GISpL: Gestures Made Easy

Introducing the Gestural Interface Specification Language

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Philosophical question: what is a gesture?

„A motion of the limbs or body, especially one made to emphasize speech.“

↓

„A motion of the limbs or body, performed to trigger an action.“

Gestures are not only ...

multi-touch or shapes or body-tracking or ... 

What do they have in common?
Related Work

- Tangible interfaces
  - *Phidgets* (S. Greenberg et al., 2001)
  - *Papier-mâché* (S. Klemmer et al., 2004)

- Sketch/shape recognition
  - *LADDR* (T. Hammond et al., 2005)

- Multi-Touch
  - *Towards a formalization of MT gestures* (D. Kammer et al., 2010)
  - *MIDAS* (C. Scholliers et al., 2011)

- Multi-modal interaction
  - *OpenInterface* (M. Serrano et al., 2008)
Developer's Questions

→ What do all these modalities have in common?
→ Is there an unified view on them?

Core concepts for unified approach:

• Regions: spatial areas containing gesture sets
• Gestures: representations for user actions
• Features: „atomic“ building blocks for gestures

Region – Gestures – Features

↓            ↓            ↓
Context – Semantics – Syntax
Available Features

- Motion
- Rotation
- Scale

- Count
- Delay
- Path

- ID
- ParentID
- Group

- Position
- Dimensions

multitouch-inspired strokes/shapes tangibles, whole-body interaction position & object shape
Putting It Together: GISpL

```json
{
    "name": "two_fingerSwipe",
    "flags": "oneshot",
    "features": [
        {
            "type": "Count",
            "filters": 2046,
            "constraints": [2, 2],
            "result": []
        },
        {
            "type": "Motion",
            "filters": 2046,
            "constraints": [[0.1, -0.1, -0.1], [0.1, 0.01, 0.01]],
            "result": []
        }
    ]
}
```

JSON format – universally readable

flags: gesture modifiers
oneshot → triggered only once
default → stored as reusable definition
sticky → „sticks“ to starting region

filters: bitmask for TUIO 2.0 types
b11111111110 = all fingers

constraints: limits for feature values
Thanks for listening!

Questions and comments are welcome!

Input Objects

Input Events (TUIO)

GISpL Interpreter

Regions → Features → Gestures

Region 1

Region 2

Gesture Events

Gesture Definitions

Gesture Presets

Application

Architectural Details
• Problem: gestures defined on, e.g., screen background
• Intended for smaller sub-regions
• Example: strike-through gesture

• Possible solution: „ubiquitous“ flag
• Gesture will be delivered to all participating regions

Extension: „ubiquitous“ gestures