

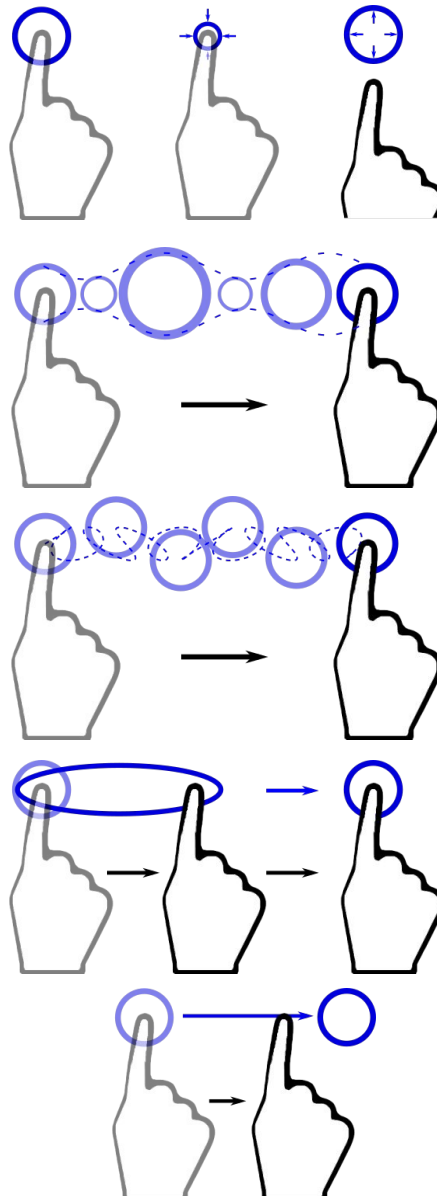
Touchy: tactile sensations on touchscreens using a cursor and visual effects

Context

- **Haptic enhancement of touchscreens** usually involves vibrating motors producing **limited sensations** or custom mechanical actuators that are **difficult to widespread**.
- **Pseudo-haptic effects** express haptic features **without the need of an actuator**, through the alteration of the **motion** or the **shape** of a visual proxy (typically a mouse cursor).

Multitouch pseudo-haptics effects

- **Touchy adapts this principle to touchscreens** using a circular cursor under the user's finger, which deforms and/or moves to express **five different haptic features**.
- The effect depends on the simulated feature and eventually on the **local haptic information**.
- Touchy can handle **any number of cursors independently**.
- **No extra hardware** is required as the effects are purely visual.



Compliance

The cursor shrinks over time until a limit compression ratio. On release, its gets back to its original size.

Reliefs

The cursor is enlarged or diminished proportionally to local relief height.

Roughness

The cursor oscillates around finger position, the oscillation amplitude being modulated by finger speed.

Stickiness

The cursor stretches until a limit deformation, then release, simulating a stick-slip behavior.

Slipperiness

The cursor slides along an inertial trajectory which is accelerated by the stroke and damped over time.

Future work

- Psychophysical evaluations
- Impact of cursor shape
- Combining effects

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