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INTRODUCTION

"Lumen" is an hour-long composition in three movements. Using shadow screens, precise mime-like movement, and a unifying musical language, the movements work together to create a narrative form inspired from both Javanese shadow play and early silent cinema. The three movements can also be performed individually.

- I. Lumen Prelude -- in which we are introduced to our protagonist, the Trumpet Player, to whom many distractions are presented. For Trumpet, Two Actor/Assistants, and electronics. (page 1)
- II. Lumen Aria -- in which the protagonist's voice comes to a full flourish. For Trumpet and electronics. (page 9)
- III. Lumen Finale -- in which all manner of hands and bells do their best to control each other, culminating in an inevitable seige. For Trumpet, Three Actor/Assistants, Four Pecussionists, and electronics. (page 12)

Lumen Prelude was premiered on the Stanford Strictly Ballroom series in April 2004. Lumen Aria was premiered at UC Berkeley in May 2004. The completed work will be premiered on the sfSoundSeries January 10, 2005 at the ODC Theater in San Francisco.



PERFORMERS

- TRUMPET PLAYER:

The Trumpet Player is the central figure of the piece. In Part I the Trumpet player is slowly awakened and exposed to the audience. Body movement and attitude should be correspondingly as if in a daze. Part II is the Trumpet player's musical interlude. In Part III, the Trumpet player initially takes on the role of puppet-master, triggering actions while maintaining the musical continuity. As Part III progresses, the Trumpet player gradually cedes control to the Assistants. This loss of power needs to be amplified through an appropriate transformation of physical attitude.

The score is written for C Trumpet, and should be performed from memory. In Parts II and III the first valve slide is removed to allow for hocketing between sounds coming out of the bell and those coming out of the bypassed first valve slide. Lavalier microphones should be used to amplify this effect (see the "Electronics" section).

The Trumpet Player should be dressed in all black.

- ACTOR/ASSISTANTS:

In Part I the Actor/Assitants interact with the Trumpet Player - facilitating hindering, praising, and humiliating. They are tacet in Part II. In Part III they become the visual centerpiece - with precisely coordinated physical gestures that respond to the Trumpet's sonic cues. Throughout the piece, the Assistant's movements should be clear and direct - somewhat more robotic than the Trumpet player.

The Stage Left and Stage Right Assistants (SL + SR Asst.) can be the same in Part I and Part III but don't have to be. In Part III there is an additional Stage Center Assistant (SC Asst.) that facilitates actions between the two Shadow Screens.

The Assistants should wear snug black clothes (for clarity behind the Shadow Screens) and should perform from memory.

- PERCUSSIONISTS:

The four percussionists help to create musical textures and respond to visual and sonic cues from the Trumpet and the Assistants. Percussionists 1 and 3 play on Javanese saron, 2 and 4 play on Javanese demung. Both are bronze keyed metallophones with the demung pitched one octave lower than the saron. All use the seven-tone Pelog tuning. Tuning is different from one gamelan to the next. The approximate tuning used in the first performance is:

1 = D, 2 = Eb, 3 = F, 4 = G#, 5 = A, 6 = Bb, and 7 = C

The score is notated using these numbers.

If Javanese instruments are not available vibraphones may be substitued. Translate the score using the above pitch equivalencies.

The percussionists should wear all black. Performing from memory is preferable.

LIGHTING

There are two main aspects to the lighting - general lighting and lighting for the Shadow Screens.

- General Lighting: Lighting indications are given in the score. For the most part, lighting should be dim with the use of spotlights to highlight areas of focus - particularly center stage between the two screens.
- Shadow Screen Lighting: This can be done either with overhead lights on the lighting grid (in a space with theatrical lighting), or with floor lamps using indoor spotlights and dimmer switches. The lights need to be placed sufficiently far behind the screens to make the clearest image possible. The use of colored gels is possible if done in good taste.

Other lighting designs are possible. Lighting design for the original performance was created by Aaron Schmookler with the technical assistants of the ODC Theater in San Francisco.

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ELECTRONICS

- OVERVIEW:

There are five main components to the electronic realization of "Lumen": diffusion, amplification, live audio processing, sound file playback, and live triggering of resonance models. All of these are integrated and controlled through the interactive programming environment Max/MSP. Both the Max patches and necessary sound file may be found on the accompanying CD-ROM. An additional copy of this CD-ROM may be found in the Hargrove Music Library at the University of California, Berkeley.

