Art Tools

- Introduction
  - Goals
    - Create art for “Next Generation” games.
    - Combine Gouraud, flat, and preshaded textured polygons to create an immersive 3D world.
    - Choose from the pathways available and implement them efficiently.

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Overview

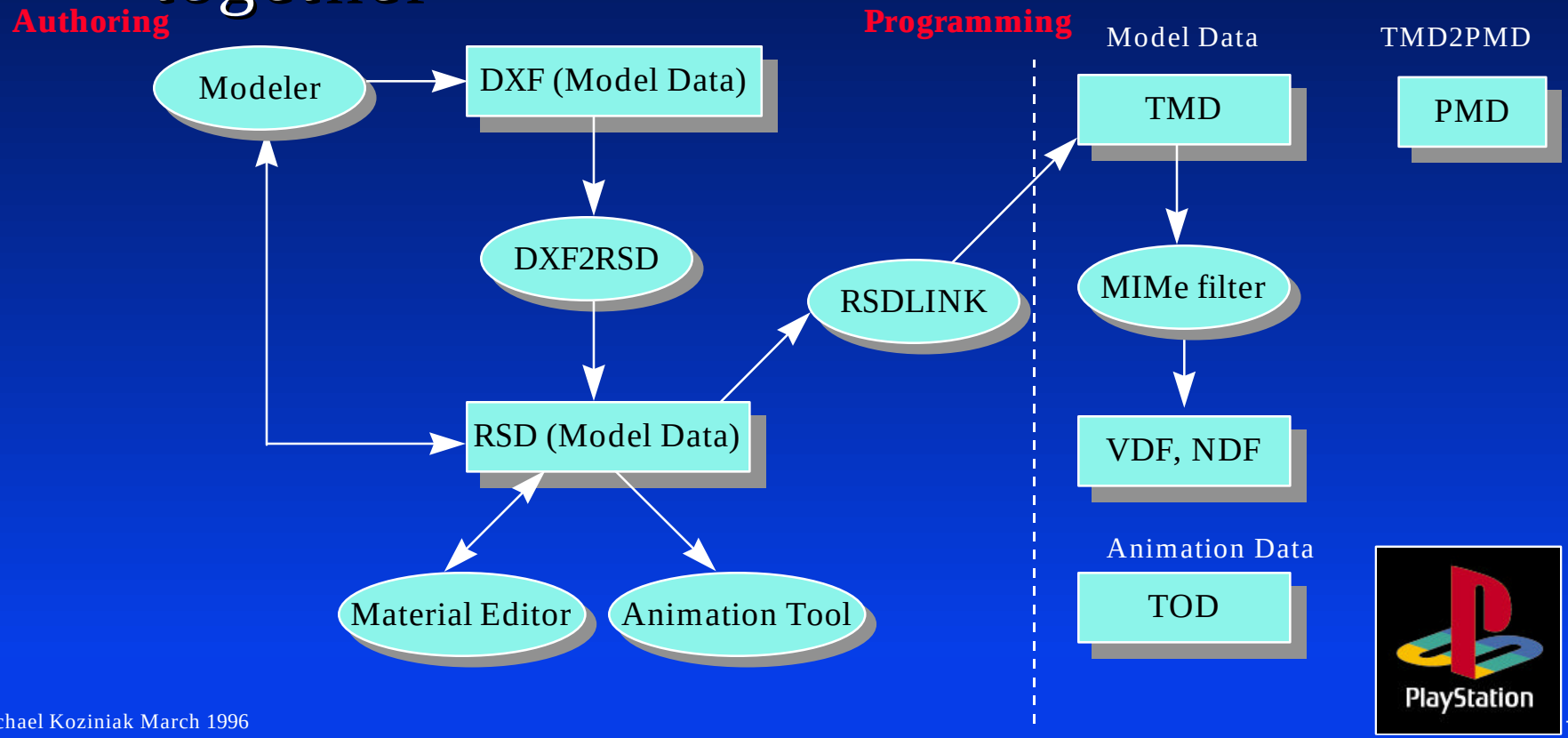
- File Formats
- Tools Overview
- Modeling
- Texturing
- Displaying Your Artwork
- Animation
- Full Motion Video

