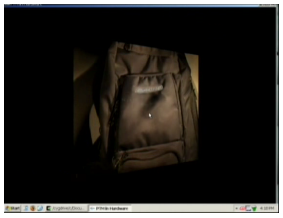
Shot Breakdown
Jason Rickwald
Computer Graphics Reel

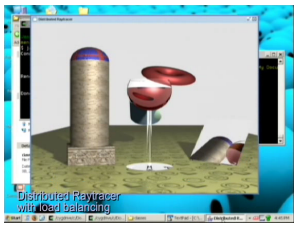
00:11 – 00:37

Polynomial Texture Maps
PTM Viewer
A Cg pixel shader displays a publicly available polynomial texture map.



00:37 – 00:46

Polynomial Texture Maps
PTM Fitter
The same viewer now displays a polynomial texture map created by my own "polynomial fitter" application.



00:46 – 00:59

Distributed Raytracer
Client and Server
This started as a simple raytracing assignment with features such as antialiasing, soft shadows, soft reflections, soft refractions, texture mapping, normal mapping, constructive solid geometry, and polygonal meshes. This raytracer was then modified to distribute work across many client machines.

00:59 – 01:18

View Dependent Projected Texture Mapping
Implementation and Viewer
An exploration of the pro's and con's of view dependent texture mapping and projecting texture maps onto displaced geometry

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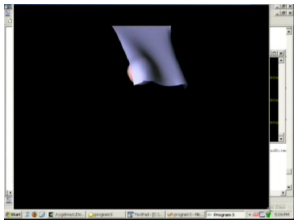
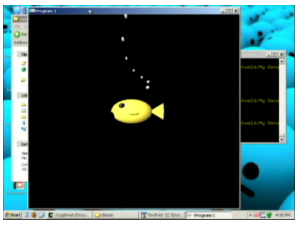


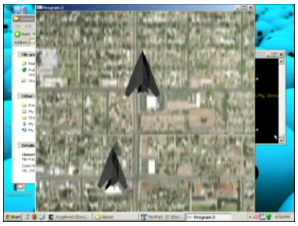
01:20 – 01:41

Real Time Cloth Simulation
Implementation and Viewer
A simple cloth simulation, running in real time. Forward Euler integration is used.



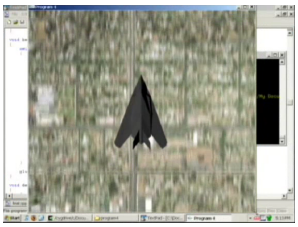
01:41 – 01:49

Procedural Animation
Implementation and Viewer
A lab project wherein all animation is the result of simple expressions.



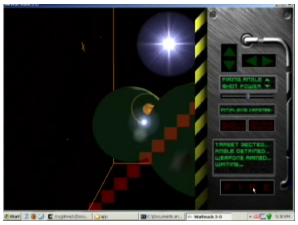
01:49 – 02:00

Bezier and Catmull-Rom Curves
Implementation and Animation
One stealth fighter follows a Bezier curve implementation, while the other follows a Catmull-Rom curve.



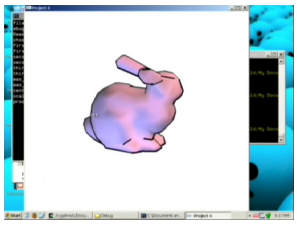
02:00 – 02:10

Lattice Deformer
Implementation and Animation
The stealth fighter undergoes a number of deformations due to animations on a lattice deformer.



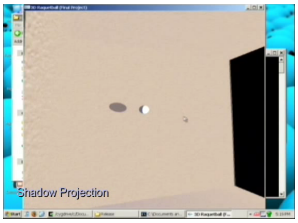
02:12 – 02:38

Warheads 3D
A Space Battle Game
A group project culminating in a (more or less) playable game. Players take turns trying to shoot each other. Spaceships and projectiles are affected by the gravity of the planets. Planets can take damage.



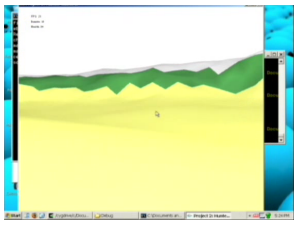
02:38 – 02:46

Cartoon Shader
Implementation and Viewer
A basic cartoon shader. Two main colors are used for shading. Dark lines are placed on defining edges.



02:46 – 02:54

3D Pong
Shadow Projection Implementation and Game
A one player pong game where the paddle controls the projection of shadows onto the walls of the play area.



02:54 – 03:08

View Frustum Culling and Distance Based LOD

Implementation and Viewer

Two scene simplification techniques were used. First, the ground is spatially partitioned to enable camera frustum culling. Second, the ground was stored in a structure that allowed it to smoothly change detail, so that distant regions would have less detail.