- Diffusion: All of the sound is stereo with significant spatial elements. Two speakers should be placed even with the Shadow Screens. To achieve a more enveloping sonic image, two more speakers may be placed on the sides of the audience. In this case simply route the same audio to both speaker pairs with the same left/right orientation. The volume of the electronics should be full but not loud. There should be a good balance between the live trumpet sound and the electronics.
- Amplification: Microphones are needed to amplify the trumpet in Parts II and III. A stereo pair of lavalier or binaural microphones work well and are rather inconspicuous. One mic should be mounted to pick up sound from the bell of the trumpet and the other to pick up sound coming out of the open 1st valve slide. These microphones should be panned hard left (bell sound) and hard right (1st valve sound).

A contact microphone is attached to the Bell Rack (see "Equipment and Props" page). The signal from this is used to trigger resonance models (see below) and should not be sent to the speakers.

- Live Audio Processing: Some live processing of the trumpet sound is called for in Parts II and III as indicated in the score. For the most part, this consists of a granular synthesis engine and a reverb unit. The parameters of this processing are controlled by cues triggered at the computer by a technical assistant. For more detail, see the Max patches on the accompanying CD-ROM.
- Sound File Playback: Much of the sound of Lumen comes from prerecorded sound files of acoustic and processed sounds. These sound files are triggered using the same cue system that controls the live processing. The sound files can be found on the accompanying CD-ROM.
- Resonance Models: Gong-like sounds in Part III are created by initiating a resonance model with the envelope from a contact mic located on the Bell Rack.

- TECHNICAL REQUIREMENTS:

Macintosh Computer (G3 or later)

Max/MSP (version 4.3 or later - http://www.cycling74.com)

Audio Interface (minimum 4 channel input, stereo output)

Mixer (minimum 4 channel input/output with phantom power)

2 Speakers

2 Lavalier Microphones or Binaural Microphones

Contact Microphone (embedded in Bell Rack)

Direct Box (to clean signal from contact microphone)

CD Player (stand alone)

Miniature Speaker (~3" speaker connected to CD Player's headphone jack and embedded in Frog Box)

Cables

- TECHNICAL LAYOUT:









EQUIPMENT AND PROPS

Photos of the props used in the original production are available at: http://www.davidbithell.com

Templates for the Shadow Props can be found in the Appendix to this score.

- SHADOW SCREENS:



There are two large shadow screens behind which much of the action takes place. These should be approximately 6' x 6'. Use some steady material for the frame (rigid wood, or metal) to avoid screen movement. Stretch white fabric over the frame to make a smooth surface.

- GLOVES:

For the opening "Hands" section, all performers must wear similar white gloves. As an option, this section can be amplified by creating fake hands by filling similar gloves with rice, other grain, sand, etc. For each entrance of a hand, also place a fake hand on top of the screen. These will obviously not move when other hands do. At the end, when all hands have moved to corners and disappeared, topple the fake hands one at a time letting them litter the stage in front of the screens.

- OFFICE BELLS:

These should be standard office/reception bells. You can find these in most office supply stores. Try to have slightly different pitches for the various bells. You will need a total of three bells.



PROTAGONIS

There are two "shadow boxes" used to display words and obscure visual elements. These should be made of similar construction to the shadow screens, though of smaller size. Each should be about 20" x 12". A dowel or broomstick is secured to the middle of one side as a handle. The words are created by cutting out "stencils" for the appropriate letters. These can be held together using cellophane and thus easily attached and removed to choose different words. The shadow boxes are lit by a small light bulb suspended behind the screen. Making an aluminum foil reflector to surround the light can help with visibility. The switch for this light should be routed out to the end or the mid-point of the handle for ease of use.

- HANDS ON A STICK:

The hands-on-a-stick are pretty self explanatory. The hands can be easily cut out of 1" pine on a band-saw using the template provided. Use 48" dowels as handles. The handles should be able to be attached at two different angles to the hands, as pictured above. The hands do not need to be painted. If they are, paint them white.

- STOOLS:

- FROG BOX:



Everyone wants a Frog Box. This is a box roughly 6"x 6" x 10" with an open face covered with shadow screen material. Inside the box should be a light bulb and a figurine of a trumpet-playing frog. If you can't find a trumpet-playing frog, almost any trumpetplaying figurine will work so long as you can tell it is playing the trumpet. A light located behind the figurine should be controlled by a switch held by one of the assistants. On top of the Frog Box is an office bell. Somewhere, either in the box or under the office bell should be a small speaker connected to a CD player. The Frog Box sound files are played back through this speaker. At the beginning of the show the Frog Box is covered with white cloth. This cloth should have a hoop attached to it allowing a hand on a stick to pick it up and remove the covering. I used a cable tie secured with a small clamp.

- FINGER RINGS:

movement of the ribbons.

Two stools or small end tables are required. I prefer using square stools. These are used as low profile tables throughout the piece.



