Midas: a Declarative Language for Multi-Touch Gesture Recognition

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Gestural interaction

Event handlers

Complex domain

Midias: Rule Based Multi-Touch Software Abstractions

(deerule goUp
  (declare (salience 100))
?eventList[] <-- (Listof Cursor (same: id)
(within: 500) (min: 5) (retract: all))
(test (goUpAll ?eventList[]))

=>
(printout t "goUp detected!"
(assert (goUp (tuioId ?eventList[0].tuioId)
(beginX ?eventList[0].x) (beginY ?eventList[0].y)
(endX ?eventList[-1].x) (endY ?eventList[-1].y)
(beginOn ?eventList[0].on)
(endOn ?eventList[-1].on))))

(deerule tiltImage
  (declare (salience 101))
?goUp0 <-- (goUp)
?goUp1 <-- (goUp)
?anchor <-- (anchor)
(test (tContains ?anchor ?goUp0))
(test (sNearLeftOf ?anchor ?goUp0 ?goUp1))
?image <-- (image)
(test (sInside ?anchor ?image))

=>
(printout t "image tilt detected!"
(assert (tiltImage (anchor ?anchor) (image ?image)
  (goUp0 ?goUp0) (goUp1 ?goUp1))))

Comparison

Traditional vs Declarative

Declarative Programming using Rete

- Excellent performance
- Multi-user support is one extra property per fact (extendibility)
- Higher order facts where one combines information from multi-touch devices with voice to allow multi-modal correlation