

Srsly Wicked Pinball

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RWTH Aachen University

28. September 2012



Outline

- History
- Graphics
- Assets
- Physics
- Gameplay



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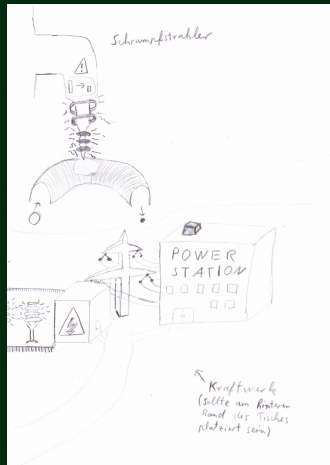
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History

Concept Art



History

Milestone 1



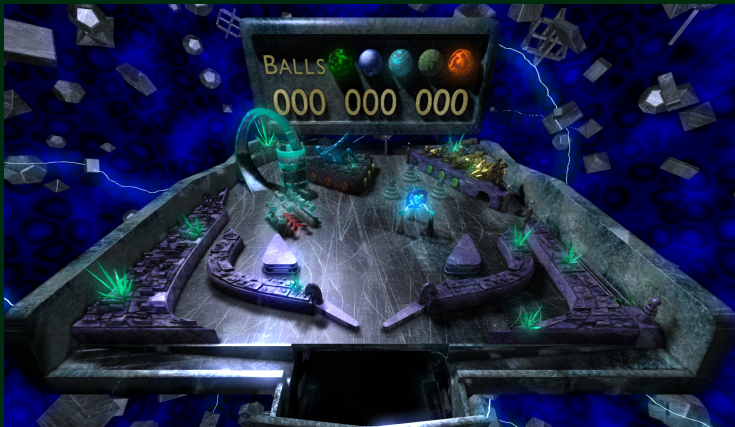
History

Milestone 2



History

Milestone 3



Outline

- History
- Graphics
- Assets
- Physics
- Gameplay



Graphics

Effects

- Glow
- SSAO
- Shadows
- FXAA
- BG Obj.
- Lightning
- Scratches
- Trails
- Sparks
- Reflect



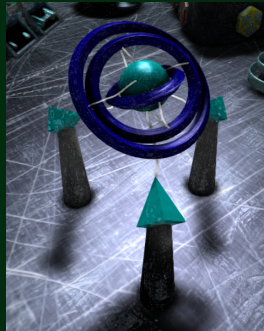
Graphics

Effects

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Glow

Color + blurredGlow = Composition



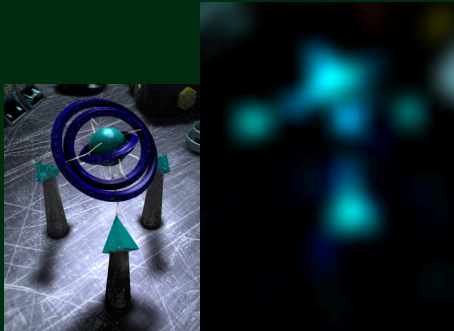
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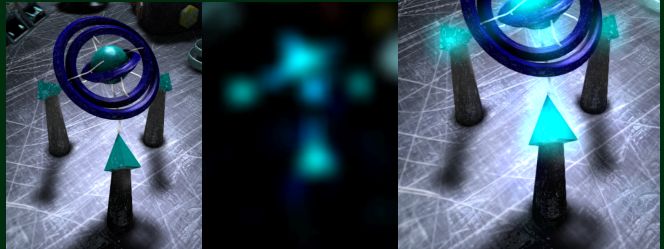
Graphics

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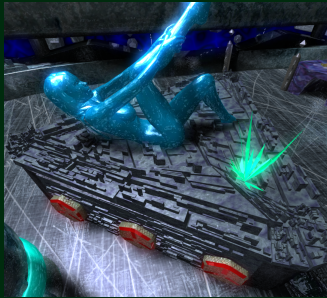
Graphics