The finger rings are four pieces of 1/2" copper tubing couplings (large enough to be able to slip partially onto the index and ring finger). Attached to each of these is a length of white ribbon or string. At the end of each ribbon is a weight (fishing weights are easy to use). These ribbons must be routed over some sort of a stand to smoothly keep tension on the rings. When slipped on to a finger, there should be some resistance from the weight, and the ribbon should be kept taught. The assistants will likely need to help facilitating the

31/2Decorative cutaway Copper Bells mounted on 2" x 2" wooden arms

- BELL RACK:

This Bell Rack serves two purposes. In Part I the backside is used as a backdrop for the action between the Shadow Screens (as in the opening stage diagram). In Part III the rack is rotated and pushed forward, flush with the Shadow Screens and with the arms of the Bell Rack surrounding the Trumpet player. This also hides the SC Asst. from view. The back of the Bell Rack is constructed from plywood and should be mounted on smoothly rolling wheels. The arms are made from 2 x 2 wood and mounted at 90° to the back and floor. The bells can be actual bells or copper end caps (as used for plumbing). Each bell should be a different pitch and they should be arranged more or less in descending order from top to bottom. Contact microphones are attached to the arms to act as triggers for processed gong samples that accompany the bell ringing.



been built by others and, if available, will probably work fine. The design that I came up with consists of a brace which rests on the lap with a metal shaft that rises up to meet the trumpet. The shaft can be quickly connected to sheath which surrounds the trumpet's valve casing. The trumpet is held against the lips by means of an adjustable neck strap.

- HAND VALVE CLAMP (TRUMPET CAPO):

The Hand Valve Clamp is used to keep certain valves of the trumpet depressed while leaving the hands free to do other things. Attach an upside-down "U" shaped bracket to a wooden cutout hand. The bracket should be flexible enough to stretch around the lead pipe and bell of the trumpet and firm enough to stay there by itself. I used 3/4" metal plumber's tape. To protect the trumpet wrap the bracket in rubber - a cut up bicycle inner tube works exceptionally well.

- WOODEN HANDS:

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These are made from 1/2" wood using the template provided. They are held by the Assistants in Part III giving their arms a puppet-like quality. When holding them, make sure to create a smooth line from your arm to the Wooden Hand. Various handles or ergonomic padding can be added to make them easier to hold for long durations.

- SHADOW PROPS:

Various cutouts and other Shadow Props are used in Part III. These should be of sturdy design and have crisp edges in order to create the best shadows. Quarter inch foamboard works well. For all use the templates in the Appendix.

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Spears: 🗲	These should be mounted on 48" dowels. For the pointy end use a design similar to a trumpet cup mute.					
Slinky:	This is a regular toy "slinky". This is held against SL's body and released when stabbed - creating stylised fake blood.					
Trumpets: Three sizes of trumpet cutouts are needed - regular, huge, and mini.						
Mini Trumpet Chain: This is a chain of 9-10 mini trumpet cutouts. They need to be able to fold out from the top when dropped. Two chains are needed.						

in Part III.

Two clear shower curtains are filled with cutout hands made according to the template. To make them lay flat when lifted behind the Shadow Screens attach a wooden frame to the top and bottom. The size of the curtain should match the size of the Shadow Screens precisely.

Bullet: ----

Trumpet Gun:

Apple:

- SHADOW PROPS (CONTINUED):

These two cutouts should be mounted at 90° to each other. This way the bomb "explodes" with the flip of the wrist.

à regular sized trumpet cutout is mounted at 90° to this cutout of a smoking trumpet. Flip the cutouts to "fire" the Trumpet Gun.

Two cutout bullets should be mounted on a three foot long piece of transparent plexiglass. One end is used to bring the bullet from the trumpet to the edge of the SL Shadow Screen, the other to emerge simultaneously in the SR Shadow Screen and travel toward the SR Assistant.

- BACKLIT HANDS:

Attach a rod, handle, light, and dimming light switch to four wooden hands. The fading in and out of the light will make the glowing "Ghost Hands"

- HAND SHOWER CURTAINS:



V1.





C "Breathing: Awake the Trumpet"

(Trumpet player is seated close behind the SL Shadow Screen facing SL. Backlight on the screen is faded in and out according to the score. For each electronic "Breath" Trumpet is in the same position.

Following the first "Breath", SL Asst and SR Asst remove props from "Remote Control". The two stools are separated and placed on the inside edges of the two screens for later use.)















(For Mode 2 all players do as described below. The mode is in two steps and occasionally the Trumpet player holds up a mute to insert into the pattern between SL Asst. and SR Asst. After 3-4 insertions, SL Asst.and SR Asst. begin to raise the plane of their passing -- eventually rising above Trumpet's reach -- speed up and shorten the physical distance between them.)





As the speed of SL Asst. and SR Asst.'s passing forces errors they jointly hold onto all of the mutes. Trumpet lifts up arms and takes over holding the mutes like a ritual offering.

8.

