

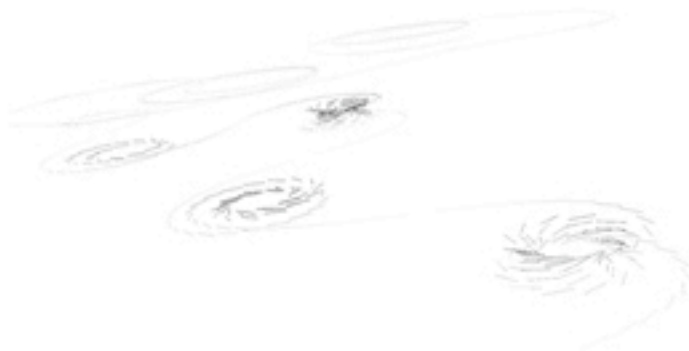
## INTRODUCTION

Bound in this portfolio are the most recent examples of my work in tangible interaction, visualization, programming, and sculpture. Each of the pieces work hand-in-hand, drawing from the same foundation of a love for creating art and communicating with others.

Supplemental materials, such as interactive files and videos, can be found on my portfolio website at: [hobbes.rabidzombie.com](http://hobbes.rabidzombie.com)

My in-progress workbench can be viewed at: [www.rabidzombie.com](http://www.rabidzombie.com)

And as always, please don't hesitate to contact me with questions at [dfmoore@syr.edu](mailto:dfmoore@syr.edu)



## MEROS

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Taking Meros for a morning ride

This physical computing project looks at exploring and advancing how humans interact with computer systems. Working within concepts of tangible interfaces, flow experience, and ubiquitous gaming, Meros is an input device that captures travel information as a user rides a bicycle. The information captured includes velocity, angle of motion, and vertical acceleration. With this information, 3D geometry can be generated to examine the spaces that riders are traditionally familiar with--but now reinvigorated with the specifics of their ride.

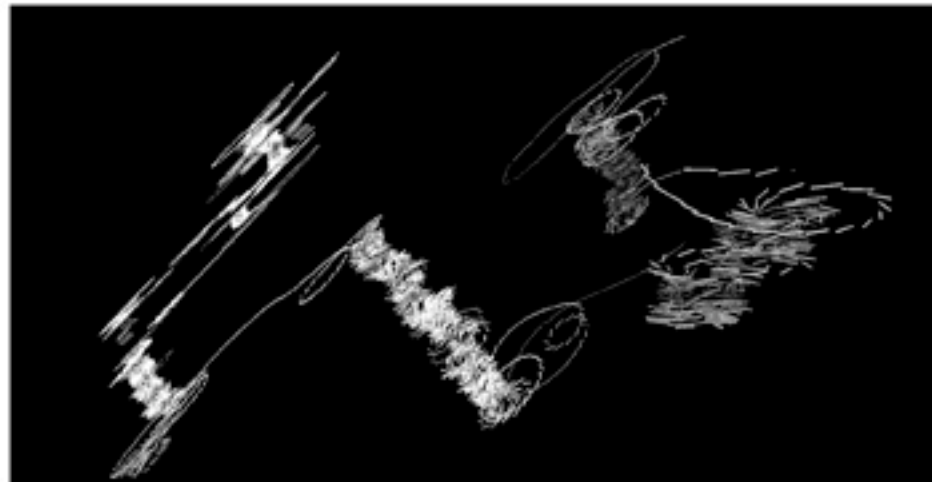
Eventually, Meros will be an input device for a game where a player must spend time having adventures in the real world in order to procedurally generate virtual world adventures based on the data collected.

