Illusion Labs

Agenda

- About Illusion Labs
- Graphics tips & tricks

Illusion Labs

- Game Studio for mobile devices
- Founded 2007 by Carl and Andreas
- Focus on creating quality games, perfectly fitted for its platform.
- Office in Malmö, currently 12 employes.

Who are we?

- Marcus Dawson
- Civilingenjör from LTH (d00)
- CEO at Illusion Labs
- Used to work at Sony Ericsson

- Jim Winberg
- Civilingenjör from LTH (d01)
- Graphics expert at Illusion Labs
- Used to work at Ericsson

How it all started

Labyrinth

- On App Store from day 1
- 1:st on App Store top list
- Added features little by little

iPint

Ads app

- London ad agency, BMB
- Cannes Silver Lion Award

Touchgrind

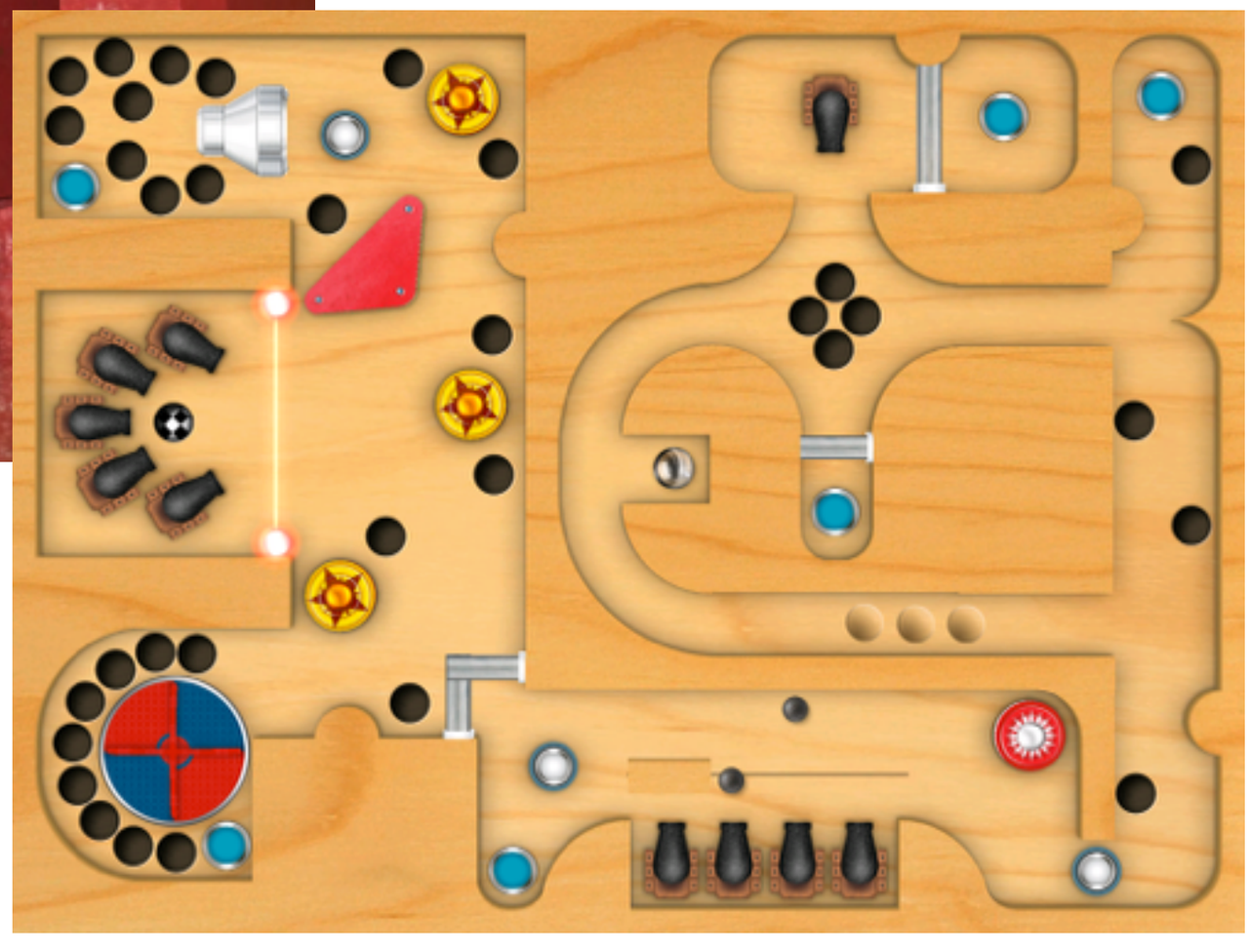
- Multitouch
- Super advanced 3D
- Big hit

Labyrinth 2

How do you make a sequel?

