

Cupcakery

Team Toon:

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Lily Riopelle, April Shen

CS 371 Final Project
December 6, 2012

PRE-PRODUCTION

1/3 cup	5 1/3 tbsp	16 tsp	75 ml
1/4 cup	4 tbsp	12 tsp	50 ml
1/8 cup	2 tbsp	6 tsp	30 ml
1/16 cup	1 tbsp	3 tsp	15 ml

LIQUID measurements

1 qt	4 pt	8 c	16 cup	128 fl oz
1/2 qt	2 pt	4 c	8 cup	64 fl oz
1/4 qt	1 pt	2 c	4 cup	32 fl oz
1/8 qt	1/2 pt	1 c	2 cup	16 fl oz
1/16 qt	1/4 pt	1/2 c	1 cup	8 fl oz

Schedule

Modeling

Tucker & Lily

Collect models
and compose main scene

Animation

Nico & April

Edit splines with
placeholder models

Rendering

Dan E & F

Ray tracer algorithms

Finish Modeling

Polish models
and edit positioning based
on animation

Revise splines with actual
models and add squashing

GPU algorithms

Finish Animating

Edit positioning of models
based on framing

Tweak splines based on
renderer

Render all frames

Finish Rendering

Post-processing

ART DIRECTION

Modeling Inspiration



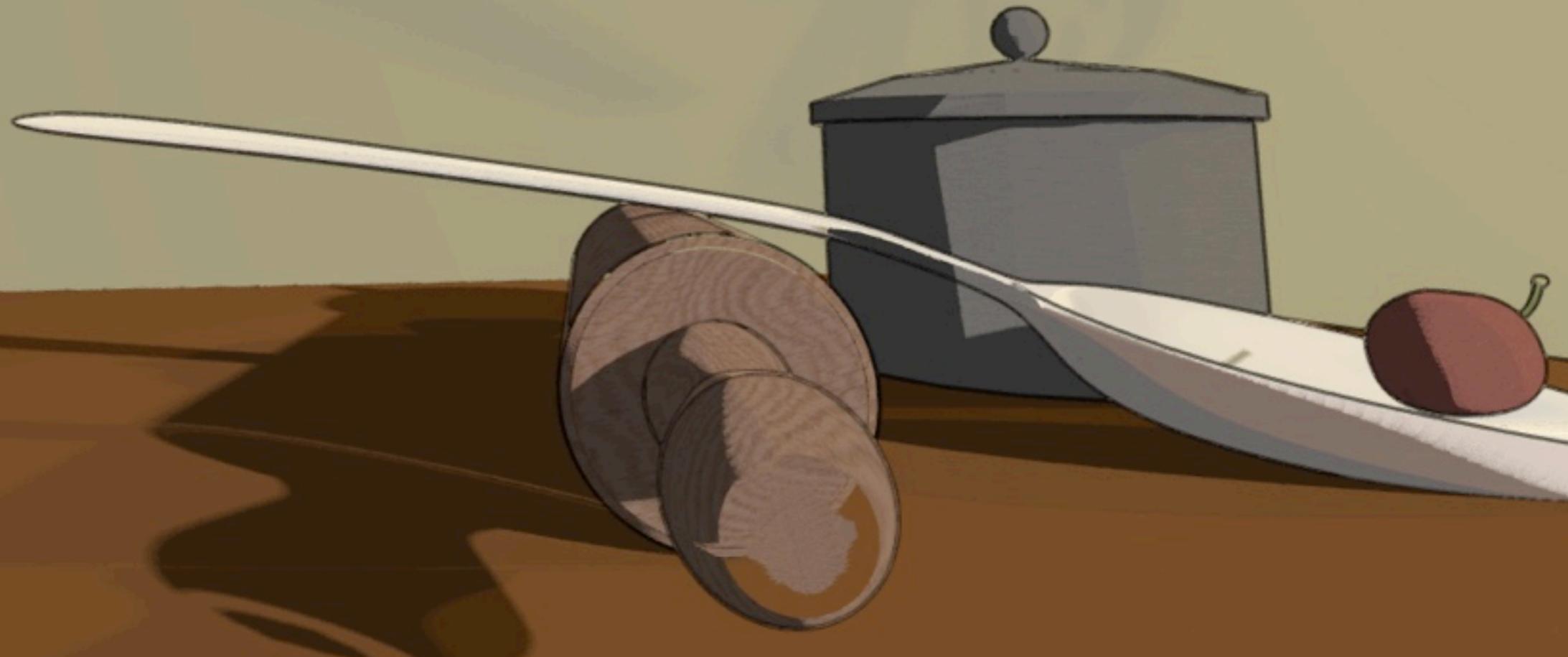
Animation Inspiration



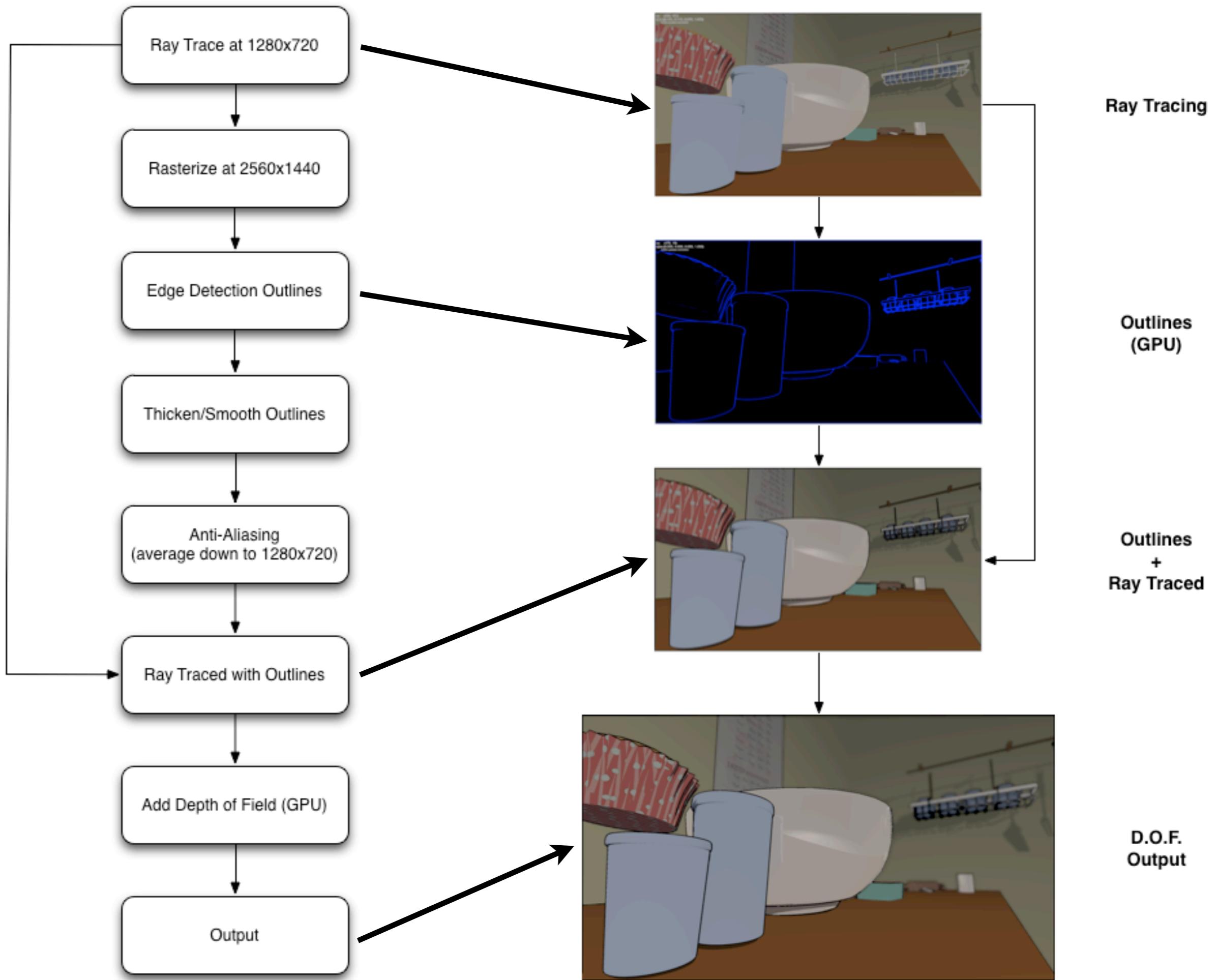
Rendering Inspiration



PRODUCTION

