Puppet

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Introduction

- Summary
- Motivation / Goals / Difficulties
- Previous Work & Applications

What Puppets All About

- Using only a pen, the user can:
  - Create a character
  - Paint it
  - Pose it
  - Animate it

Motivation

- Tradition character create
  - Time consuming
  - Difficult
  - Requires training

Goals

- Intuitive user interface
  - Tablet PC
  - Powerful Features
  - Fun!!

Difficulties

- Translating 2D pen action into 3D environment
- Speed limitations
**Previous Work**
- Teddy
  - Takeo Igarashi
- Professional modeling packages
  - 3dMax
  - Maya
  - Poser

**Application**
- Rough draft animation
- Choreography
- Entertainment / Games

**Usage Demonstration**
- Drawing objects
- Painting
- Posing
- Animating

**Drawing Objects**
- Drawing objects
- Painting
- Posing
- Animating

**Usage Demonstration**
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Technical Details
- Skeleton
- Body Positions
- Inverse Kinematics

Skeleton
- Hierarchical representation
- Meshes
  - Defined relative to bone

Body Position
- One orientation per joint
  - Relative to parent bone
  - Represented using quaternions
    - Useful for interpolation

Inverse Kinematics

Inverse Kinematics
Puppet
- Intuitive interface to complex task
- Leverages Tablet PC
- Anyone can do it

Future Work
- New Features
  - Skeleton Editor
  - Collision detection / prevention
  - Mirroring limbs

Demo

Questions?