## ■ MEDICAL CYCLES

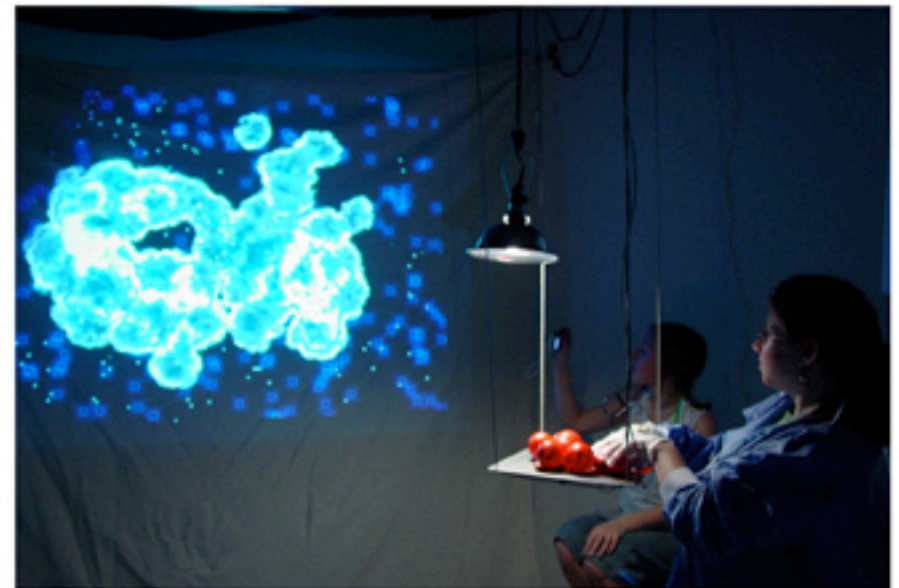
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Data is collected via optical and rotational sensors, logged and processed, and sent to a laptop for real-time wireless broadcast



Collected data is visualized as 3D paths, dashing and spiraling with the motion of the bicycle



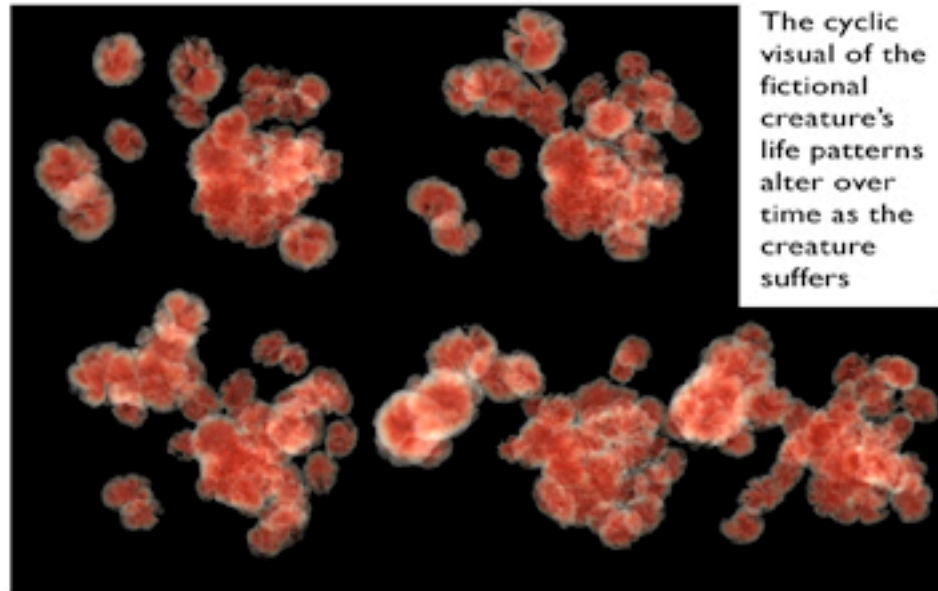
A participant, wearing medical garb, slowly kills the creature

This interactive environment, called **Medical Cycles**, recruited visitors to diagnose and treat a fictitious creature. This work explores the patriarchal and authoritarian persona of the male doctor. Dressed as a doctor, I gave orders to visitors to manipulate the creature--which clearly made it suffer. More willingly than not, the visitors complied and went the extra step of bringing the creature within seconds of death.

The cognitive dissonance created by a medical figure causing harm was not lost on many visitors; regardless, they continued.