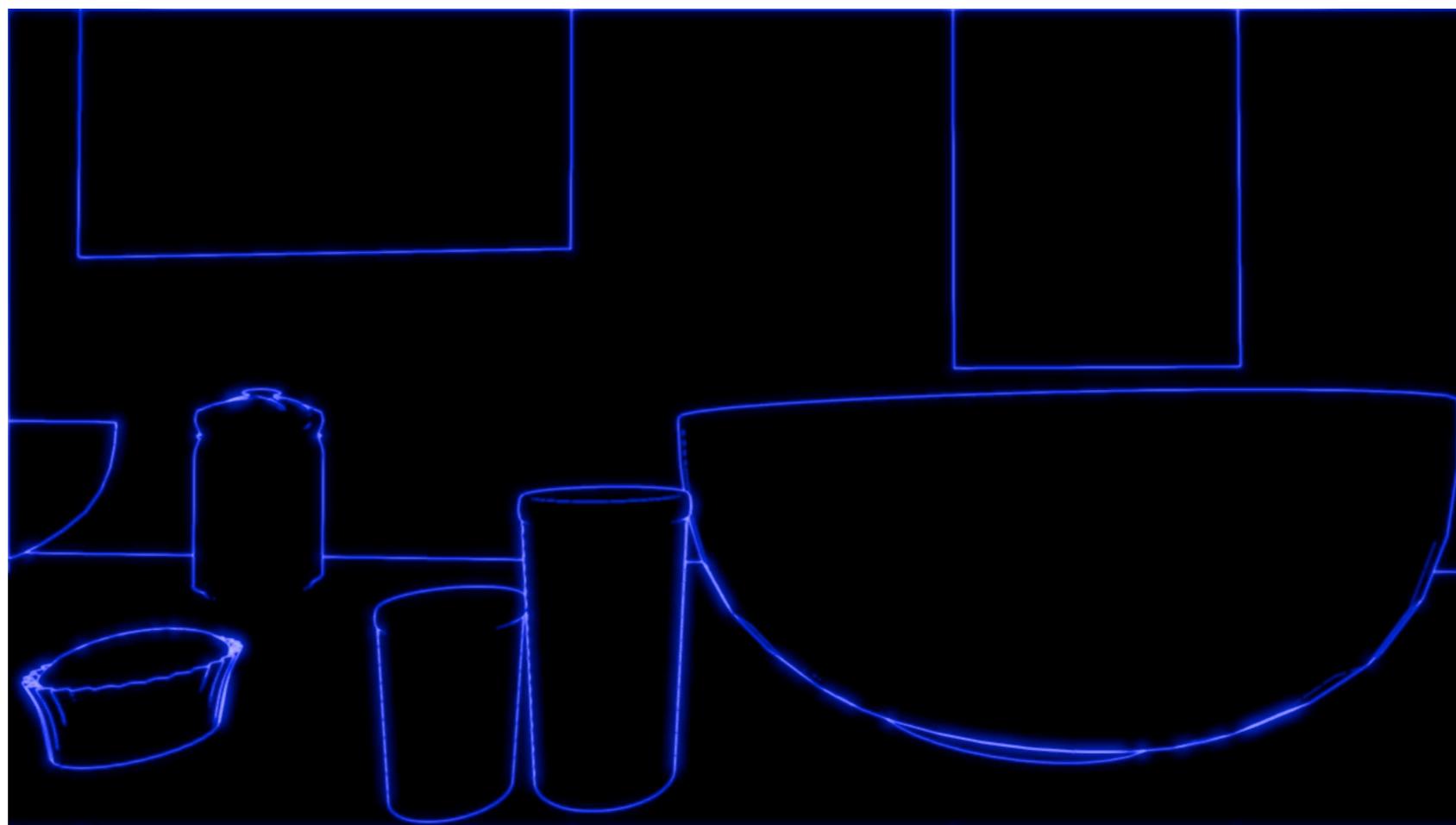


RENDERING PIPELINE

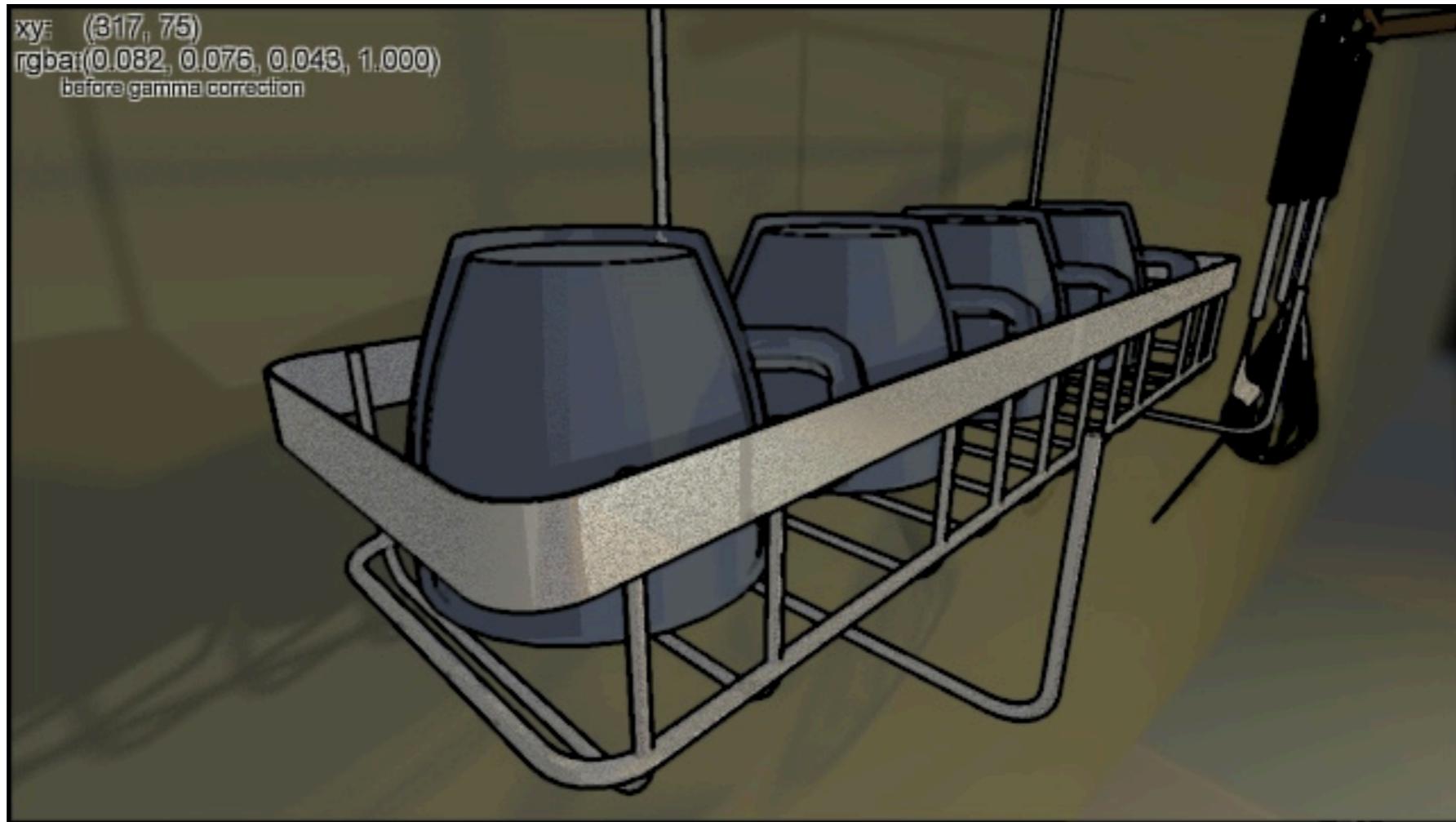


Edge Detection

0	-1	0
-1	4	-1
0	-1	0



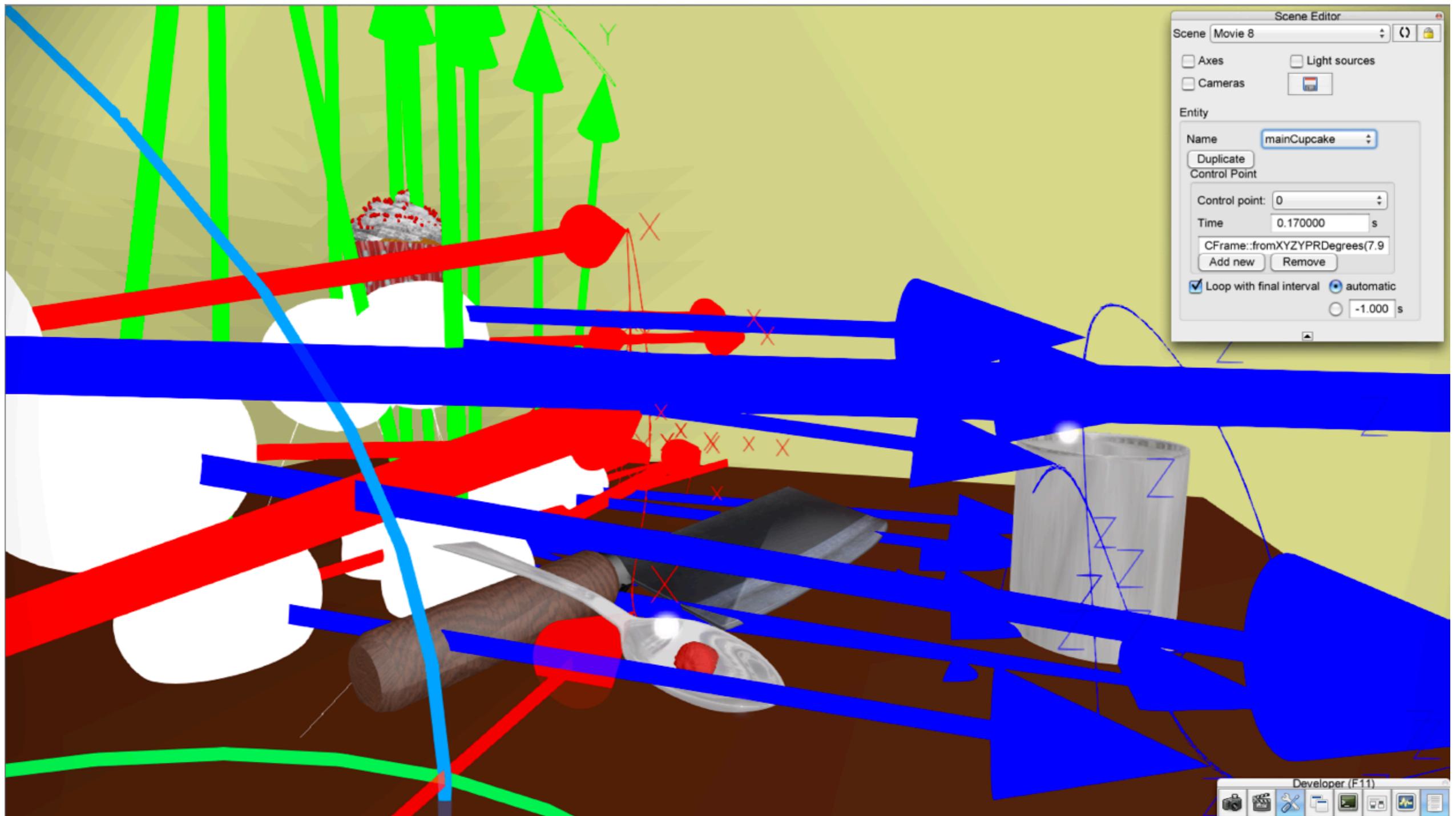
Toon Shading



```
Radiance3 totalRadiance = biradiance * surfel.reflectivity(rnd) * int(wi.dot(surfel.normal) > 0)  
...  
totalRadiance += surfel.reflectivity(rnd) * 0.05;
```

