



Puppet

- Dan Olejko
- Jamie Gennis
- Paolo Alandy



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

Usage Demonstration

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Technical Details

- Skeleton
- Body Positions
- Inverse Kinematics

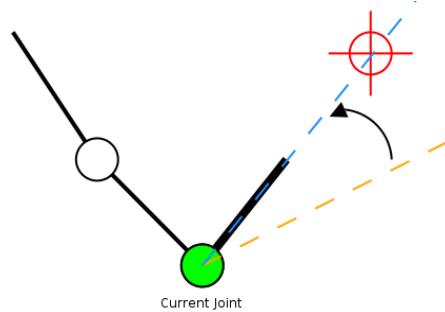
Skeleton

- Hierarchical representation
- Meshes
 - Defined relative to bone

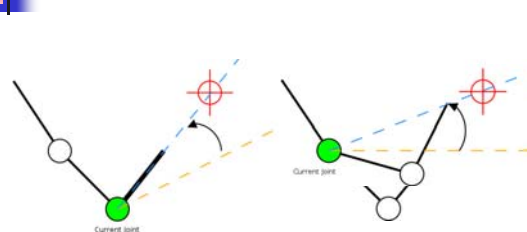
Body Position

- 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?