Effects

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- Reflect

Glow

Color · SSAO = Composition



tPhysics



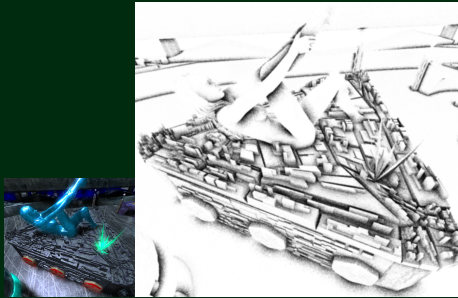
Graphics

Effects

- Glow
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- BG Obj.
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- Reflect

Glow

Color · SSAO = Composition



stPhysics



Graphics

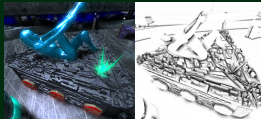
Effects

- Glow
- SSAO
- Shadows
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- BG Obj.
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Glow

Color · SSAO = Composition

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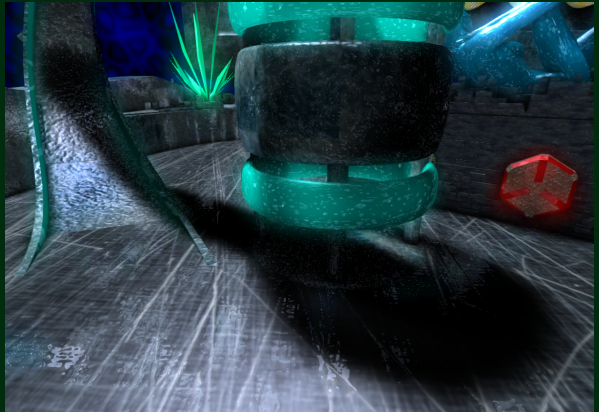


Graphics

Effects

- Glow
- SSAO
- **Shadows**
- FXAA
- BG Obj.
- Lightning
- Scratches
- Trails
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- Reflect

Exponential Soft Shadows

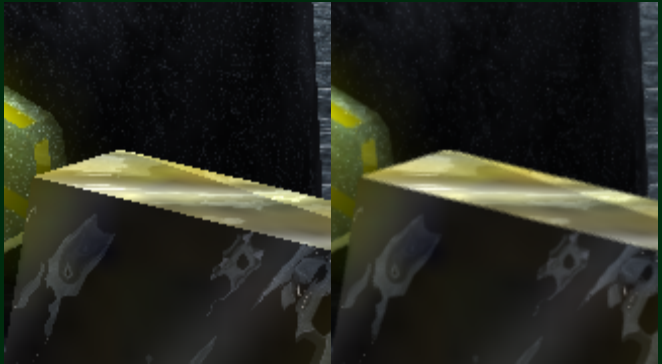


Graphics

Effects

- Glow
- SSAO
- Shadows
- **FXAA**
- BG Obj.
- Lightning
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- Reflect

FXAA Anti-Aliasing

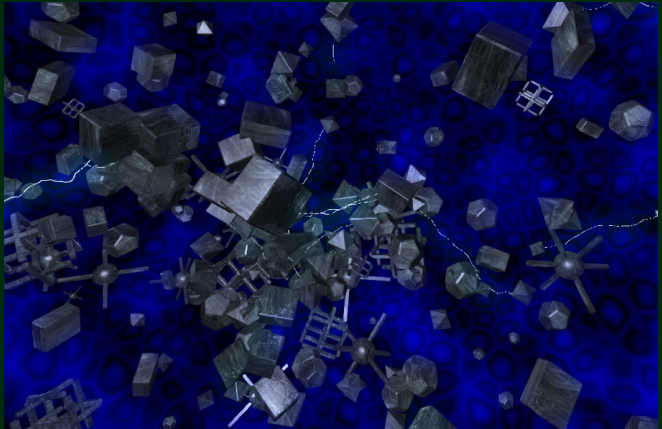


Graphics

Effects

- Glow
- SSAO
- Shadows
- FXAA
- **BG Obj.**
- Lightning
- Scratches
- Trails
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- Reflect