ANIMATION

Splines



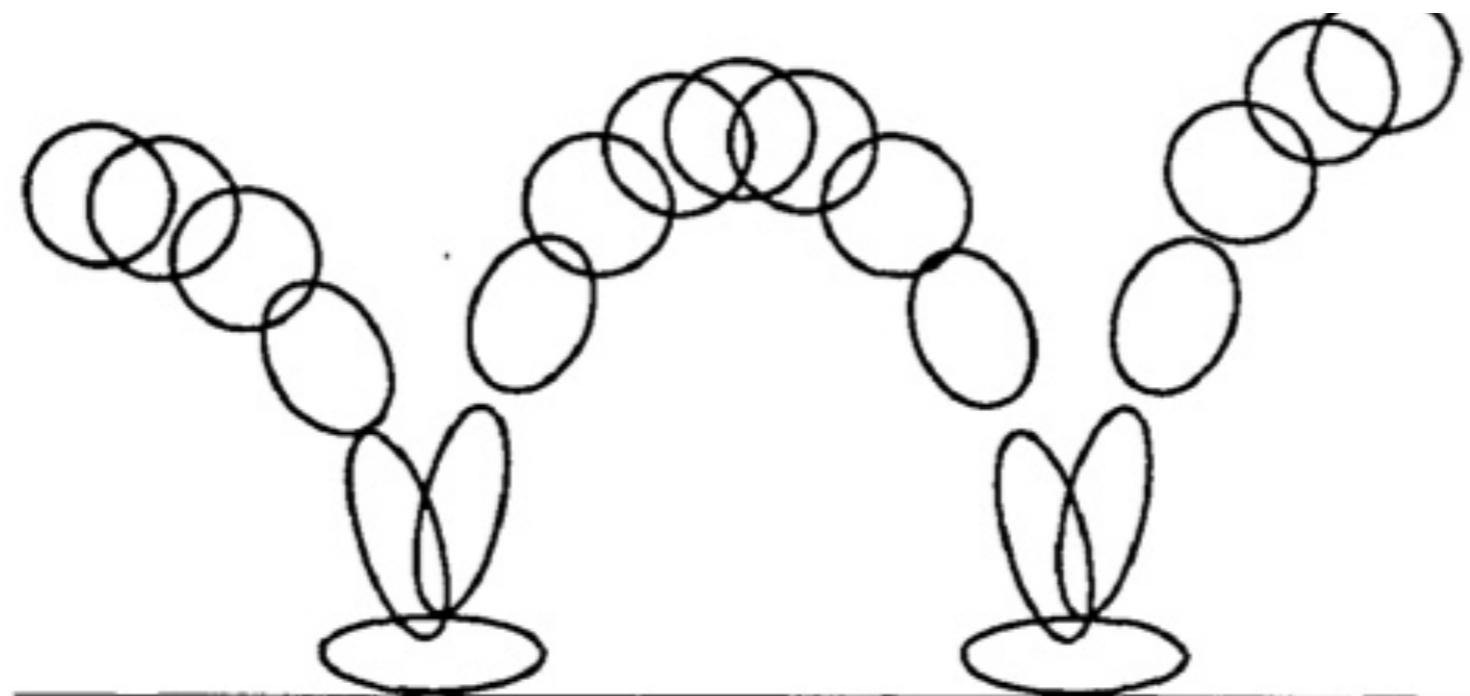
Squash and Stretch

$P = \text{currentFrame.translation}$

$R = \text{currentFrame.rotation}$

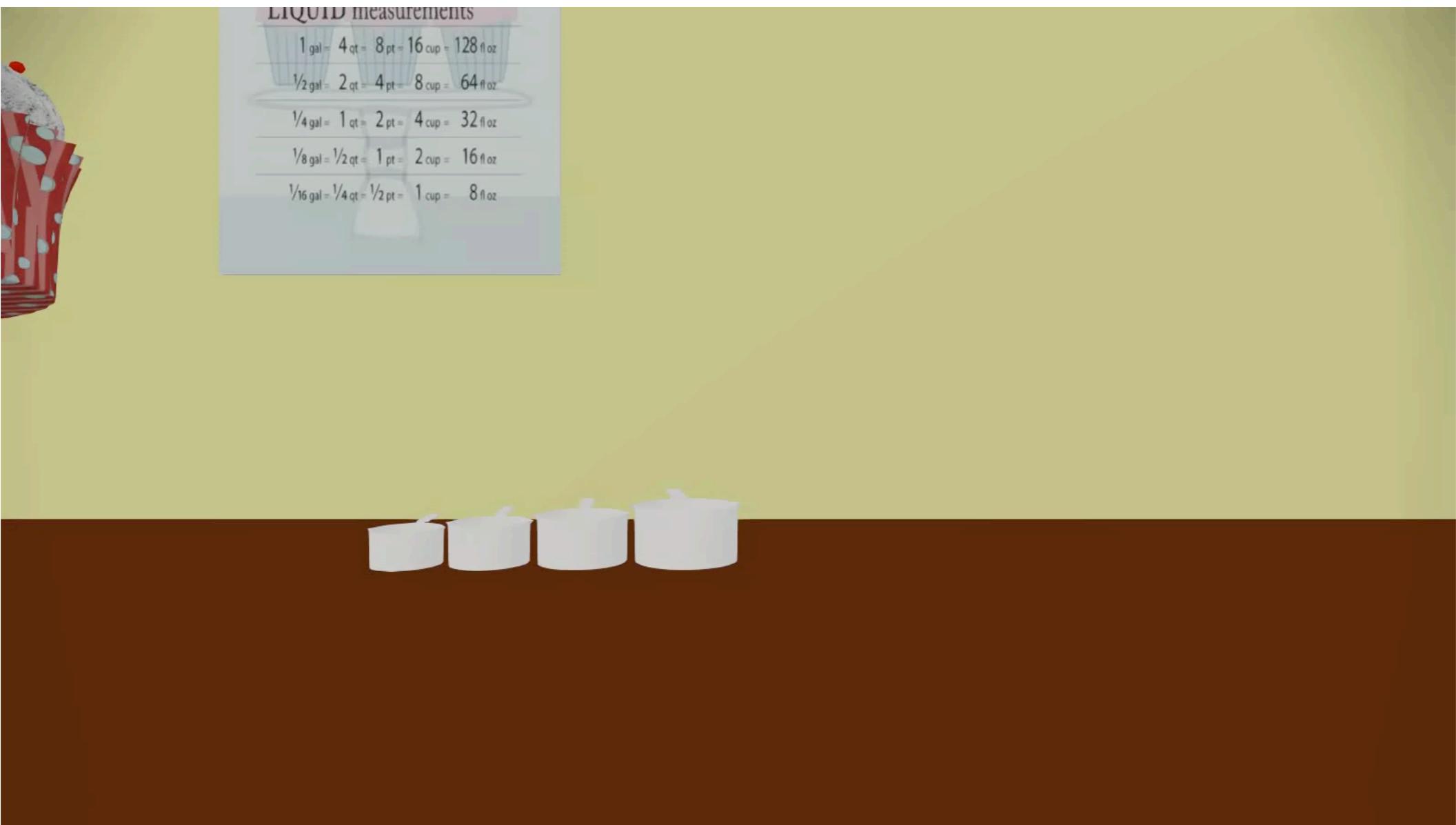
$$d = k \left| \frac{\delta P}{\delta y} \right| = k |\text{currentFrame.y} - \text{lastFrame.y}|$$

$$R = R \cdot \begin{pmatrix} \frac{1}{1+d} & 0 & 0 \\ 0 & (1+d)^2 & 0 \\ 0 & 0 & \frac{1}{1+d} \end{pmatrix}$$



