

# Informal Animation Sketching with K-Sketch

Richard C. Davis, University of California, Berkeley  
James A. Landay, University of Washington & Intel

## What if...

We could sketch moving pictures as easily as static pictures?



...It would give everyone access to a new medium for expressing ideas!

### Educators

A new way to teach dynamic concepts



### Knowledge Workers

A new way to share ideas



### Animators

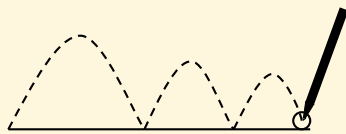
A fast way to prototype animations



## Informal Animation

A pen-based interface that makes it possible to demonstrate a wide variety of rough animations in seconds

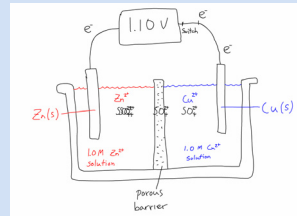
Draw objects and move them with the stylus. Object motion is inferred from hand motion.



Ball will bounce along the path

## Example Animations

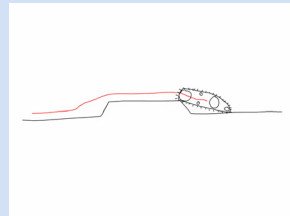
### Education



### Battery Reaction

Six-second animation showing electrons and sulfate ions moving  
46 min. to create in Flash!

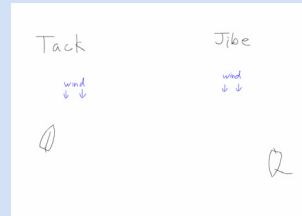
### Research



### Tread Motion

Thirteen-second animation showing the path of a machine tread going over a bump  
42 min. to create in Flash!

### Recreation



### Tack and Jibe

Six-second animation comparing two sailing maneuvers  
61 min. to create in Flash!

## Motion Categories

72 example animations collected from seven animators, ten would-be animators, and children show which types of motion need to be supported

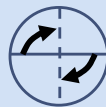
### Most Important



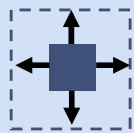
Translation



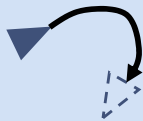
Appearing & Disappearing



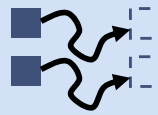
Rotation



Scaling



Rotation & Translation

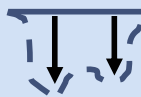


Replicated Motion

### Less Important



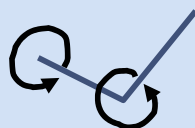
Animation Cells



Morphing



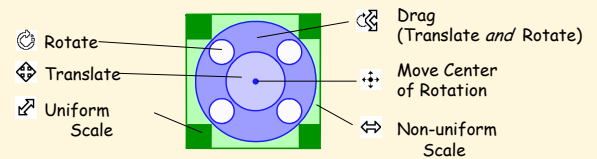
Physical Modeling



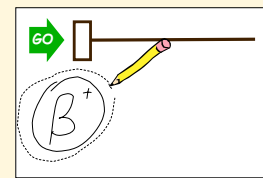
Motion Hierarchy

## Interface Design Concept

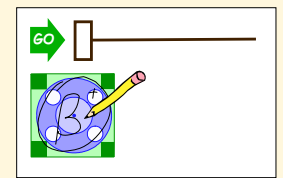
### Animation Selection Widget



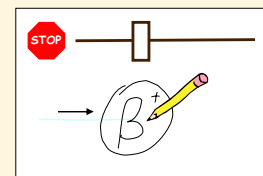
### Creating a Particle Collision Animation



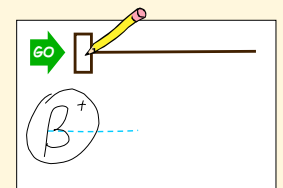
1. Draw and select positron



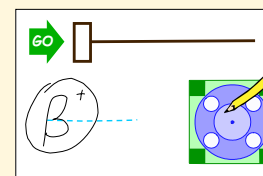
2. Drag selection widget



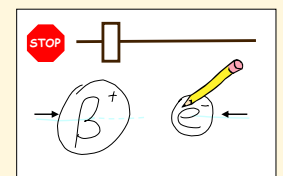
3. Motion is recorded



4. Rewind to beginning



5. Draw and select electron



6. Drag to final position, timing collision by hand