Instanced Animated Background Objects

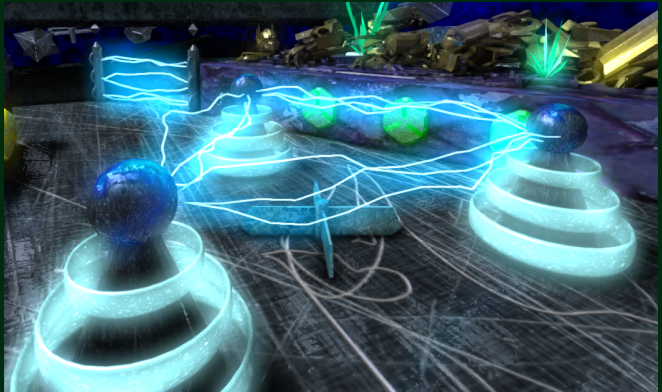


Graphics

Effects

- Glow
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- FXAA
- BG Obj.
- **Lightning**
- Scratches
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- Reflect

Geometry Shader generated Lightning

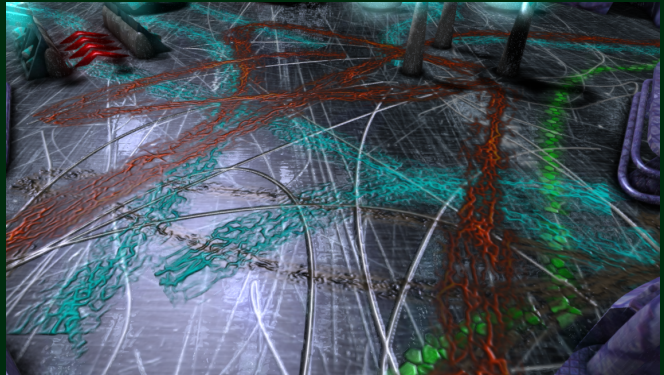


Graphics

Effects

- Glow
- SSAO
- Shadows
- FXAA
- BG Obj.
- Lightning
- **Scratches**
- Trails
- Sparks
- Reflect

Ball leaves Scratches on ground

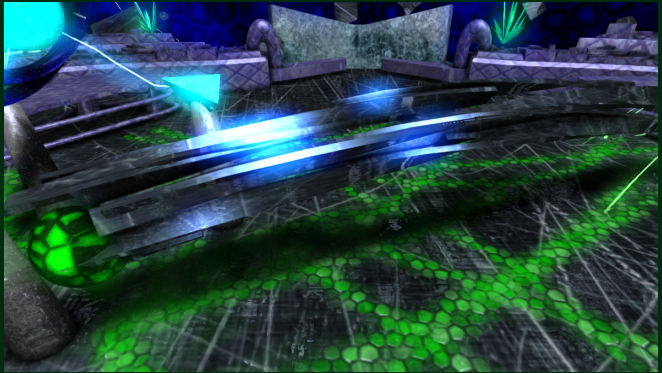


Graphics

Effects

- Glow
- SSAO
- Shadows
- FXAA
- BG Obj.
- Lightning
- Scratches
- **Trails**
- Sparks
- Reflect

Metal Trails instead of Motion Blur

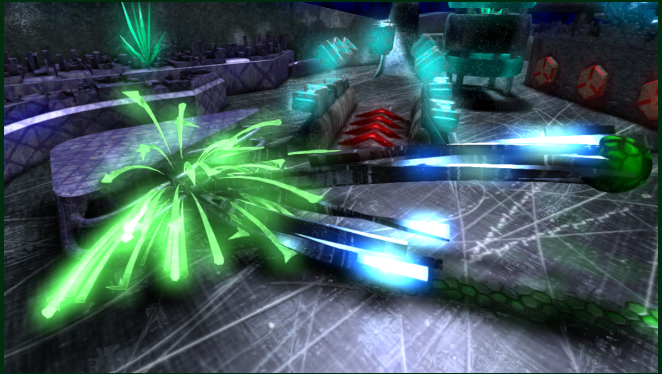


Graphics

Effects

- Glow
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- Scratches
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Sparks on Impact

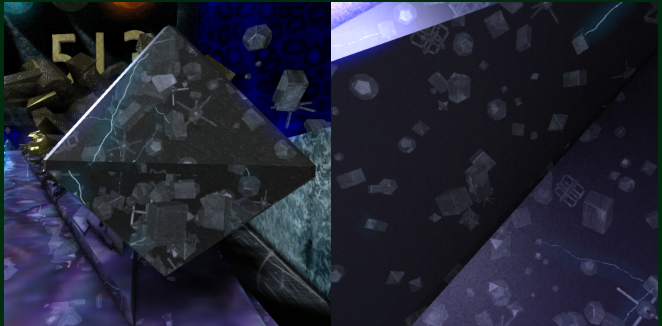


Graphics

Effects

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Realtime Cubemap Reflections