Six different types of sensors allowed the creature to experience

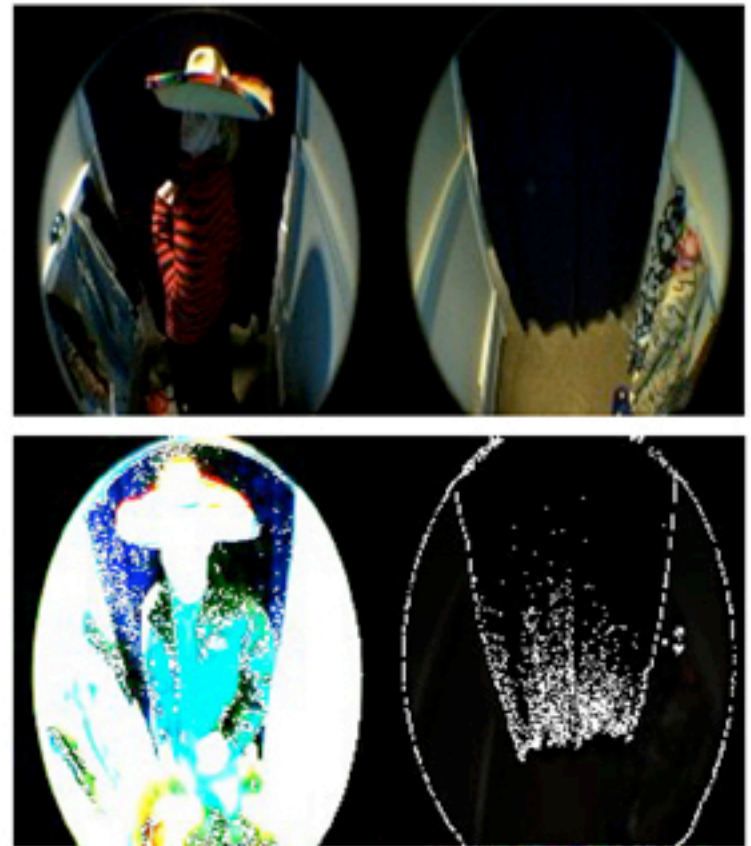


The cyclic visual of the fictional creature's life patterns alter over time as the creature suffers

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# CHANGING ROOM

Changing room is an interactive environment that examines the misplaced trust our society has in technology. As an open installation, visitors approach it finding a familiar changing room atmosphere. This one, however, had a video mirror, rather than a glass one. The visitor had options of "public" or "private", which altered the video mirror's appearance from a discernible rainbow of details to an outline that obfuscated the visitor's identity.



Top: Unaffected video feed from both changing room stalls  
Bottom: The full range of the public and private effect

## CREDIT CHECK

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I worked collaboratively with three other Computer Art students to create an entertaining game that pokes a bit of fun at the bureaucracy found at any University. Credit Check is an oversized board game and physical computing project that pits students against each other in a race for graduation. By shaking a magic eight ball, each player is given a randomized event and a number of squares to move forward or backward.

The board itself is entirely white, and through video projection, updates player information, movement, and video.

Additional collaborators were Lauren Mars, Steve Vanseth, and Michael Warren.

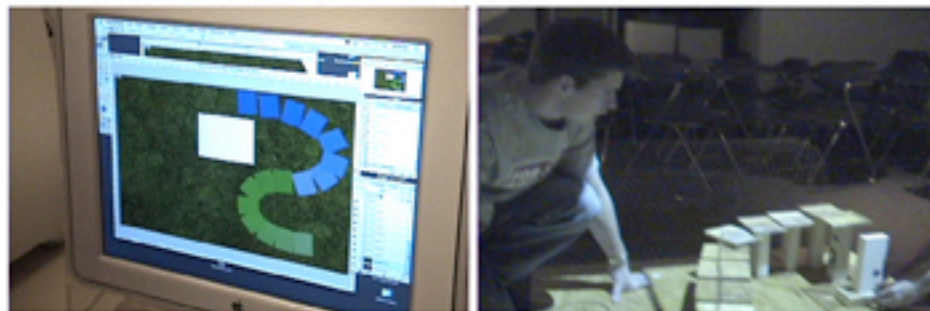


In-game video directions for player events and movement recorded from actual events



The changing room fabrication with rear-projection screens, live video feedback, and public broadcasting

## ALTERED TURNTABLE



Board construction using wood, wire, paper and primer; video projection is angled downward onto board via a mirror assembly

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Turntable with optical encoding and accelerometer

Recycling and sustainability are major parts of my life, and so I often look for old, discarded materials to claim and work with. This was the case with Altered Turntable-- I found an old record player that no longer fully functioned for this work.

By creating an optical system on the table itself, linked to a microprocessor, the table's velocity could be monitored in real time. Then, using Max/MSP (Cycling '74) for digital signal processing, audio files could be played back and altered on the fly, using the turntable as the controlling interface.

Additionally, a two dimensional accelerometer was embedded into the system in order to refine the user control over the sound.

# HISTORIAN

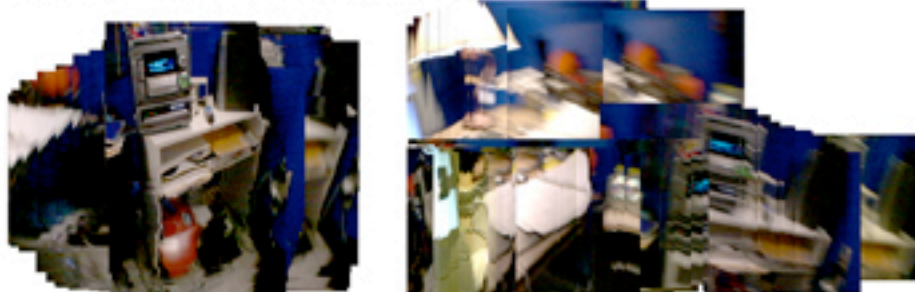


Montage from a front porch

Historian is a computer vision system that uses optical pixel flow to create real-time fragmented panoramic imagery from a handheld live camera. Frame speed can be controlled by hardware, allowing for velocity-dependency if capturing is occurring in conjunction with Meros or another vehicle.