Rumours about iPad

HD versions: L2 & TG



HD versions: L2 & TG

Touchgrind BMX

Mr. Crab

Rocket Cars

Nono Islands

Apple TV

Mr. Crab 2

Rendering APIs

- OpenGL ES 1.0
- OpenGL ES 2.0
- OpenGL ES 3.0
- METAL

Operating Systems

- iOS
- Mac OSX
- Android

- Camera
- Scene graphs
- Texture loading
- Animations
- Render to Texture
- Lighting
- Deferred Lighting
- Shadows
- Normal mapping
- Environment mapping
- Depth of Field
- Motion Blur

TOUCH GRIND SKATE 2

Want list…

- Large environments
- Spatial awareness
- Visually interesting

Wish list…

- High detail
- Realistic lighting
- Shadows

Hardware limitations

- Must use low polygon meshes
- Only use a single light source
- No full scene realtime shadows
- Memory

Illusion Labs

TOUCH GRIND
SKATE 2

x4
56 352
12 168
TONY HAWK'S
SKATE 2

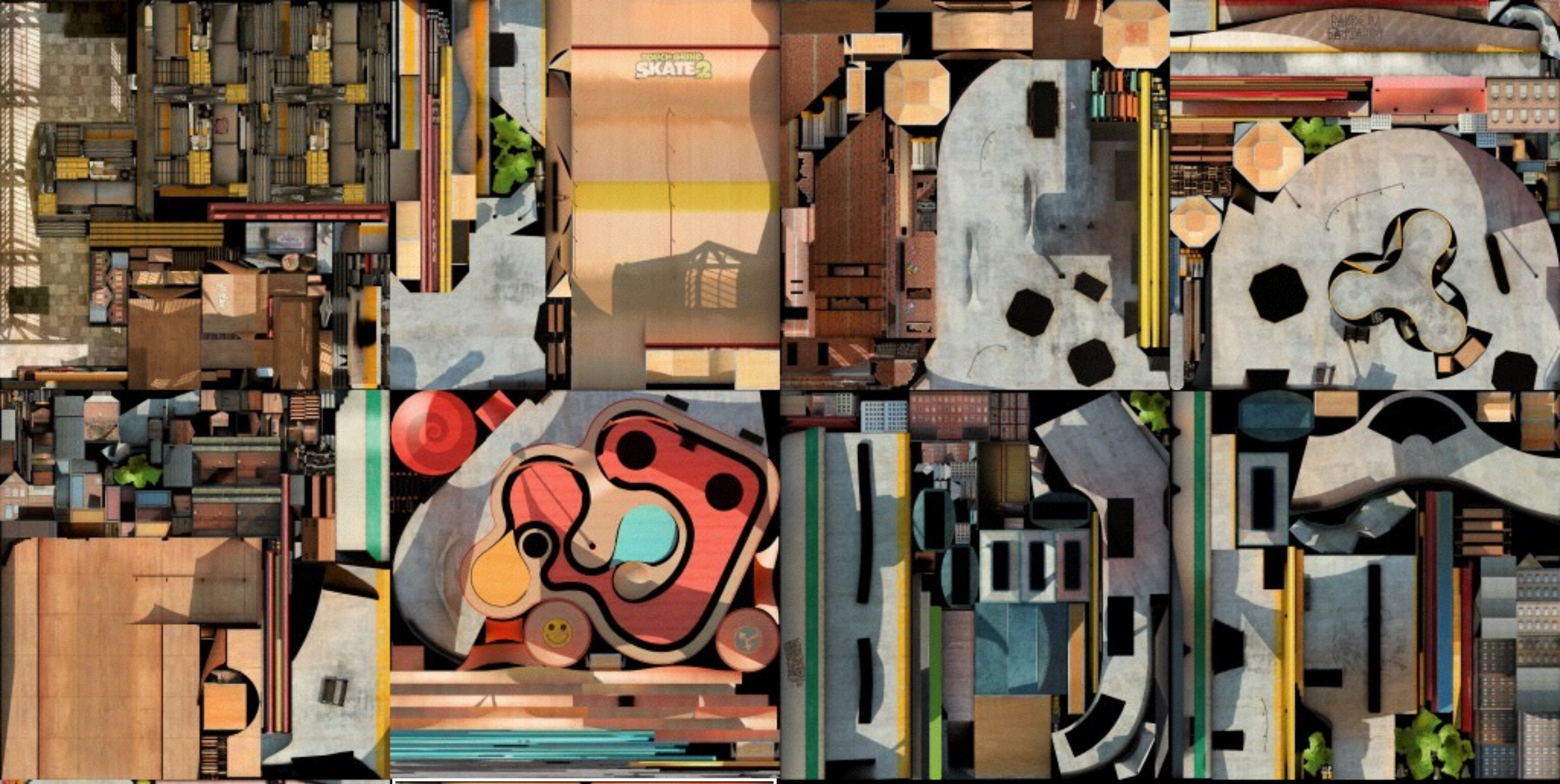
x1
0
48 105
Darkslide

Walkthrough

- Lighting model
- Shadows
- Memory

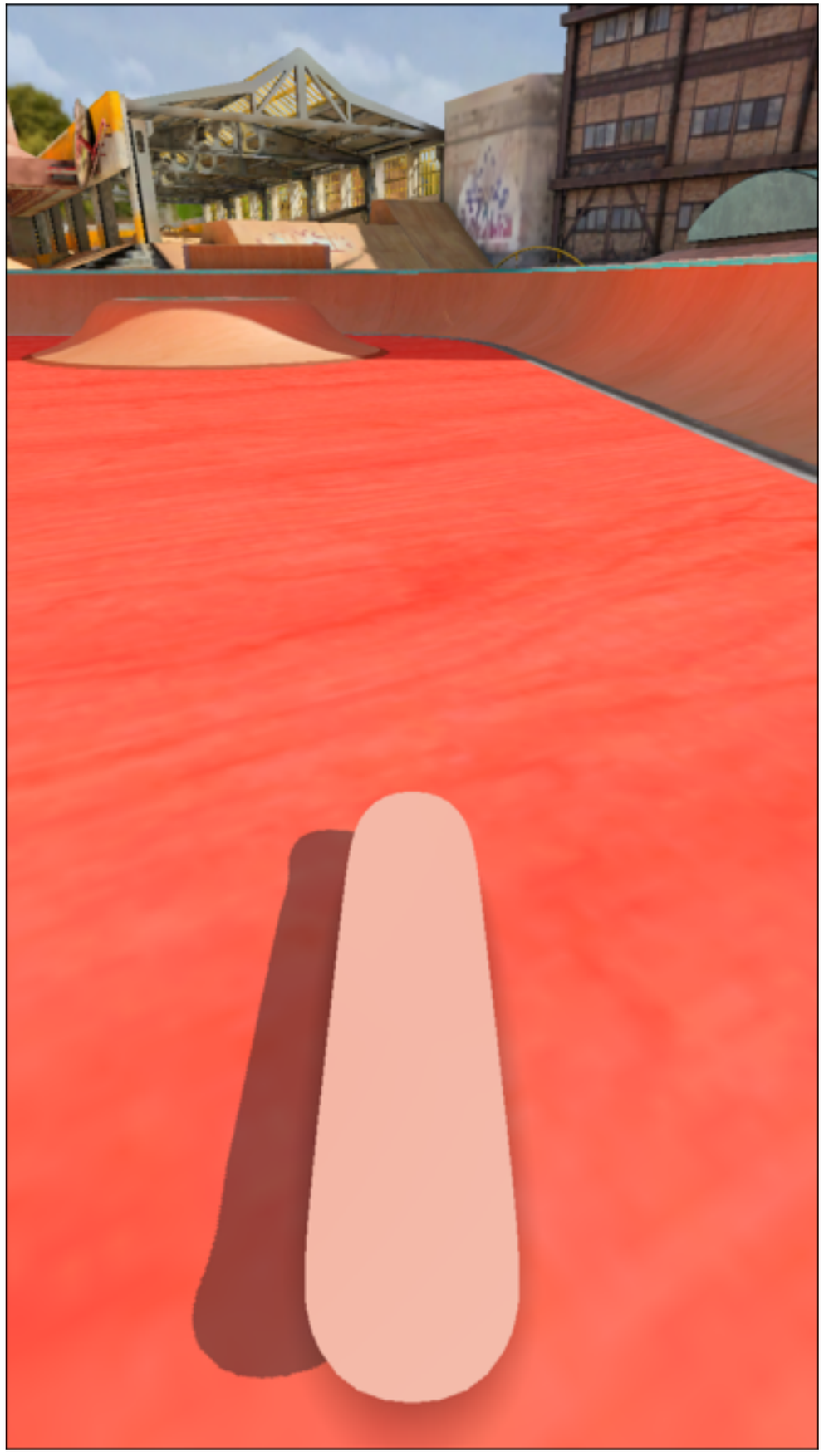
Simplified Lighting Model

- Environment
  - Precompute lighting and shadows into textures
- Skateboard
  - Only one directional light source