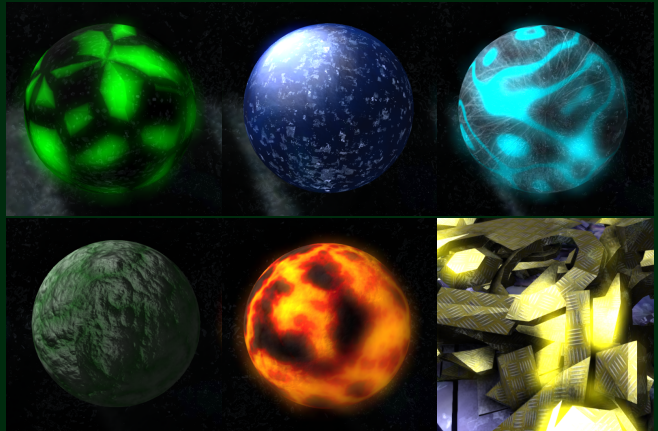


Graphics

Effects (cont.)

- **Materials**
- 3D Text
- Menu
- Projector
- Debug
- Tri-Chaos

Huge Spectrum of different Materials



Graphics

Effects (cont.)

- Materials
- 3D Text
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3D Ingame Text that can cast Shadows



Graphics

Effects (cont.)

- Materials
- 3D Text
- **Menu**
- Projector
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Game Menu using 3D Text



Graphics

Effects (cont.)

- Materials
- 3D Text
- Menu
- Projector
- Debug
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Holographic projected 3D Text for Ingame Messages

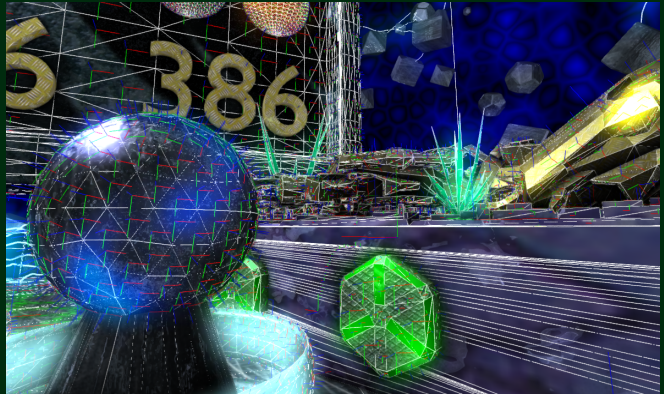


Graphics

Effects (cont.)

- Materials
- 3D Text
- Menu
- Projector
- **Debug**
- Tri-Chaos

Wireframe with Local Coordinate Systems

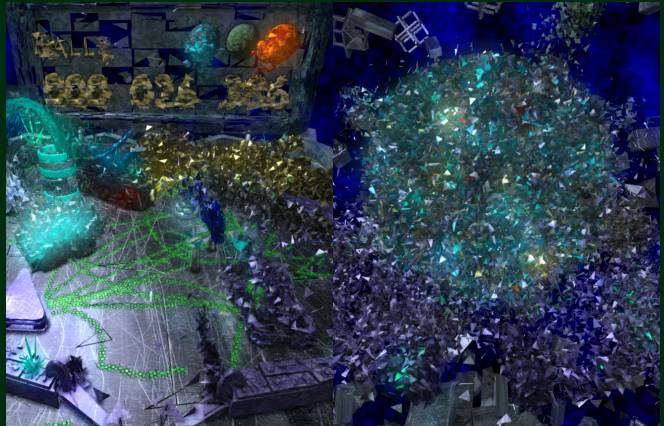


Graphics

Effects (cont.)