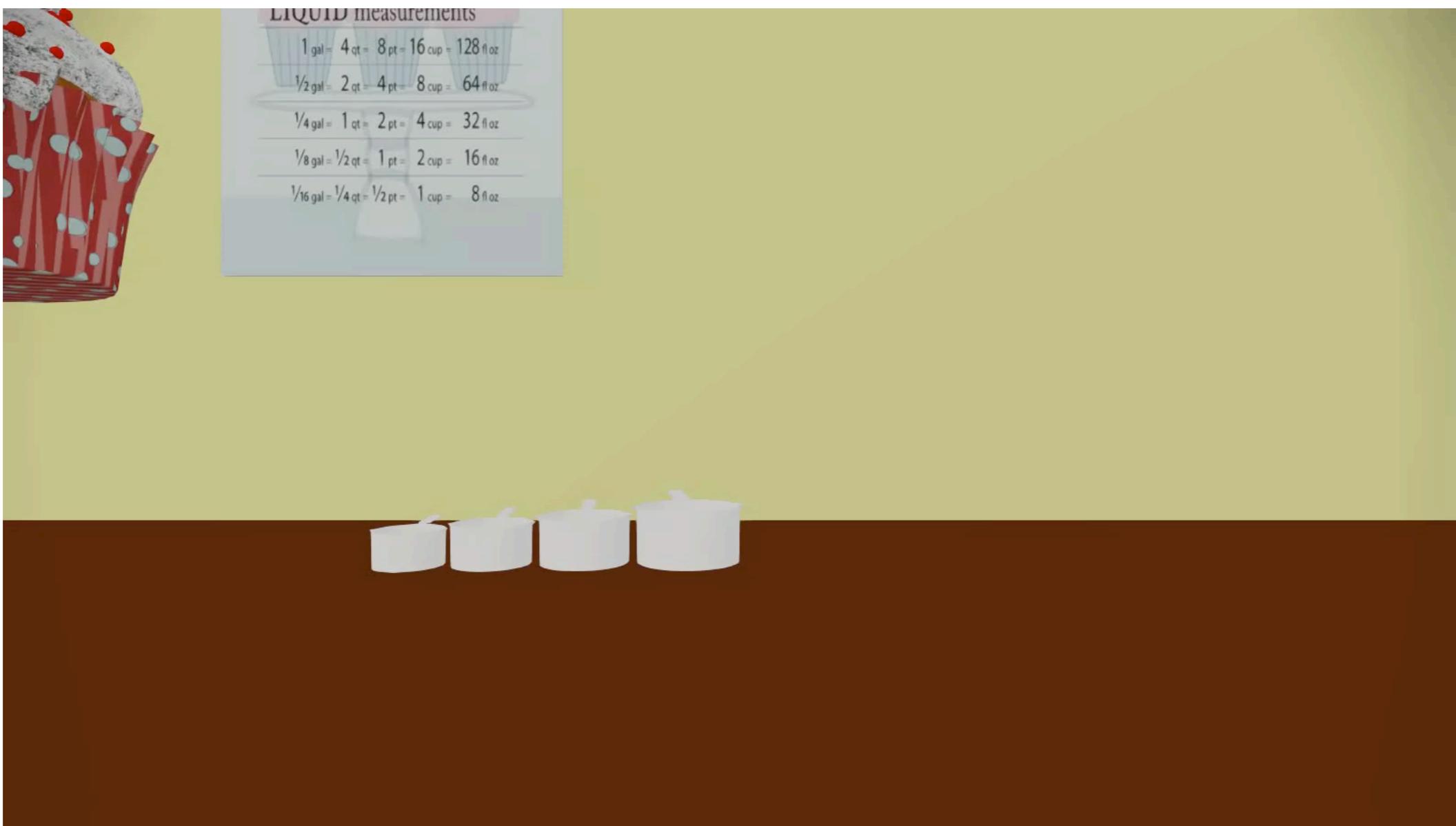
Squash and Stretch

Before



Squash and Stretch

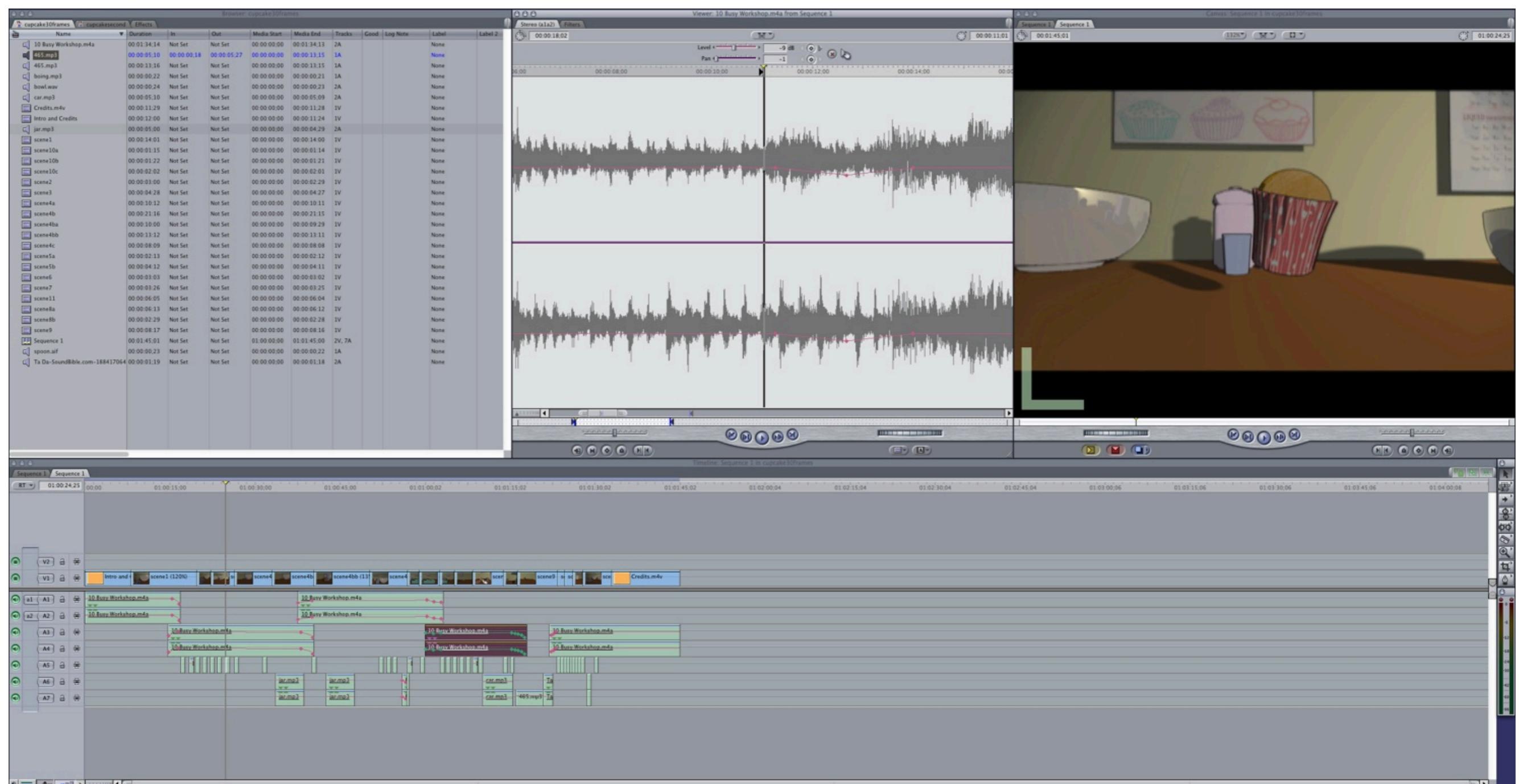
After

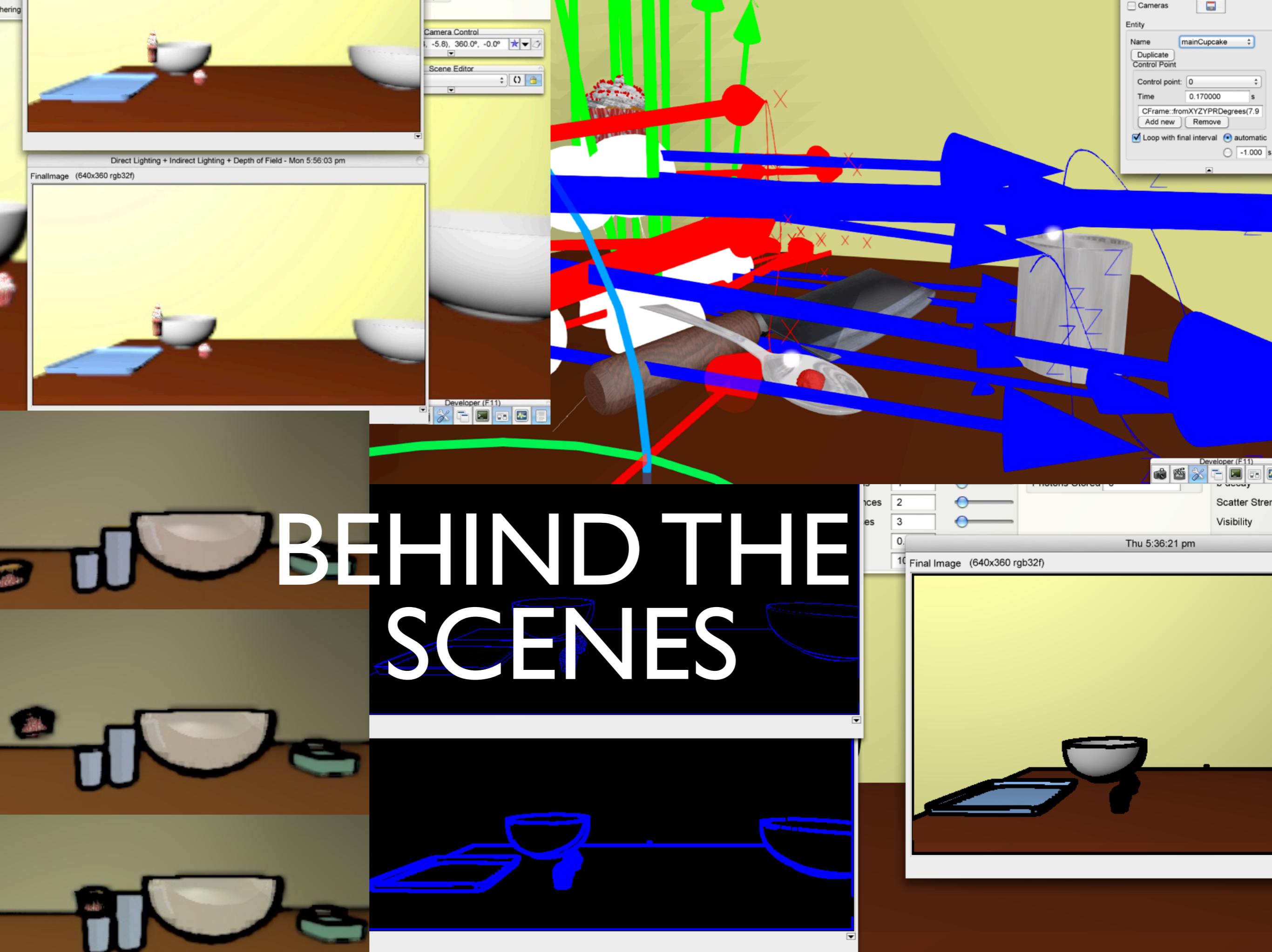




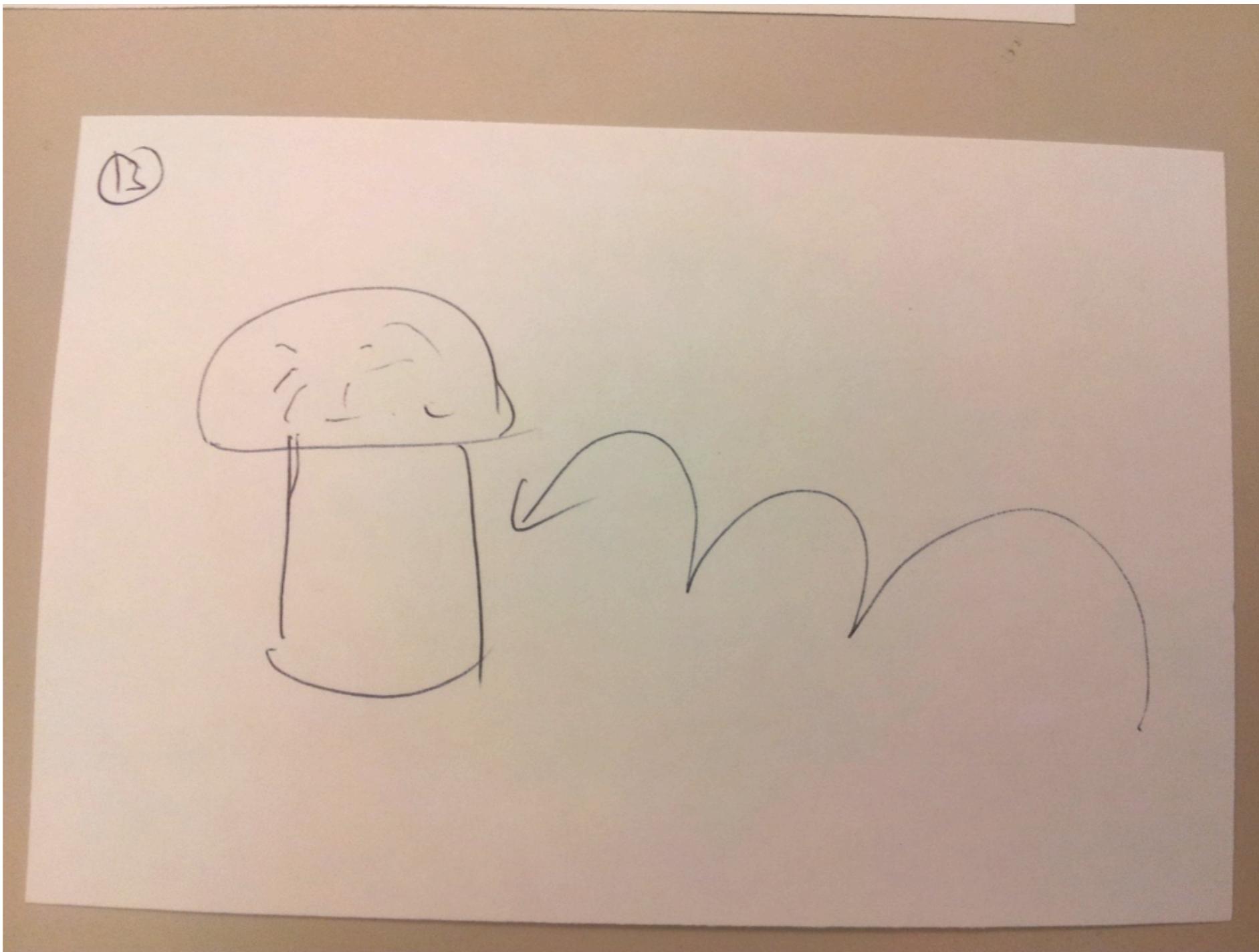