"Painting" with a video camera at different angles to produce interesting and distorted imagery



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# 3D WORKS [MODEL & ANIMATE]

In working with 3D packages for the past eleven years, I've had the joy of building a number of models. I predominantly use Lightwave 3D and Modo, though I've recently begun the migration to Maya.



Little girl character model



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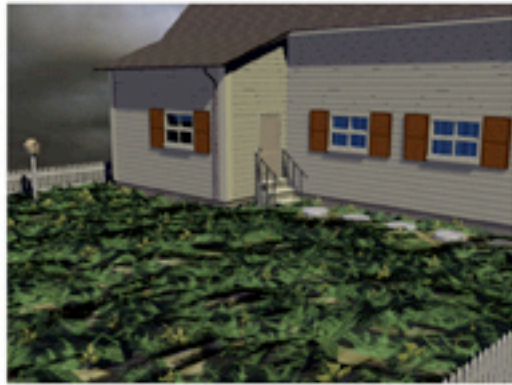


Stills from Storyteller



Ethan character model

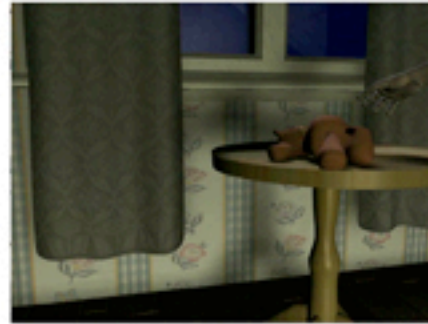




Motion and environment tests from Grass in the Yard

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Motion and environment tests from Satellite vs Bulldozer, a collaborative effort among eight students and myself

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Model of Hall of Languages (Syracuse University) and lighting test

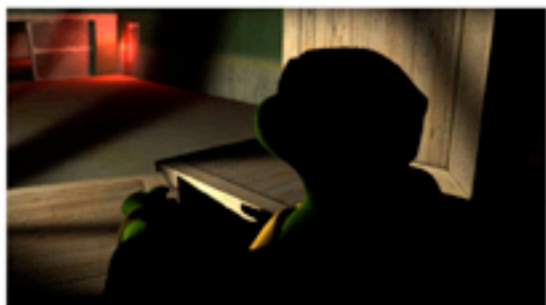
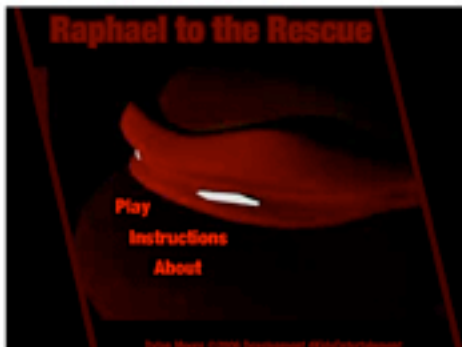


Modeling and texturing of lyreback chair and tables



Geometry and lighting tests for environments

In 2007, I completed a three year free-lance project for 4Kids Productions who had contacted me to independently produce the Raphael to the Rescue video game. The final delivery was in Flash 8, though all of the assets were created, animated, and rendered in Lightwave 8.



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Selected level renders from Raphael to the Rescue