- Materials
- 3D Text
- Menu
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- Debug
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Geometry Shader based “Chaos”-Animation



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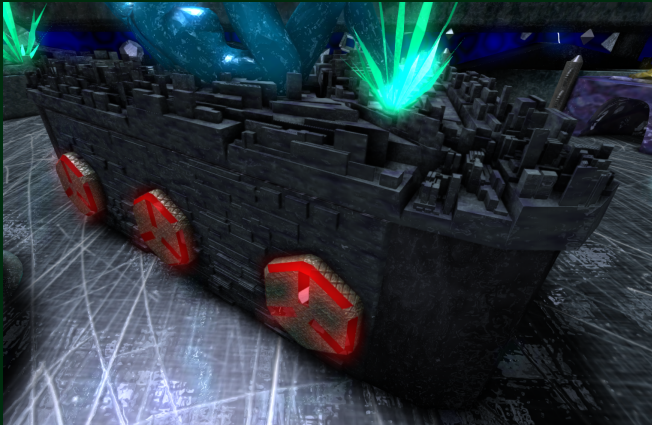
Assets

Greebled Cushion



Assets

Buttons

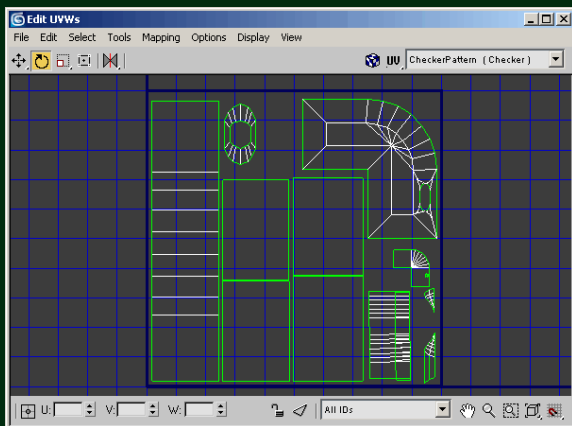


Assets - UVWMapping



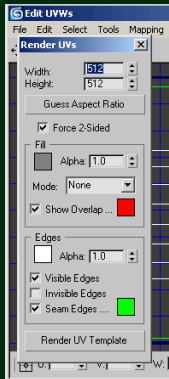
Assets - UVW Mapping

Using the Unwrap UVW Modifier



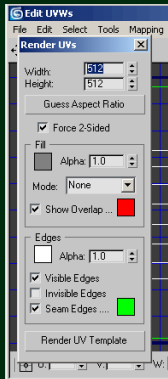
Assets - UVWMapping

Rendering template masks



Assets - UVWMapping

Rendering template masks



Assets - Texturing

Channels

- Diffuse
- Emission
- Normal

Techniques

- Baking
- Enhancement



Assets - Texturing

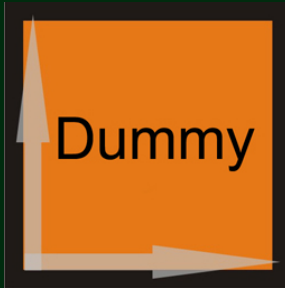
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Diffuse Texture



Assets - Texturing

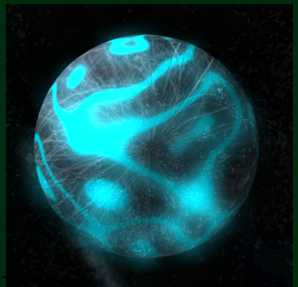
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Emission Texture



Assets - Texturing

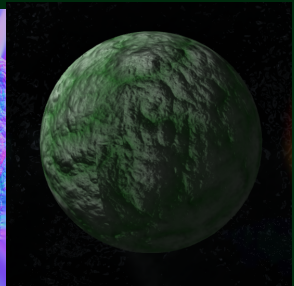
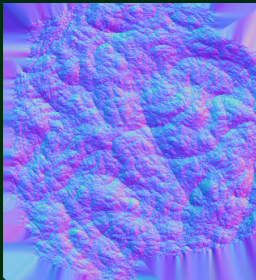
Channels

- Diffuse
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Techniques

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Normal Relative Tangent Space Texture



Assets - Texturing

Channels

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Techniques

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Baking with 3DS Max

- Enhanced material editor
- Automatically UVW Mapping
- Material channels implemented
- Variable texturesize rendering



