

## IMGD 1001: Concept Art

### Outline

- The Pipeline
- Concept Art (next)
- 2D Art
  - Animation, Tiles
- 3D Art
  - Modeling, Texturing, Lighting

### Why Not Just Prototype?

- Even creating prototypes can be time consuming and expensive
- Getting it right on the first try is unlikely
- Revising instantiated work can be difficult

Thus the need for some **forethought!**

### What is a Better Way?

Make decisions on paper, where changes and variations can be made quickly and easily.



### What is Concept Drawing? (1 of 2)

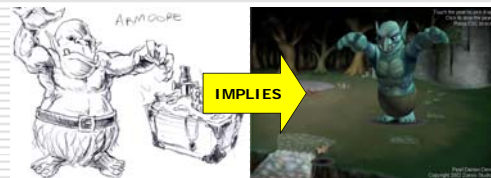
- From illustration, but is a modern idea
- Main goal to convey visual representation of a design, idea, and/or mood
- Use in movies, comic books and computer games
- *Before* it is put into the final product (or even prototype)



### What is Concept Drawing? (2 of 2)

It is *not* a full design, blueprint or specification.

It is a **partial design** that gives enough detail to imply a full design.




Concept

Implementation


**WPI**

## Who Is Involved?

We can think of the process as a two-part system:



The BOSS supplies the constraints that the drawing needs to fill.



The ARTIST generates drawings based on the given constraints.

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## The BOSS (1 of 3)


- Takes part in a higher-level design process with goals of its own

Attract web-goers

Sell more widgets

Win an Oscar

→




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## The BOSS (2 of 3)

- Communicates constraints inherited from this higher-level process to the ARTIST



Happy Purple Dinosaur



We need a happy, purple dinosaur to sell more widgets!

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## The BOSS (3 of 3)


- Evaluates the fitness of the ARTIST's solutions based on various heuristics

Market research says its good

Wife likes it

Magic 8-Ball says outlook not so good

→




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## The ARTIST (1 of 4)

- Generates drawings based on the given constraints



We need a happy, purple dinosaur to sell more widgets!




Happy Purple Dinosaur

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## The ARTIST (2 of 4)

- Has expert knowledge of drawing materials and techniques



←

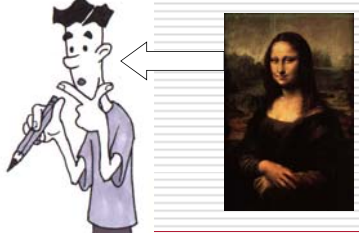


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### The ARTIST (3 of 4)

- Has aesthetic heuristics (acquired by studying style, design and master artwork)

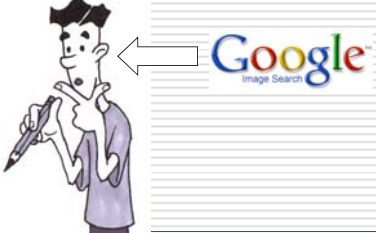


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### The ARTIST (4 of 4)

- May need to cache domain-specific knowledge (dinosaur anatomy, typical dress of a noblewoman in 13<sup>th</sup> century England, etc.)




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### A Space of Ideas (1 of 3)

There is a space of drawings that potentially satisfy some set of constraints (could be from cache)



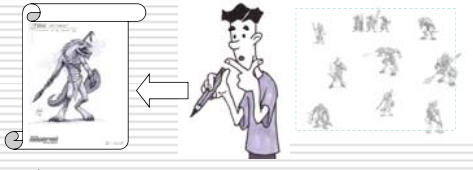
(Space of Evil Lizard-Monsters)

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### A Space of Ideas (2 of 3)

The ARTIST is capable of generating drawings that represent regions of this space.



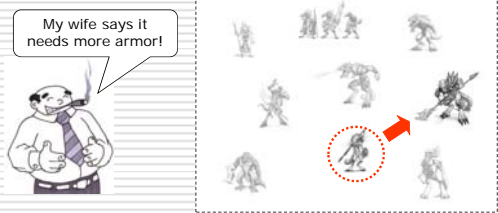
(Remember that because a concept drawing is not a full design, there is some range of designs that each drawing represents)

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### A Space of Ideas (3 of 3)

The BOSS provides the ARTIST with direction in searching this space for a solution that optimizes BOSS's heuristics.



"Concepting" is like a "hill-climbing" search of the idea space!

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### Beginning with Thumbnails (1 of 3)

The exploration of possible solutions often begins with ARTIST generating rough drawings.

These rough drawings - called "thumbnails" - are often little more than suggestive scribbles.

Thumbnails can be generated very rapidly. This allows ARTIST to generate many points of search space at little cost.



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## Beginning with Thumbnails (2 of 3)

But **where** does the artist come up with all these samples of search space?

The ARTIST forms these partial solutions from domain **experience** and/or cached **reference** images!

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## Beginning with Thumbnails (3 of 3)

I like the one with the sunglasses. Let's see where we can go with that!

Thumbnails enable ARTIST and BOSS to quickly get their bearings and identify fruitful starting-points for exploration.

These rough drawings can quickly expose problems with the given constraints.

It doesn't take highly detailed concepts to cull large portions of search space!

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## Drawing the Concept (1 of 5)

There are many techniques for creating more detailed concepts (pencils, markers, watercolors, etc.)

In general, the drawing process is one of iterative refinement.

For example, when rendering a concept with markers, the ARTIST will begin by **roughly sketching** most of the detail with a light marker.

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## Drawing the Concept (2 of 5)

Next, the ARTIST does some **line selection**.

In this stage, the ARTIST is choosing the best of the rough details for inclusion in the final concept.

The ARTIST may also be adding some lower-level details as well, now that the higher-level details are becoming more specific.

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## Drawing the Concept (3 of 5)

Next, the ARTIST does some **region coloring** to separate the different elements of the drawing ...

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## Drawing the Concept (4 of 5)

... and now a **shading pass** to reveal the 3D form of the concept ...

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## Drawing the Concept (5 of 5)

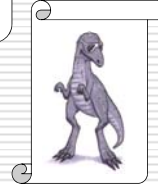
... and finally a **detail pass**, picking out lines to reinforce and areas to highlight.

This concept is finished ... but wait!



## Back to Hill-Climbing!

Very nice! But the Magic 8-Ball doesn't like all those spots; and the VCs think it should have big, muscley arms!



## Questions and Discussion

