IMGD 1001: The Game Art Pipeline

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Introduction

"The computer artist is modern-day alchemist"

(Creating the Art of the Game, by Matthew Omernick)

- Turn polygons and pixels into wondrous worlds

Sources of inspiration

- Playing games!
  - How can make fun game if not having fun yourself?
- The real world
  - The real world is always more interesting than anything we can make up
Introduction: Remember the Constraints

- Year 2098, Macrosoft will release FunStation 3000, 14 million terabytes of RAM, quantum-holographic drive with near infinite storage, processors at the speed of light
  - Game developers complain not fast enough

- Game artists must be creative *inside confines of technology*
  - All disciplines: engineering, design, sound
  - But often constraints biggest on artist

Based on Foreword, *Creating the Art of the Game*, by Matthew Omernick
Outline

- The art pipeline
- Concept art
- 2D Art
  - Animation
  - Tiles
- 3D Art
  - Modeling
  - Texturing
  - Lighting
What's a Pipeline?

**In the pipeline**
- *Informal.* in the process of being developed, provided, or completed; in the works; under way. (Random House)

**For our purposes**
- The sequence of operations required to move art assets from concept to the finished product

**The Art pipeline**
- 2D: Concept, Creation, Conversion
- 3D: Concept, Creation (modeling, texturing, lighting), Conversion
- Asset management
Types of 2D Art

- These are created with tools:
  - User Interface (UI)
  - Sprites, tiles, and other pixel art
  - Type and fonts

- These need a pipeline:
  - Character art
  - Scenery / worlds
  - Characters
  - Animation
  - Video
2D Asset Creation

- Animation Tool
- Characters
- Image Tools
- Animations
- Worlds
- Sprites
- Fonts
- 2D Game
- UI_Layouts
- Video
- UI Tool
- Video Tools
2D Pipeline (1 of 3): Concept

- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes
"Napkin-style" Concept Art
2D UI Prototype

designersnotebook.com
Paper UI Prototype

boxesandarrows.com
2D Pipeline (2 of 3): Creation

- Commercial / third party tools:
  - Photoshop, The Gimp, sprite editors, HTML/browsers, Flash...

- Homegrown tools
  - Specialized animation systems
  - Tools that simulate key game features (UI layout tool, etc.)
  - The game engine
Assets for 2D Animation (1 of 3)

eberlein.org/euphoria
Assets for 2D Animation (2 of 3)

cvrpg.com
Assets for 2D Animation (3 of 3)

aniway.com
2D Pipeline (3 of 3): Conversion

- Putting the assets into the final form
  - File type conversion
    - PSD to TGA / JPG, for example
    - Compression
    - Collection (zip files, pak files, etc.)
  - Testing in the game
  - Debug / fix
3D Asset Creation

- Animation Tool
- Modeling Tool
- Image Tools
- Textures
- Shaders
- Shader Tools
- Sprites
- Video Tools

- Characters
- Animations
- Scenery
- UI_Layouts
- Fonts
- Video

3D Game
3D Pipeline (1 of 4): Concept

- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes
  - Maquettes
  - Animation sketches / flipbooks
  - Mockup models
  - Texture mockups
  - Architectural layout
3D UI Prototype

Score: 7
Alert: 30%

lostgarden.com
3D Pipeline (2 of 4): Creation

- **Commercial / third party tools:**
  - *Photoshop, The Gimp, sprite editors, HTML/browsers, Flash…*
  - 3D tools: 3D Studio Max, Maya, Lightwave, Blender, ZBrush

- **Homegrown tools**
  - Specialized animation systems
  - Tools that simulate key game features (UI layout tool, etc.)
  - The game engine
  - Exporters / plugins
3D Studio Max

gamedev.net
Stages of a Model
3D Pipeline (3 of 4): Texturing

- Animation systems
  - Motion capture
  - Third party tools
  - Homebuilt tools

- Texturing systems

- Shaders / surface tools

- Renderers / video systems
Texturing and Accessories

garagegames.com

R.W. Lindeman - WPI Dept. of Computer Science
Interactive Media & Game Development
A Model, Textured

zbrush
Character and a Skin (1 of 2)

secretlair.com
Character and a Skin (2 of 2)

cresswells.com
3D Pipeline (4 of 4): Conversion

- Export from modeling to custom formats
- Putting the assets into the final form
  - File type conversion
    - PSD to TGA / JPG, for example
    - Compression
    - Collection (zip files, pak files, etc.)
  - Testing in the game
  - Debug / fix
Asset Management

- How do you share the production process across time, space, and content creators?
  - Source code has many tools -- "solved"
  - Data/Art is harder
    - Not easily merged
    - Dependencies not obvious
    - Relationships complex
  - Some commercial systems are trying
  - Typically a combination of:
    - Homegrown tools
    - Convention and process