IMGD 1001: The Game Art Pipeline

(Visual) Art Courses
- IMGD/AR 2101. 3D Modeling.
- IMGD/AR 2200. The Art of Animation.
- IMGD 3500. Artistic Game Development I.
- IMGD 4500. Artistic Game Development II.
- (AR 200x. Figure Drawing.)
- (IMGD 201x. Digital Painting.)
- (IMGD 401x. Concept Art.)

Introduction
"The computer artist is modern-day alchemist" - 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

Outline
- The art pipeline (this deck)
- 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 art pipeline is...
  - The sequence of operations required to move art assets from concept to the finished product
- The Art pipeline
  - Concept
  - Creation
  - Conversion
  - Asset management

Based on Foreword, Creating the Art of the Game, by Matthew Omernick
What are some types of 2D Art?

Types of 2D Art

- Character art
  - Sprites and other pixel art
- Scenery / worlds
  - Tiles, backgrounds, ...
- User Interface (UI)
  - Text types and fonts
- Animation
- Video
- All these need a pipeline!

2D Asset Creation

2D Pipeline (1 of 3): Concept

- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes
- Animation
  - Flip books
  - Story boards

"Napkin-style" Concept Art

2D UI Prototype
**Paper UI Prototype**

- [Link](https://bouceandarrows.com)

**Flip books**
- **Stick Fight** (video)
- **Matrix Style** (video)

- [Link](https://www.michaelspornanimation.com)

**Story Boards**
- [Link](https://www.michaelspornanimation.com)

**Story Boards for Animation**

**Example Assets for 2D Animation (1 of 3)**

**2D Pipeline (2 of 3): Creation**

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

- Homegrown tools
  - Specialized animation systems
  - Tools that simulate key game features (UI layout tool, etc.)
  - A game engine
  - ...

- [Link](https://eberlein.org/euphoria)

- [Link](https://www.royzy.co.uk)

- [Link](https://gamespot.com)
Example Assets for 2D Animation (2 of 3)

Example Assets for 2D Animation (3 of 3)

2D Pipeline (3 of 3): Conversion
- Putting the assets into the final form
  - File type conversion
  - Examples: PSD to TGA / JPG
  - Compression
  - Collection (zip files, pak files, etc.)
- Testing in the game
- Debug / fix

Group Exercise
- Break into your project groups
- At the top of a piece of paper, each person writes the description (text) of a visual concept for a character/item/object in your game (3-4 minutes)
  - About 1 small paragraph
- Rotate papers among group
- In the middle of the paper, draw a concept art sketch based on the text (5 minutes)
- Pass back to the original person
- Provide feedback (verbally), and briefly in text on bottom (2-3 minutes)
- (Hand in)

3D Asset Creation

3D Pipeline (1 of 4): Concept
- Sketches
  - Napkin-style
  - Detailed design treatments
  - Prototypes
  - Animation sketches / flipbooks
  - Maquettes (a small scale model)
  - Mockup models
  - Texture mockups
  - Architectural layout
3D UI Prototype

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.)
  - A game engine
  - Exporters / plugins

3D Studio Max

3D Pipeline (3 of 4): Texturing
- Animation systems
- Third party tools
- Homebuilt tools
- Texturing systems
- Shaders / surface tools
- Renderers / video systems

Texturing and Accessories
A Model, Textured

Character and a Skin (1 of 2)

Character and a Skin (2 of 2)

3D Pipeline (4 of 4): Conversion

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

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?
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