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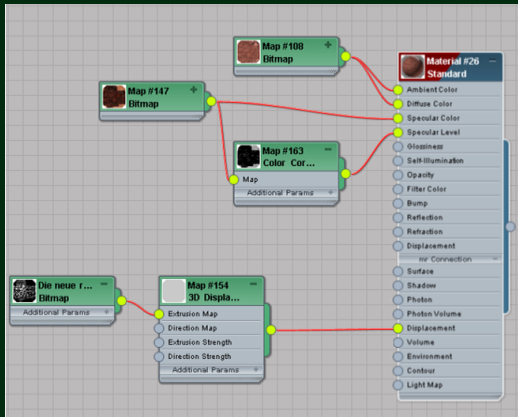
Channels

- Diffuse
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Techniques

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Material Editor



Assets - Texturing

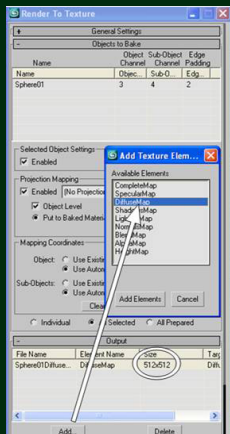
Channels

- Diffuse
- Emission
- Normal

Techniques

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- Enhancement

Rendering



Assets - Texturing

Channels

- Diffuse
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- Normal

Techniques

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Enhancement with Photoshop

- More detailed effects on textures and variations
- Overlaying and masking multiple textures
- Assign environment aspects



Assets - Texturing

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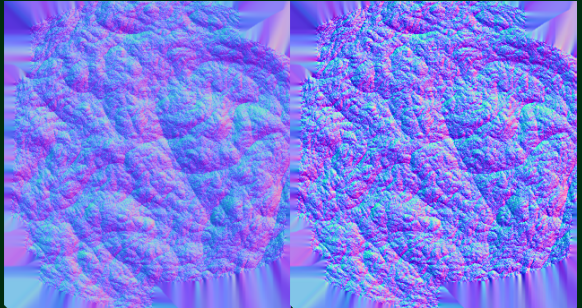
Channels

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Techniques

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Enhancement with Photoshop - Normal Map



Outline

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- Assets
- **Physics**
- Gameplay



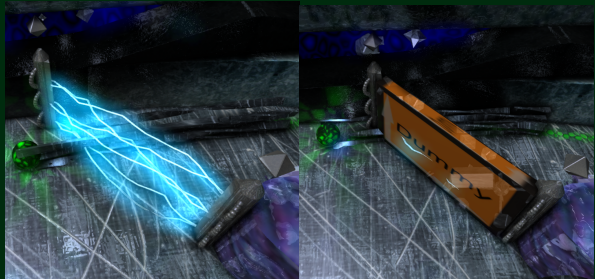
Physics

- Ghost Objects

- CCD

- Magnetism

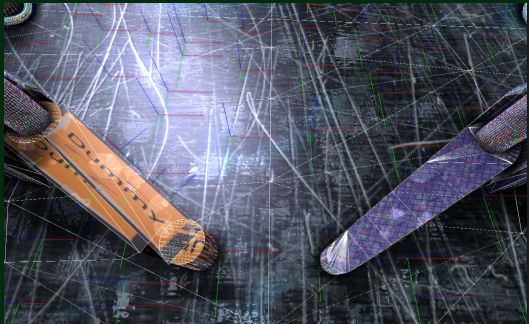
Ghost Objects trigger events when the ball collides with them



