

51

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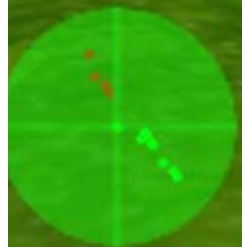
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# Tank Terminator 3D

Hongzhi Wu



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\$ 3000

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88

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174

# Overview

- The Game
  - Game play
  - Technical Details
- The World Editor

# Game play

- 1<sup>st</sup> / 3<sup>rd</sup> Person Shooting Game
- Two teams are combating in a skirmish!
- Fight with your teammates (AI) to eliminate the enemy!



# Technical Details

- Quad-tree and Tile based Terrain
- Modeling
- Particle System
- Decaling System (Trails, Fake Shadows)
- Render States Management System
- Collision Detection
- Finite State Automata AI
- Waypoint-based Navigation

# Quad-tree and Tile based Terrain

- Four different types of terrain



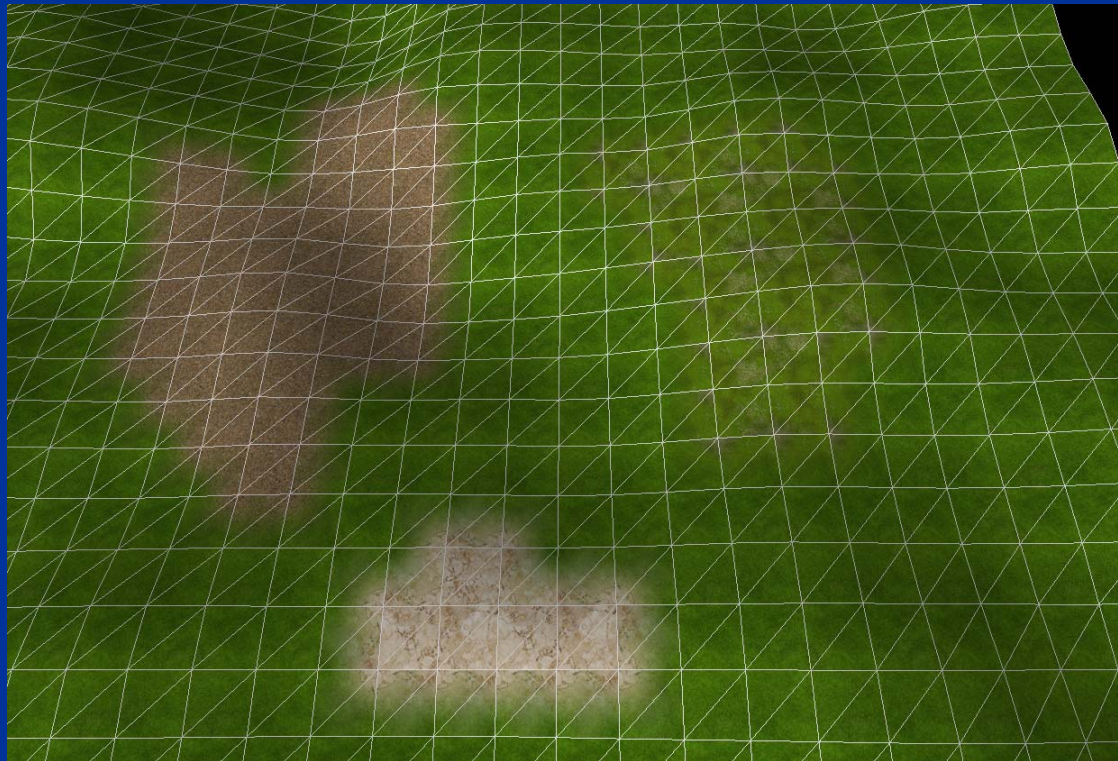
- Automatically blend them to generate intermediate tiles