2048x2048

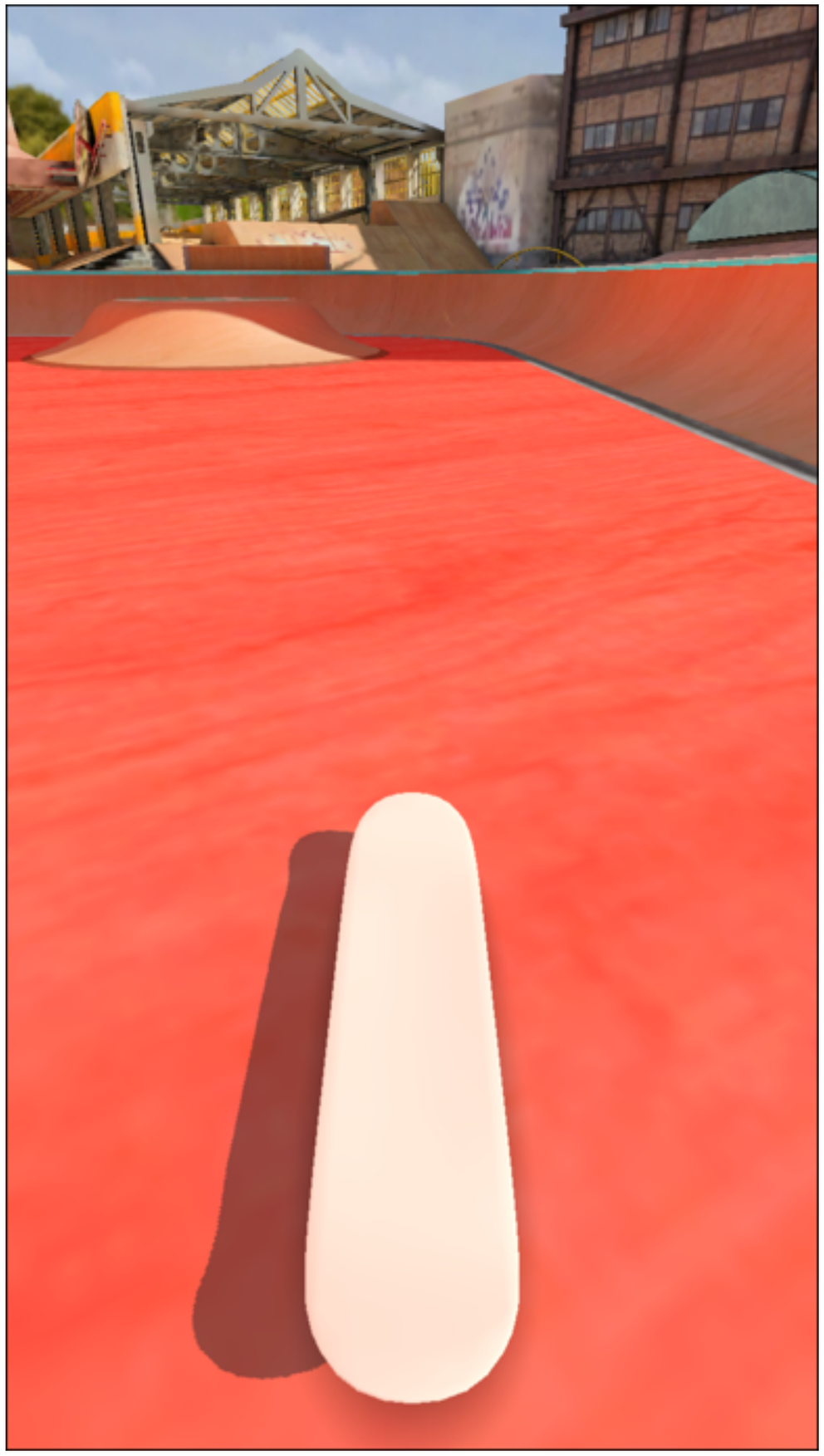
TOUCH GRIND
SKATE 2



Light color

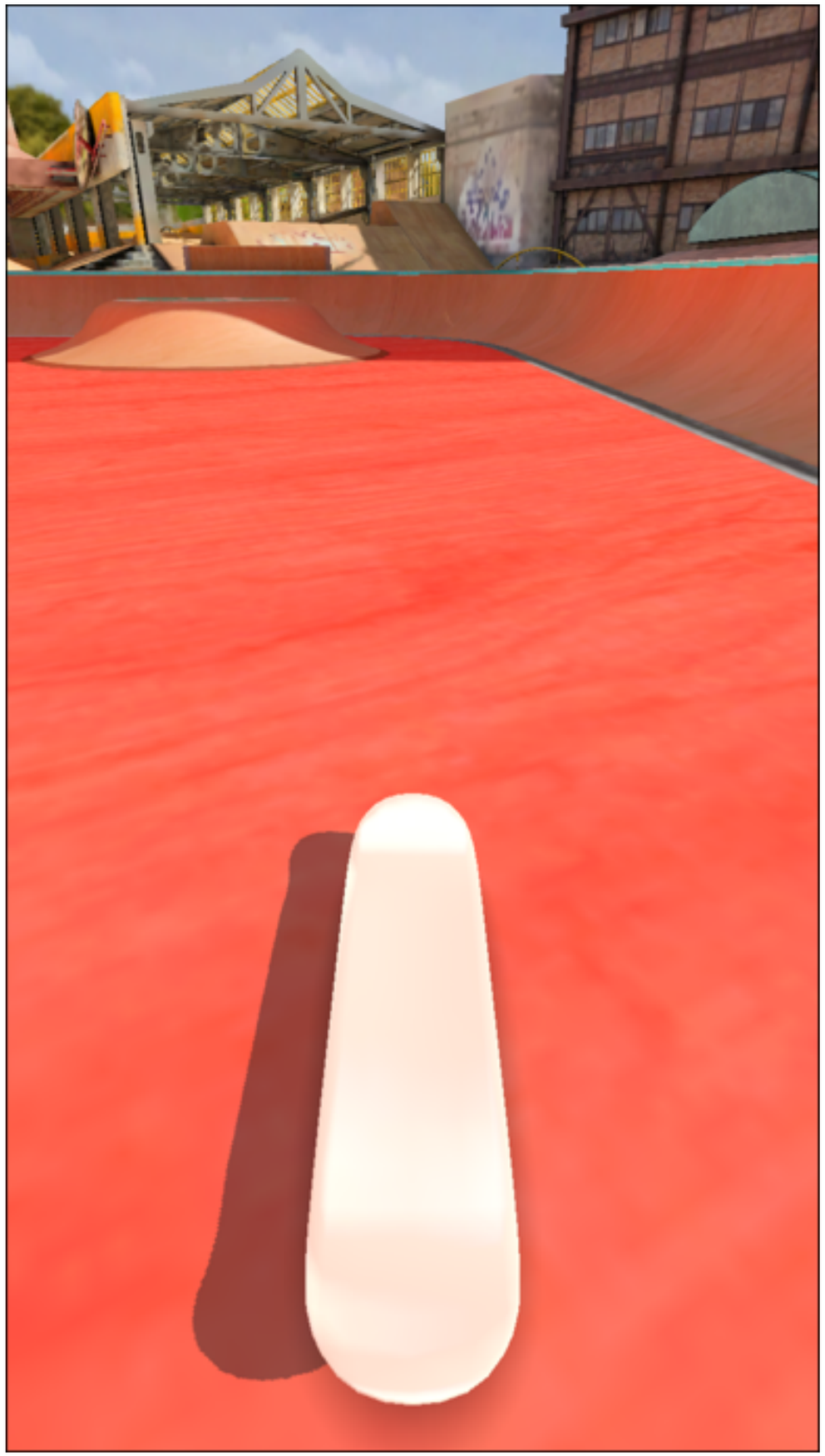
256x256

0



Directional light

- only diffuse



Specular

Cube Map 6x64x64

TOUCH GRIND
SKATE 2

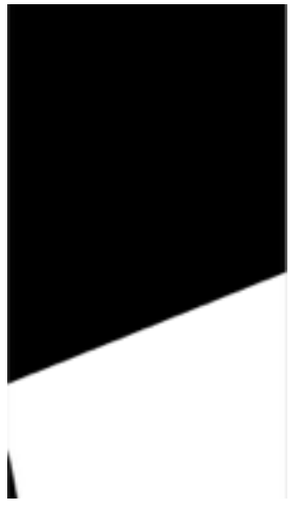
x1
0
TOUCH GRIND
SKATE 2

Precomputed shadows

Shadow mapping

Depth map

Shadow mask



Stencil mask

Fake Ambient Occlusion

x1
0
TOUCH GRIND
SKATE 2

Memory problems

- A lot of 2048x2048 textures

- Shadow masks, light color, skateboard texture …

Texture compression

- All iOS devices support the the PowerVR Texture Compression

- 4 bits per pixel instead of 32 bits.

Level of detail

Thank you for listening!

Questions?