In-game and production screen captures for Raphael to the Rescue

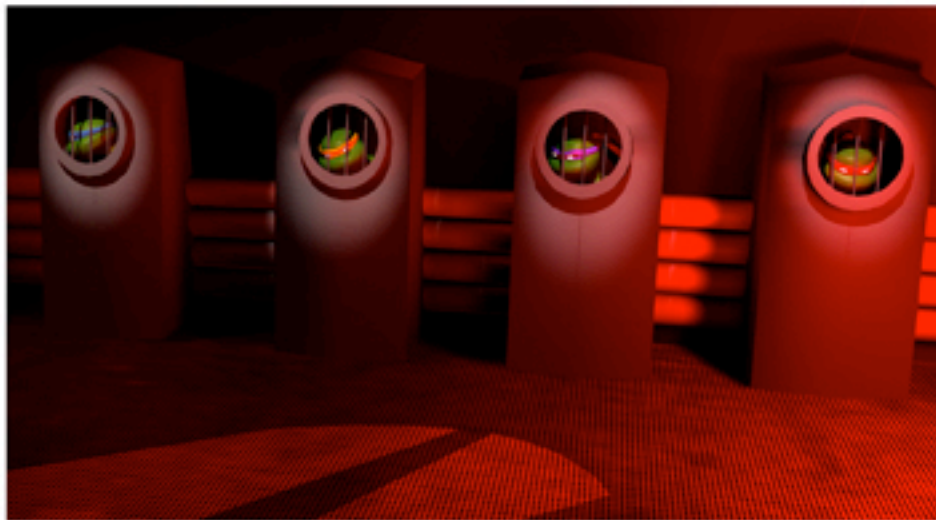
## ■ 3D WORKS [LIGHTING & GAMES]

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Grim and Fylakas Psychi are two games I've created in the past three years. The engines behind the graphics and game play were created from scratch using the OpenGL API, C++ and Objective-C. My interest lean towards real-time and interactive graphics, especially dynamic lighting and camera systems. Grim was created in collaboration with David Pietricola, who provided the 3D assets, texturing, and animation. Fylakas was independently completed.



Grim: 3D models, textures, and animations by David Pietricola; Graphics engine, game dynamics, and camera / lighting dynamics by Dylan Moore. Collaborative concept.



Win and Lose screens from Raphael to the Rescue



Screen captures from Grim



Fylakas Psychi, or 'Soul Guardian'



Fylakas returning souls to the oak tree

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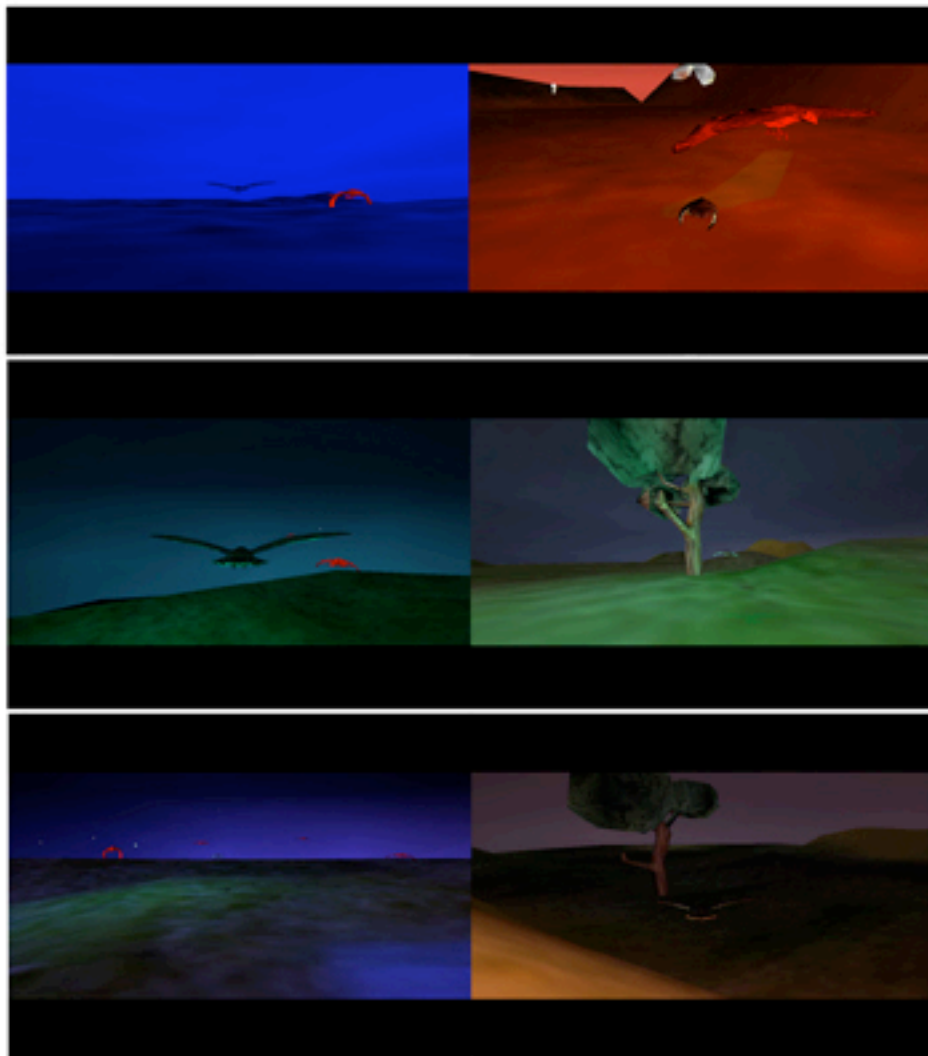
## 2D WORKS