File Formats

- RSD - Text description of model data and surface attributes
- TIM - Data for textures
- TMD - Binary RSD
- PMD - Preshaded model data
- TOD - Animation data
- VDF, NDF - MIMe animation data
- BGD - Background map data

File Formats

- How the tools and data formats work together



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Tools Overview

- Different Types of Tools
  - Materials Editor
  - MIMe Utilities
  - Sprite Editor
  - 2D Utilities
  - 3D Utilities
  - Movie Converter / Movie Packer
  - Plugins

Tools Overview

- Material Editor v1.71ae
- MIMe Wave Editor v1.0e
- Movie Converter v1.98e
- Movie Packer v1.4e
- Animator v1.1.5
- Sprite Editor 1.7e

Tools Overview

- TIM Utility v1.36e
  - Incorporates all these DOS utilities
    - BMP2TIM v2.2
    - PICT2TIM v3.1
    - RGB2TIM v2.0
    - TIM2BMP v1.1
    - TIMPOS v1.0
    - TIMVIEW v1.2
      - Use with Graphic Artist Card

Tools Overview

- 3D Utilities
  - DXF2RSD v2.7
    DXF2RSDW v1.10e
  - MKTOD v1.3
  - RSD2DXF v1.00
  - RSDCAT v1.02
  - RSDFORM v1.8
  - RSDLINK v3.65
  - TMD2PMD v1.14
  - TMDINFO v1.1
  - TMDSORT v1.1
  - ANIMATIO v1.1.5

Tools Overview

- DOS Utilities
  - Useful when doing batch processing
    - use .mak files to do batch processing

```
#  Sample.mak
#
files.all: file1.tim file2.tim
            Echo Go To Work.
file1.tim:  file1.bmp
            bmp2tim -org 640 0 -plt 0 480 -b file1.bmp

file2.tim:  file2.bmp
            bmp2tim -org 768 0 -plt 0 481 -b file2.bmp
```

TM

Tools Overview

- 3DStudio Plugin
  - TOD v4.0f
    - Converts 3D Studio models to PlayStation file format
    - Writes hierarchy information
    - Can’t export textures directly

Tools Overview

- Photoshop
  - timexpe.8be v1.2e
    - imports and exports textures
  - timfmte.8bi v1.2e
    - displays onto Artist Board

Tools Overview

- 3rd Party Plugins
  - Animetix (soon)
  - Alias | Wavefront
    - GameExport v1.0(soon)
  - Nichimen Graphics

Tools Overview

- Caligari trueSpace v1.0
  - Advantages
    - Reads and writes RSD format directly.
    - Converts data formats to PlayStation format
  - Considerations
    - Uses quadrangles
    - Different user interface
      - Difficult to weld vertices

Modeling

- Good Models
  - Low polygon count
    - Optimizes performance
      - use transparent textures
    - Still needs to look good
    - Avoid certain polygon patterns
      - Fence is an example.
- Bad Models
  - long skinny textures

Modeling

- Footnotes
  - MIP mapping
    - swapping textures for optimal display and performance
  - Model mapping
    - swapping models for different distances
      - sub-dividing polygons may be a better solution

Texturing

- Mapping textures
  - Material Editor
- Try to fit in the 2K texture cache
  - 32x32 16 bit
  - 64x32 8 bit
  - 64x64 4 bit

Texturing

- Material Editor
  - Pasting textures onto model
    - grouping polygons
      - allows precise texture placement
  - Change model specifications
    - change flat to Gouraud
    - change color of polygons with color table
    - set transparency
    - modify vertices

