

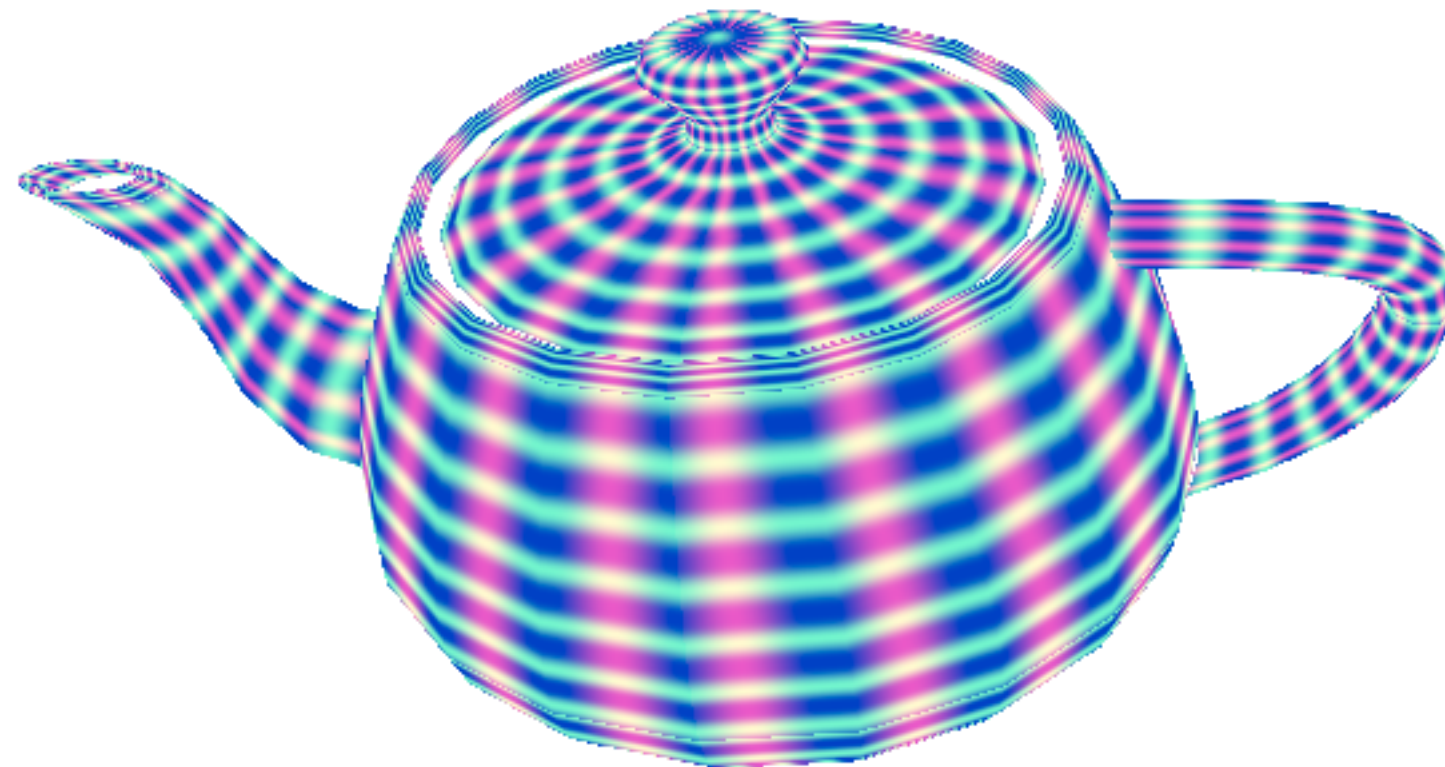


Information Coding / Computer Graphics, ISY, LiTH

TNM084

Procedural images

Ingemar Ragnemalm, ISY





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This lecture

A bit on labs and projects

OpenGL

GLSL

Relevance to procedural methods



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Lab 1

The labs are prepared for using Codeblocks

Linux can be used with minor adjustments from a makefile
from TSBK07.

Dito for Mac, but only tested on older system versions.



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Lab material

The "common" folder:

GL_utilities: Shader loader (and some more)

VectorUtils3: Algebra utilities, similar to glm but much smaller, single file

LittleOBJLoader: Loader for OBJ models.

LoadTGA: Texture loader.

MicroGLUT: Window and event handler, OpenGL context creation.

Separate code: GLUGG, procedural geometry generation utilities for lab 3

Everything is small, cross-platform, compiles from source, can be used from both C and C++.



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Projects

If possible, start early!

Project specifications should be handed in during the lecture series.

I suggest lecture 8. Lecture 10 is the deadline.



Project specifications

- Title
- Name and LiU-ID
- Short description
 - Will-do parts
- Might-do parts



Example

Amazing textures

Kalle Anka, kalan313

I will make some amazing animated textures

Will do:

- Bricks and dots
- Marble and wood

Might do:

Time dependent animations with some moving dots



Example

Amazing textures

Kalle Anka, kalan313

I will make some amazing animated textures

Will do:

- Bricks and dots
- Marble and wood

And I will ask for
some more...

Might do:

Time dependent animations with some moving dots



Example

Infinite procedural world

Kalle Anka, kalan313

I will make an extremely detailed procedural open world

Will do:

Infinite world
Level-of-detail and frustum culling
Multiple biomes
Grass and trees
Road placement

Water simulation
Insect and bird swarms
Animated volumetric clouds
People and animals, animated

Might do:

Complete AAA game with all bells and whistles
Complex storyline
Advanced quest system
Dynamic interaction between individuals with evolving personalities and goals
Release and make a worldwide hit in two weeks



Example

Infinite procedural world

Kalle Anka, kalan313

I will make an extremely detailed procedural open world

Will do:

And I will ask you
to move stuff down
to "might"!

Infinite world
Level-of-detail and frustum culling
Multiple biomes
Grass and trees
Road placement

Water simulation
Insect and bird swarms
Animated volumetric clouds
People and animals, animated

Might do:

Complete AAA game with all
bells and whistles
Complex storyline
Advanced quest system
Dynamic interaction between
individuals with evolving
personalities and goals
Release and make a worldwide
hit in two weeks



Example

Infinite procedural world

Kalle Anka, kalan313

I will make procedural open world

Will do:

Infinite world
Level-of-detail
Frustum culling
Trees and plants

...and end up to
something more
realistic

Might do:

Multiple biomes
Grass
Road placement
Water simulation



Example

Infinite procedural world

Kalle Anka, kalan313

I will make a procedural open world

Will do:

Infinite world from procedurally
generated 2D heightmaps

Level-of-detail

Frustum culling using bounding
spheres

Trees and plants, procedurally pre-
generated on CPU

...and maybe more
specific on some
parts

Might do:

Terrain allows caves and similar
Multiple biomes with smooth
transitions

Grass generated in geometry
shader, moving with wind and
objects

Road placement depending on
terrain and with smoothing of
terrain

Water simulation using particle
systems



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**Do something fun, interesting
but manageable in the time
budget!**