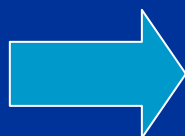
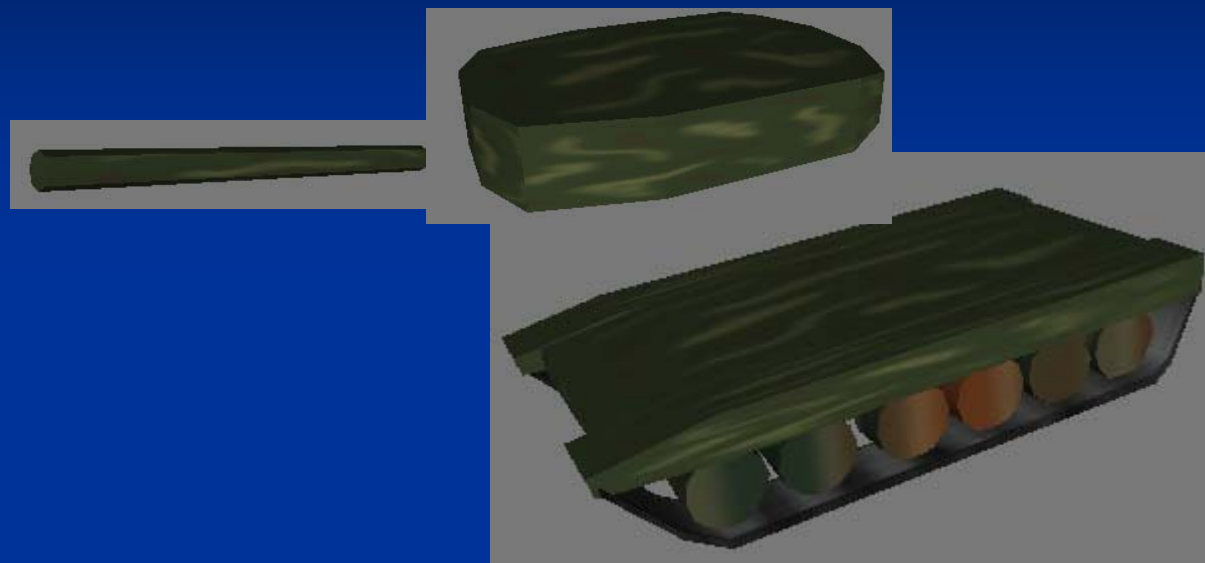
- Uses the terrain type stored at four vertices of a patch to determine which tile to use.

# Quad-tree and Tile based Terrain

- Fractal Height Field
- Quad-tree for fast view-frustum clipping



# Modeling



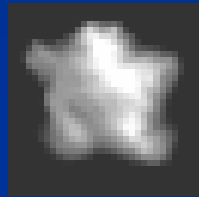
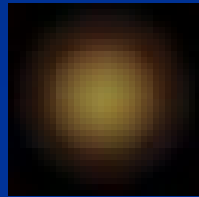
# Modeling

- Trees: “X” shaped billboards



# Particle System

- Used for various Special Effects (Just 3 types!)



- Explosion, Fire, Smoke



# Particle System

- Firing trailers



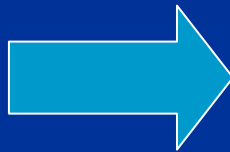
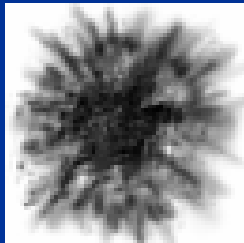
# Decaling System

- Generate new triangles for the decals to conform to the underlying geometry

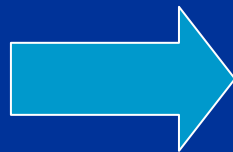


# Decaling System

- Scorched land



- Tank Trails



# Decaling System

- Fake Shadow



# Render States Management System

- Group all primitives according to their shaders
- Minimizes render states switches
  - Better Performance on video card!

# Collision Detection

- AABB and OBB



# Finite State Automata AI

- High-level States
  - Attack a place
  - Attack an object
  - Cruise
- Low-level States
  - Idle
  - Move
  - Attack

# Waypoint-based Navigation

- Waypoints are pre-computed for each block of the terrain
  - Objects following waypoints will not hit any static obstacles

# World Editor

- Edit Terrain
- Place objects

