IMGD 1001 - The Game Development Process: The Art Pipeline

by

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(with lots of input from Mark Claypool!)

Outline

- The 2D art pipeline
  - Concept
  - Creation
  - Conversion

- The 3D art pipeline
  - Concept
  - Modeling
  - Texturing
  - Lighting

- Asset Management
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

Types of 2D Art

- These are created with tools:
  - UI
  - Sprites / pixel art
  - Type and fonts

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

Now draw charts for all of the remaining things

**Concept:**
- Sketches
  - Napkin-style
  - Detailed design treatments
  - Paper prototypes (for UI)
2D UI Prototype

designersnotebook.com

Paper Prototype UI

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 a 2D animation

eberlein.org/euphoria
Another 2D character

cvrpg.com

One More

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
3D Pipeline (1 of 4)

- **Concept:**
  - Sketches
    - Napkin-style
    - Detailed design treatments
    - Paper prototypes (for UI)
  - Maquettes
  - Animation sketches / flipbooks
  - Mockup models
  - Texture mockups
  - Architectural layout

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3D UI Prototype

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

Lindeman & Quirk (& Claypool) - WPI Dept. of Computer Science
Stages of a Model

3D Pipeline (3 of 4)

- Animation systems
  - Motion capture
  - Third party tools
  - Homebuilt tools
- Texturing systems
- Shaders / surface tools
- Renderers / video systems
Texturing and Accessories

garagegames.com

A Model, Textured

zbrush
Character and a Skin

secretlair.com

Another Skin

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*

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Asset Management

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