Physical Computing | 3D Works | 2D Works | Procedural Imaging | Sculpture

I tend to use digital photography as a means of studying motion, light, and color, rather than as a final medium. From these studies, I develop a better sense of dynamic ranges and personal aesthetics. I have a particular love for long exposure times, often upwards of eight seconds for one photo. Exposure times like this allow for better studies of light and motion, though it does restrict my settings to darker environments. Included in this portfolio are a few shots that have been key in establishing my tastes in lighting.



Eight second exposure while driving at night



Screen captures from Fylakas Psychi at different times of day

In Fylakas Psychi, the player assumes the role of a kestrel (a type of hawk) that is charged with returning lost souls to an oak tree. Time of day dynamically impacts the lighting of the game. Fylakas Psychi also employs shadow maps which leverage modern GPU hardware.

## 2D WORKS



Physical Computing | 3D Works | **2D Works** | Procedural Imaging | Sculpture

## ■ 2D WORKS



Physical Computing | 3D Works | 2D Works | Procedural Imaging | Sculpture

Flash is an excellent tool for rapidly prototyping designs, as well as creating finished interactive works. Most of my Flash work revolves around the themes of control and music.

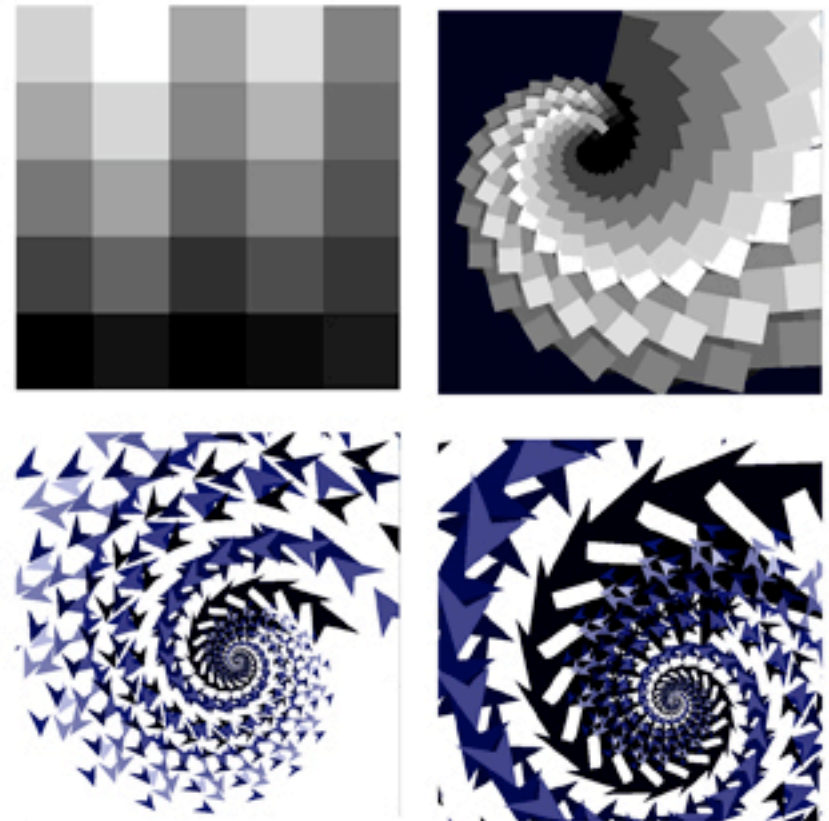
In *Catching Stars*, several celestial forms float at the top of the stage. Each has a sound and randomized pattern associated with it that can be activated by a click. Some sound pleasant, and others clash. The patterns repeat, and so as you catch more stars, the song that is created grows in complexity--and will be unique every time.



Catching Stars

## PROCEDURAL IMAGING

These procedural, or rule based, compositions use the OpenGL API and C++. The resulting executable render these images in real time. Some work with random seeds to generate new imagery on each execution, while some faithfully reproduce the same pattern every time.



