



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)

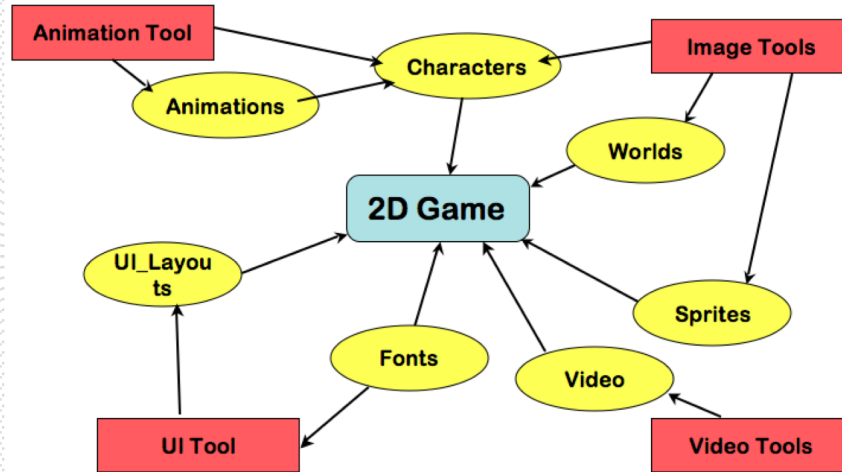
- For our purposes
 - The sequence of operations required to move art assets from concept to the finished product

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

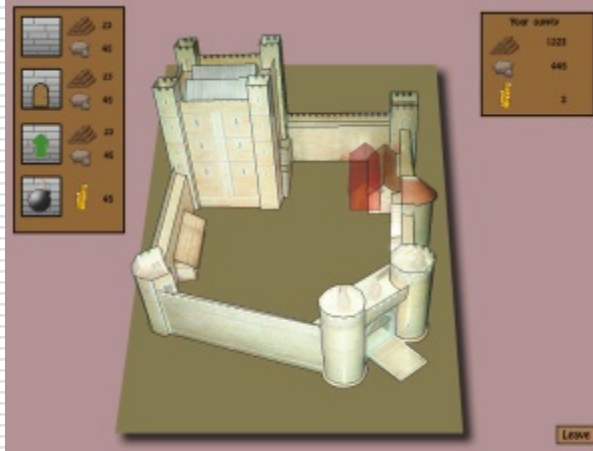
2D Asset Creation



2D Pipeline (1 of 3)

- Now draw charts for for each of the remaining things
- Concept:
 - Sketches
 - Napkin-style
 - Detailed design treatments
 - Paper prototypes (for UI)

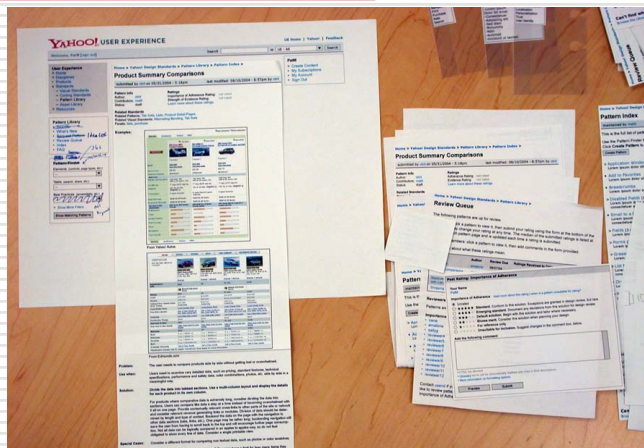
2D UI Prototype



designersnotebook.com

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Paper Prototype UI



boxesandarrows.com

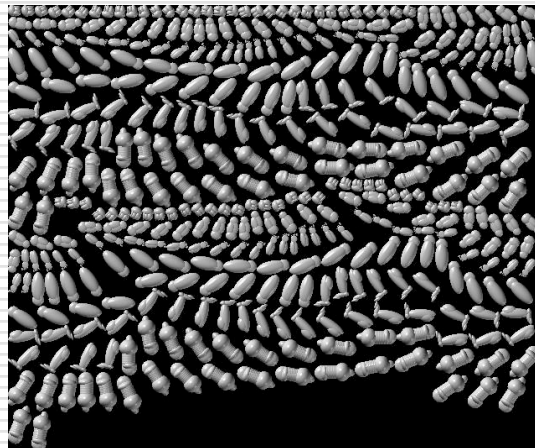
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2D Pipeline (2 of 3)