Displaying your Artwork

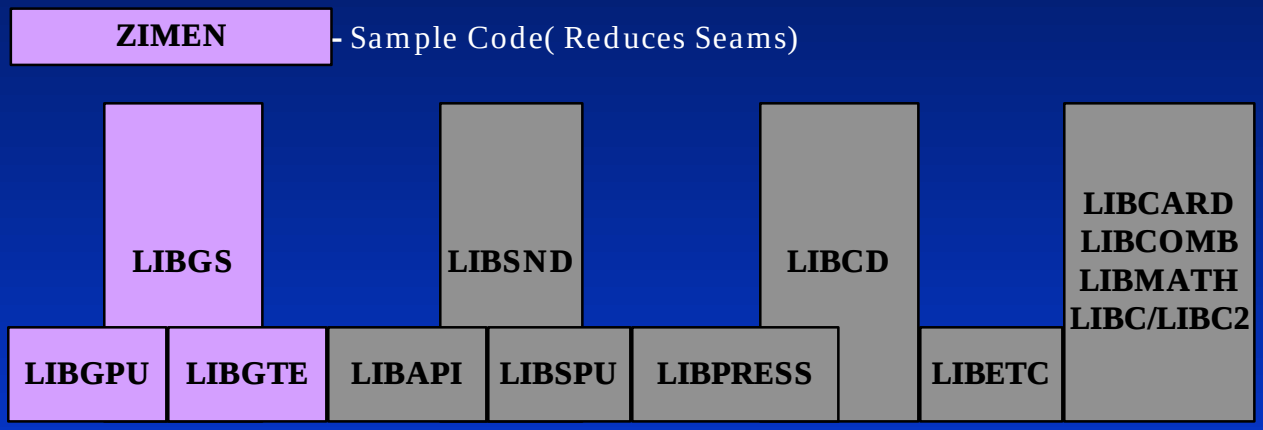
- Z-Sorting
- 2D / 3D Graphic Libraries

Displaying your Artwork

- The Z-sort problem
  - popping of polygons is visually distracting
  - make similar colors about the joints of a polygon to lessen the effect
  - adjust the otz from average z to near z
  - increase resolution of Z-sorting
  - must subdivide long polygons

Displaying your Artwork

- 2D / 3D Graphics Libraries



Graphic Libraries
Other Libraries

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Animation

- Overview
  - TOD animation
  - MIMe animation
    - give models ability to flex and bend
  - Sony's Animator

Animation

- MIMe animation
  - Principals of Vertex and Normal based MIMe
    - deformed model - basic model = difference vector
    - changes in composite ratio of difference vectors are “waveforms”
    - basic model + Sigma (difference x waveform) = MIMe animation

Animation

- MIMe animation
  - Only vertices (and normal vectors) are needed
  - The texture is needed only for the base model
  - Difference data formats (VDF, NDF)
  - Optimization of difference data (mimesort)

Animation

- MIMe animation continued
  - Considerations
    - Vertices can not be increased or decreased
    - The ordering of vertices can not be changed
    - use triangles

Animation

- MIMe Wave Editor
  - Making waves (Convolution Editing)
    - How to use the wave editor
    - Wave editor is a software tool to animate your models
    - Waves define interpolation between models

Full Motion Video

- Movie Converter
  - Uses DCT compression
  - Original Movie Formats
    - D1, Beta, Beta SP, S-Video, NTSC / PAL / SECAM.
- Movie Packer
  - Interleaves your movies

Full Motion Video

- Movie Converter
  - Writing scripts
    - Sample Script
  - Adjusting the quantization
    - Changes look of the movie
    - Can be done frame by frame
  - Mapping FMV to polygons

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Full Motion Video

- Movie Packer Overview
  - Interleaving
    - Combining different data types in a stream of data in an organized manner
    - Method to display multiple movies simultaneously
    - Method to load data in background
      - a checksum would have to be used as a safeguard

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