Physics

- Ghost Objects
- CCD
- Magnetism

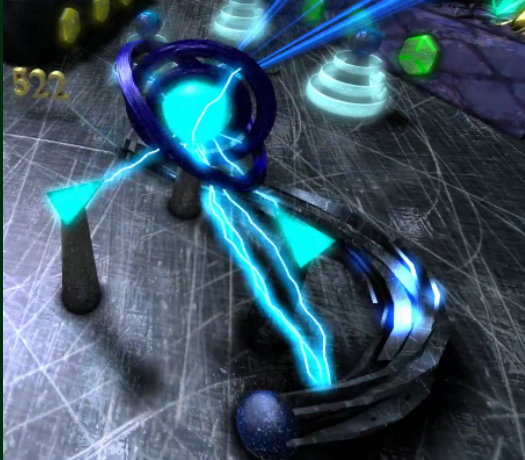
Continuous Collision Detection



Physics

- Ghost Objects
- CCD
- Magnetism

Magnetism



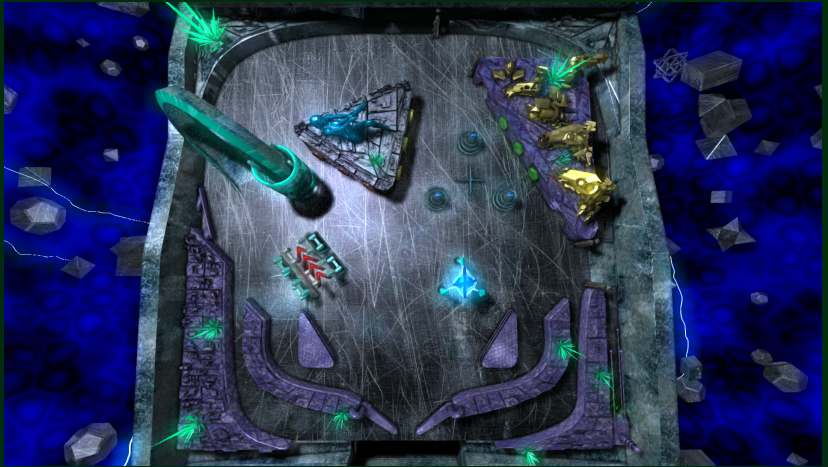
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- Physics
- **Gameplay**



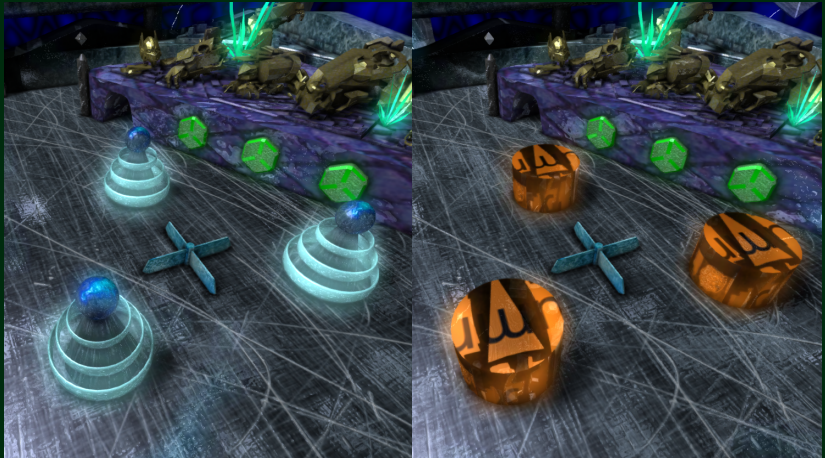
Gameplay

Bird's-eye view of our Table



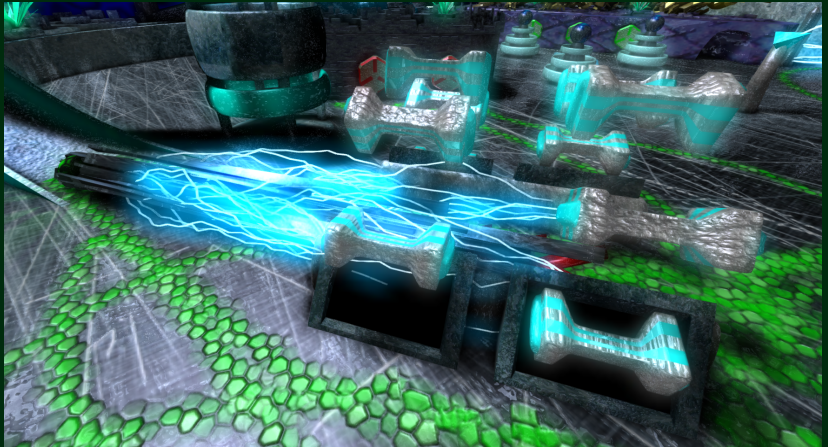
Gameplay

Rendered Geometry vs. Physics Shapes



Gameplay

Scripting enables complex Gameplay



Video

Now it's time for a video ...



Demo

...and of course a live demo.