Procedurally repeating patterns

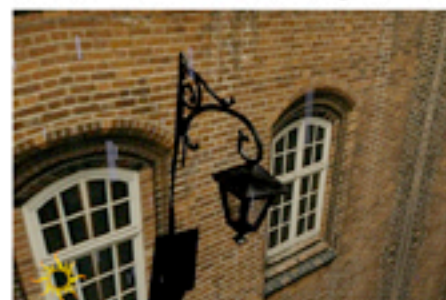
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In Shifting Moons, a four part music piece plays, each part corresponding to a moon. By shifting them in their orbit, the moons alter the parts. Each time the parts start over again, there is a slight offset, making the song decay into new versions of the original.

Even Through the Rain is an interactive piece that allows the user to change the time of day from afternoon to night. Repeating loops make the transition look seamless.

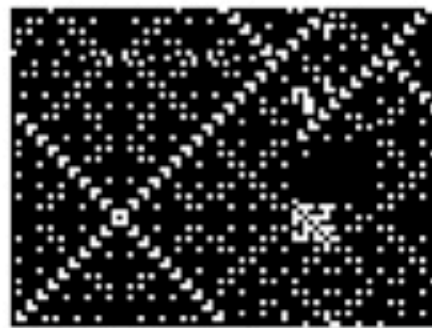


Shifting Moons

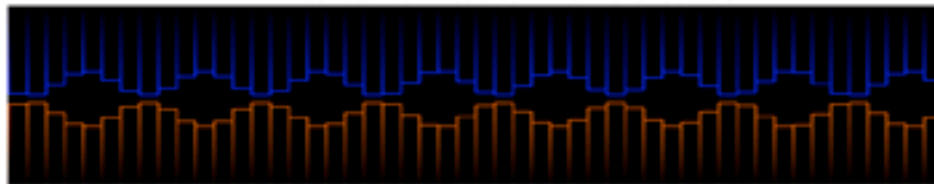


Night and day in Even Through the Rain

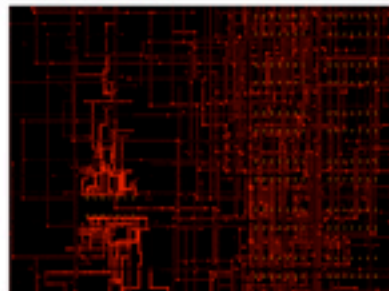
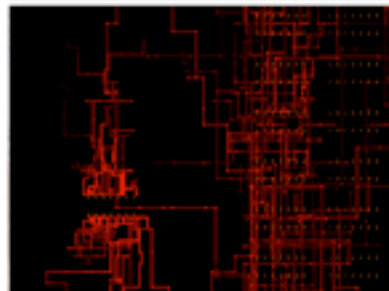
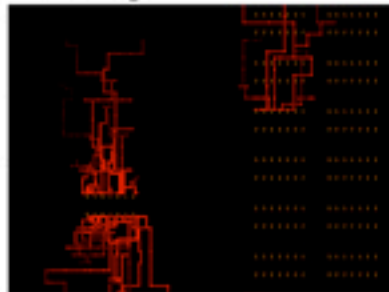
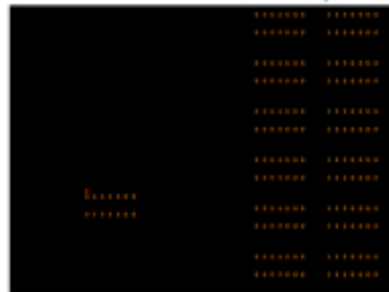




Conway's Game of Life derivative



A simple sinusoidal design



Dynamically connecting circuits



A budding cube-flower

## ■ SCULPTURE

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My primary research interest is in tangible interactions and how people use functional objects. In this vein of study, I greatly enjoy fabricating the actual objects. I prefer working with wood and metal over synthetics. There is a very thin line between my sculptural works and physical computing, and they are often one and the same.

In this project, I created an upright bass from sixteen feet of douglas fir. It uses actual bass strings, tuners, a bridge, and pickups for amplification.



## ■ SCULPTURE

A year before making the bass, I had carved a digital lyre. The string status was communicated to Max/MSP via a microprocessor, and the sound was then generated from field recordings.