POST-PRODUCTION

Post-Processing

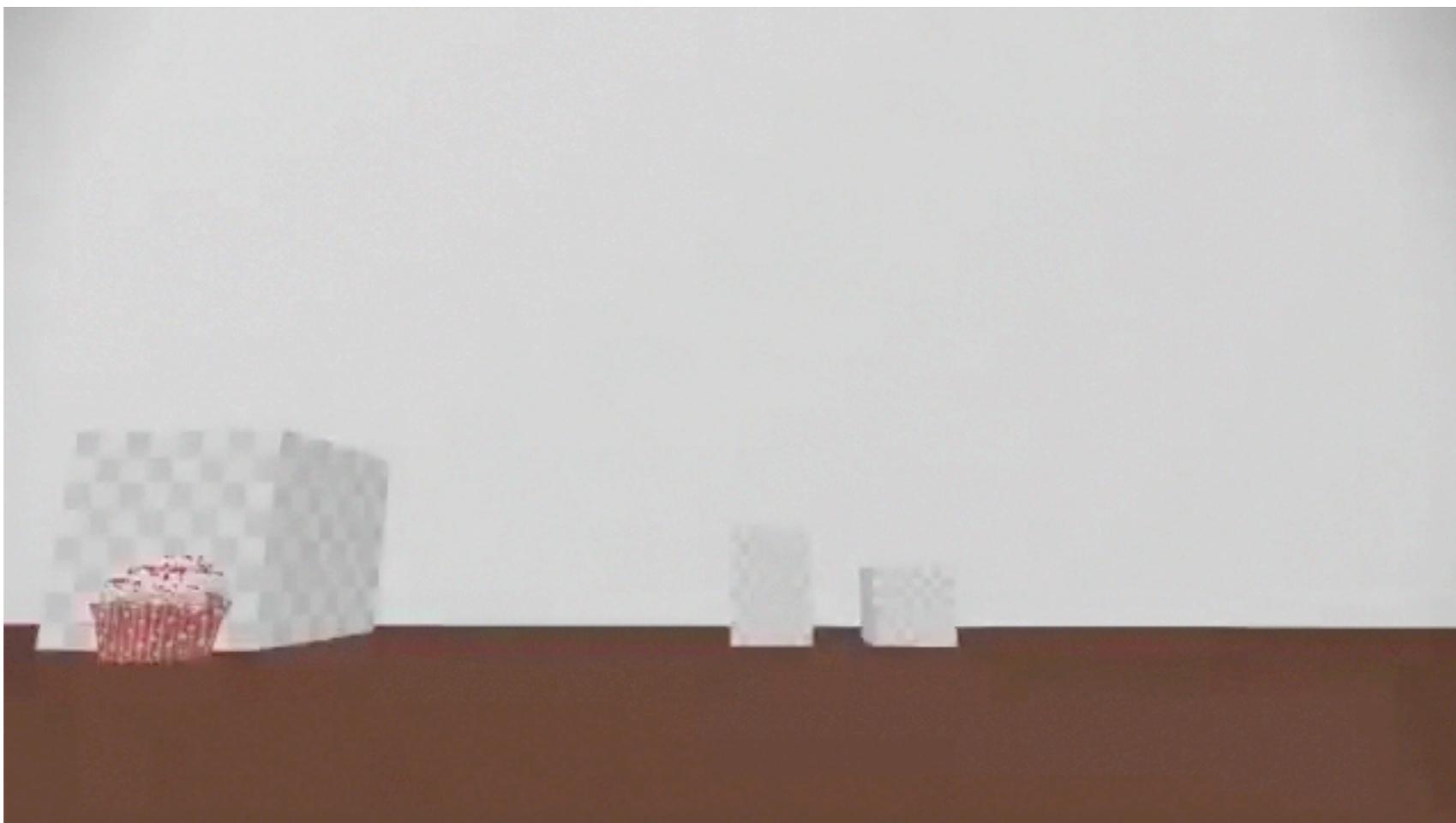




Storyboard



Initial Animation



Animation with Squash



Final Rendering



THE MOVIE

LIQUID measurements

1pt = 4oz = 8pt = 16oz = 128fl oz

1pt = 2oz = 4pt = 8oz = 64fl oz

1pt = 1oz = 2pt = 4oz = 32fl oz

1pt = 1/2oz = 2pt = 16fl oz

1pt = 1/4oz = 1oz = 8fl oz

THANK YOU

Morgan McGuire

Michael Mara

Mary Bailey

Williams OIT