□ 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



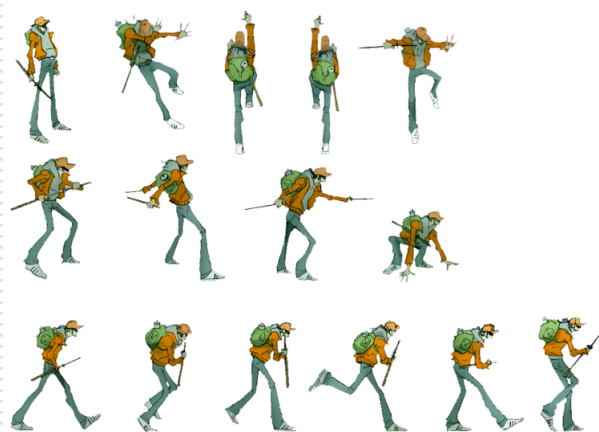
eberlein.org/euphoria

Another 2D character



cvrpg.com

One More



aniway.com

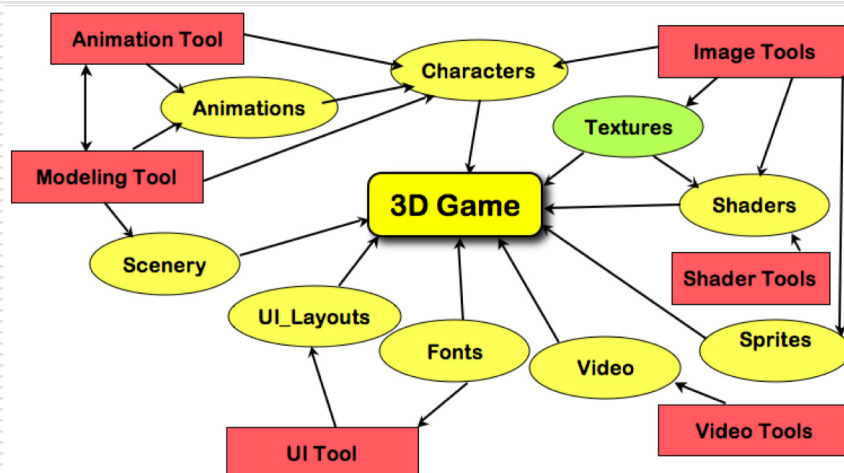
2D Pipeline (3 of 3)

□ 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



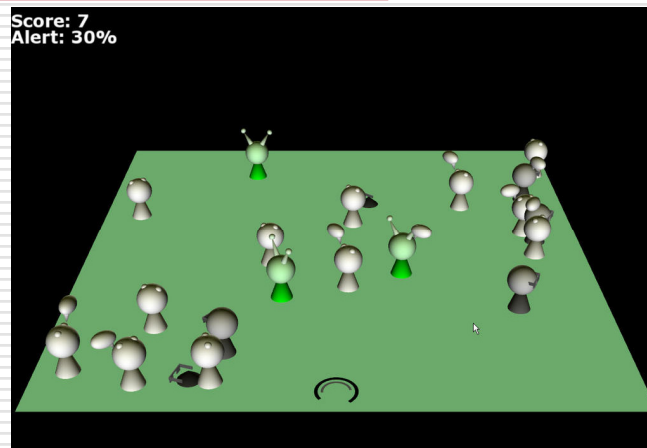
3D Pipeline (1 of 4)

□ Concept:

■ Sketches

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

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

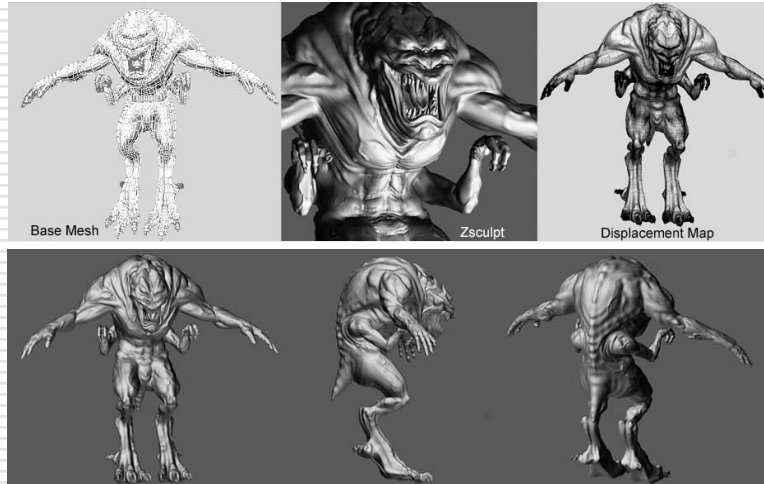
- Specialized animation systems
- Tools that simulate key game features (UI layout tool, etc)
- The game engine
- Exporters / plugins

3D Studio Max



gamedev.net

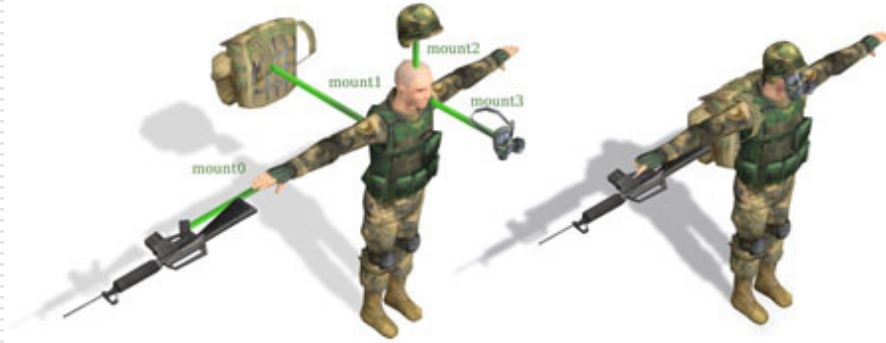
Stages of a Model



3D Pipeline (3 of 4)

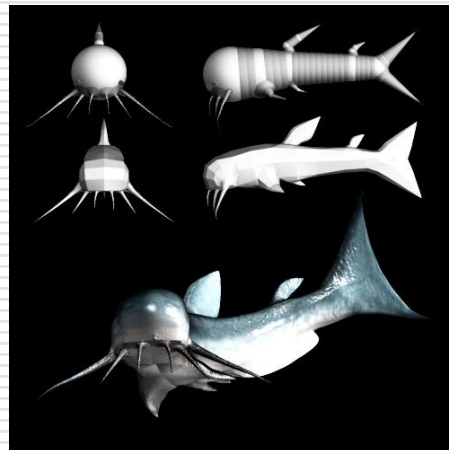
- Animation systems*
 - *Motion capture*
 - *Third party tools*
 - *Homebuilt tools*
- Texturing systems**
- Shaders / surface tools**
- Renderers / video systems**

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*

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