

# Internet2 Virtual Performance Module

Meredith Lydon & James Orr    Consultant: Professor Paras Kaul  
George Mason University, Art & Visual Technology, 4400 University Dr. Fairfax, Va. 22030

## 1. INTRODUCTION

This poster session introduces a project to design an Internet2 performance module, consisting of a virtual musical instrument. This instrument would allow a local artist in a theater at George Mason University to perform to an audience at a remote location, via grid access to Internet2. This performer would use a computer keyboard to trigger digital movies that would interact with a dancer in front of a live audience. Once in place, this module can be reused for additional Internet2 performances at a variety of universities.

## 2. DESCRIPTION

The instrument, programmed to play with a computer keyboard, enables a performer at George Mason University to press a letter on the keyboard in order to play a unique note, which is net cast in sync with a response from the virtual instrument.

The instrument is being designed in Alias's 3D modeling program, MAYA. The model looks like a multi-planed harp in an

organic shape similar to that of an iris flower. In addition to the design of the instrument's 3D model, the individual notes are being rendered as separate alpha channel movies. Individual movies play when the linked key on the keyboard is pushed. Each movie plays independently of the others. The movies are stacked in layers, so the animation plays smoothly with no breaks or skipping, which reduces the number of single movies to be rendered. Since movies exist on layers, there is no need to render multiple note combinations.

## 3. PROJECTION SCREENS

The performance includes three projection screens. The left screen shows the virtual instrument being played. The right screen displays the musician typing on the computer keyboard, in real time, from the Black Box Theater at George Mason University.

Typed input from the computer keyboard is projected on a third screen above the two lower screens. The projection screens are located on a raised stage in front of a seated audience, and the live dancer will perform on stage in front of the three screens and before the audience.

George Mason University, a member of Internet2, guided by [Ann Doyle]\*, is interested in developing a presence for excellence in high bandwidth performances, in conjunction with the multiple theatrical events on campus. The before mentioned theater has been configured for access to Internet2, in order to net cast performances which will be scheduled as new media events.

## 4. RESULTS

Having an Internet2 Performance Module in place at the university will encourage artists to take performance to a new level by allowing real performers to interact with virtual media. With the high-speed bandwidth of Internet2, performers no longer need to be in the same geographical location as the audience, and equipment does not need to be carried to performance locations. Additionally, the marriage of sound, alphabet, and movement lends itself to new possibilities for non-verbal communication.

## 5. REFERENCES

1. \*[<http://arts.internet2.edu/arts.html>]
2. [<http://arts.internet2.edu>]
3. [<http://events.internet2.edu/2004/NWS-workshop>]

---

e-mail: [mlydon@gmu.edu](mailto:mlydon@gmu.edu)

e-mail: [jorr3@gmu.edu](mailto:jorr3@gmu.edu)

e-mail: [pkaul@gmu.edu](mailto:pkaul@gmu.edu)

## Performance Module