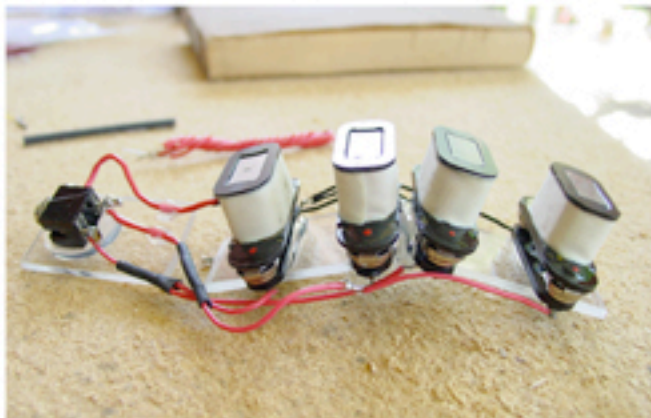
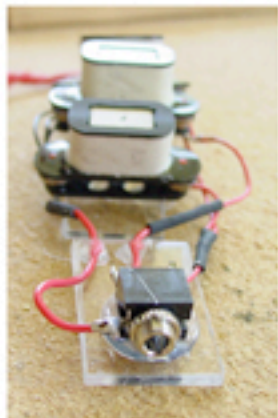


Finished digital lyre

Physical Computing | 3D Works | 2D Works | Procedural Imaging | Sculpture



The headstock in the process of being carved



Electric bass string pickups, wired for an 1/8" audio jack

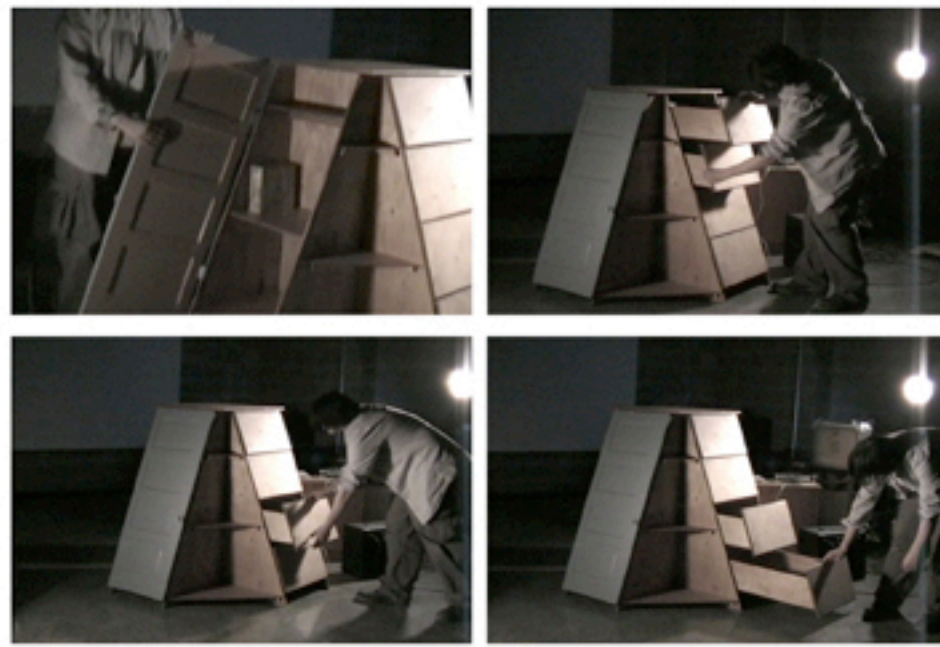


Living-room-to-woodshop conversions are best made when other housemates are not actually home

## ■ SCULPTURE

This cabinet was created for a functional sculpture class. It was designed as a corner piece, drawing inspiration from an oddly sized cupboard door found on a bulk garbage pickup day. It was designed to have four drawers, three shelves, and an enclosed shelf space.

As most of my work involves tangible interaction, this one was no different. For final critique, I wired the drawers with light sensors to detect if, and how much, they were opened. Sound of the cabinet's life, from tree, to furniture, to the curbside was played depending on the sequence of drawers pulled. In this sense, it felt as if the cabinet was releasing its life story as you opened it up.



The cabinet reacts to having its drawers pulled by telling you a bit of its life story from the forest to the living room, and eventually to the curb one day as garbage

## ■ SCULPTURE

And finally, when I need to step away from computing and interaction, I work with stained glass. There is something truly satisfying about breaking glass in exact ways, fitting it all together, and soldering it. While it is by far the most fragile medium I work in, it is also one of the most rewarding.

Below is my latest work: The first panel of three to be installed in a 1900's victorian four-post home. It measures about six feet long, and two feet high. It mixes a combination of lead and copper techniques to hold the glass together, with zinc borders and steel reinforcement in the foliage lines.



Physical Computing | 3D Works | 2D Works | Procedural Imaging | Sculpture