homework** – Prepare for first presentation of final project

10-Nov  **Gamma/GLV/AlloCore Making 2**
*First Presentation of the Final Project Due*
Work on project incorporating software from different platforms

15-Nov  **Gamma/GLV/AlloCore Workshop 3**
Delay and comb filtering, more complex graphics techniques
**Homework** – Continue working on final project
17-Nov  **Gamma/GLV/AlloCore Making 3**  
Work on project incorporating software from different platforms  
**Homework** – Continue working on final project

22-Nov  **Device Server with Max/Cosm**  
**Homework** – Prepare for second presentation of final project

24-Nov  **Device Server with LuaAV**  
*Second Presentation of Final Project Due*

29-Nov  **Device Server with Gamma/GLV/AlloCore**

1-Dec  **Work on Final Projects**

**Final Exam Time – Present Projects in the AlloSphere**

Grading Based on Project Presentations = culmination of homework and in class project work.

Max/COSM Project=20%  
LuaAV Project1=5%  
LuaAV Project2=10%  
Final Project Presentation 1=20%  
Final Project Presentation 2=20%  
Final Project=25%