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IMGD 5100:  
Immersive HCI

# Symbolic Input

**Robert W. Lindeman**

Associate Professor

Interactive Media & Game Development

Department of Computer Science

Worcester Polytechnic Institute

[gogo@wpi.edu](mailto:gogo@wpi.edu)

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# Motivation

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- Several good approaches are available for
  - Selection
    - Ray casting, scaled hands, image plane
  - Manipulation
    - WIM, direct manipulation, tool-based
  - Locomotion
    - Treadmills, fly where you point/look, walking in place, game/VR controllers, Balance Board
  - System control (menuing)
    - Tablets/Pads, pinch gloves, tabletop surfaces

## Motivation (cont.)

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- Symbolic input remains difficult
  - Text is tough to read in some environments
    - Outdoors
    - HMDs
  - Standard keyboard is not always available
    - Can't see it (e.g., HMD)
    - Don't want to carry it (mobile)
  - Multiple languages
  - Personal vs. Public (e.g., voice)
  - Hands-free vs. Hand-held

# Types of Input

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## □ Text

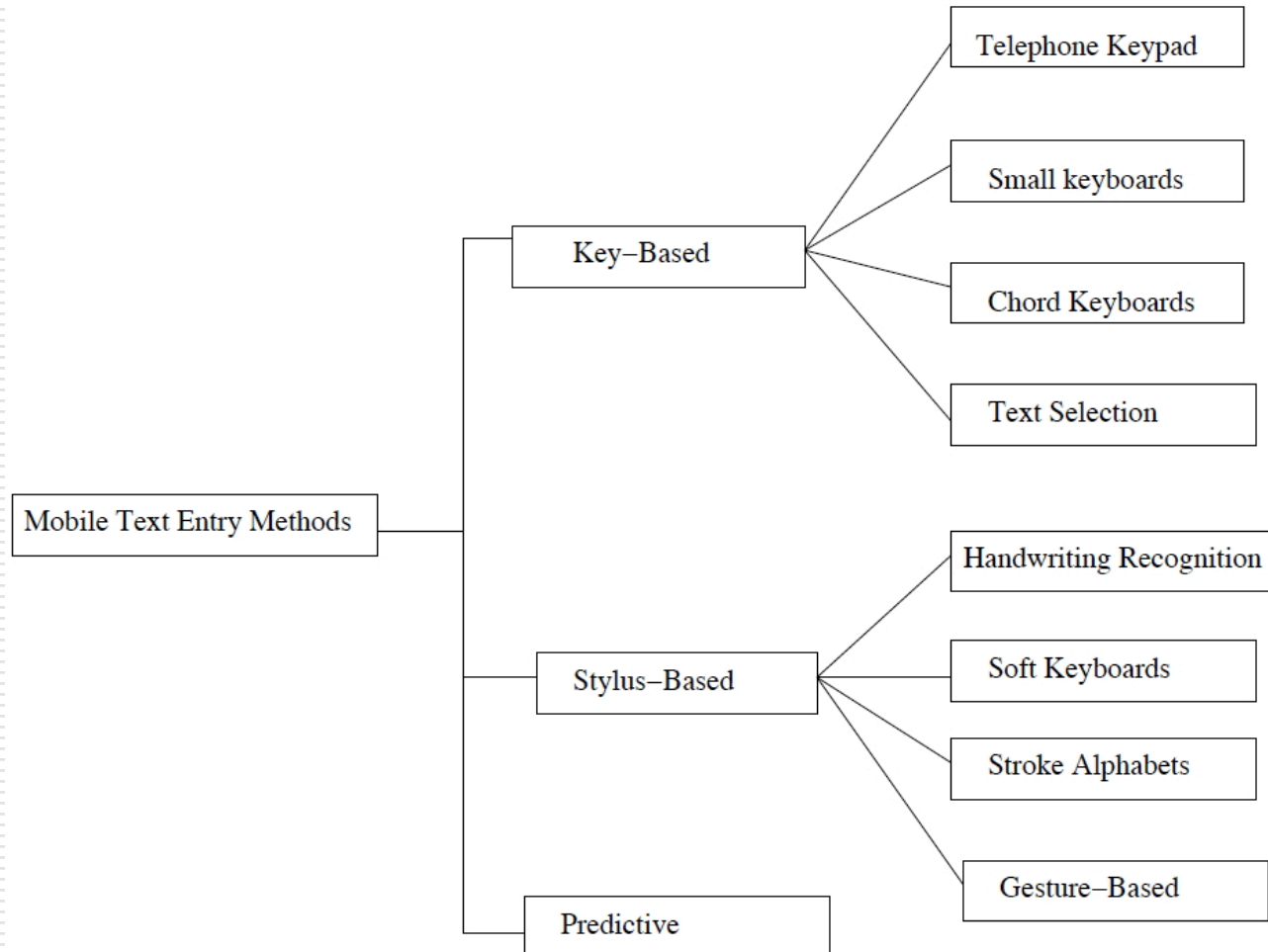
- SMS
- Comments for chatting/tweeting
- Labels for objects
- Entering names for things (e.g., restaurants)

## □ Numbers

- Phone numbers
- Coordinates (e.g., immersive modeling)



# Text Input Classification



# Methods for Input

- Chorded keyboards
  - Twiddler2 (<http://www.handykey.com/>)



# Chorded Keyboards

- FrogPad (<http://www.frogpad.com/>)
  - Wired
  - Bluetooth



# Alternate Keyboards

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- Belkin Nostromo SpeedPad
  - Programmable key bindings



# Mobile Devices: Hard Keyboards

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- Most widely used mobile text interface?





# Mobile Devices: Hard Keyboards



BlackBerry



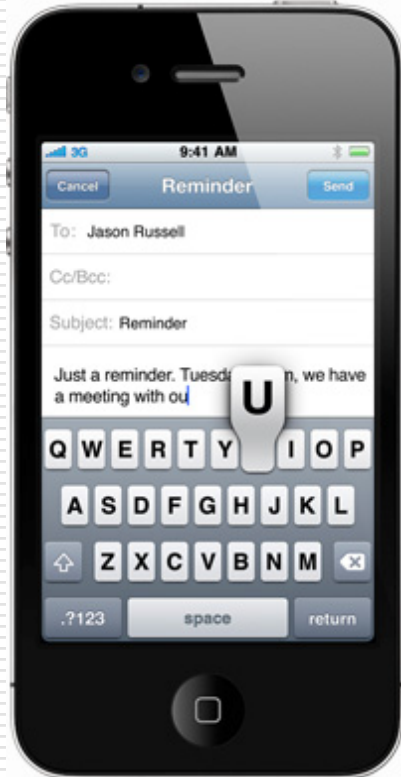
Palm Centro



Motorola Droid

<http://vimeo.com/8869525>

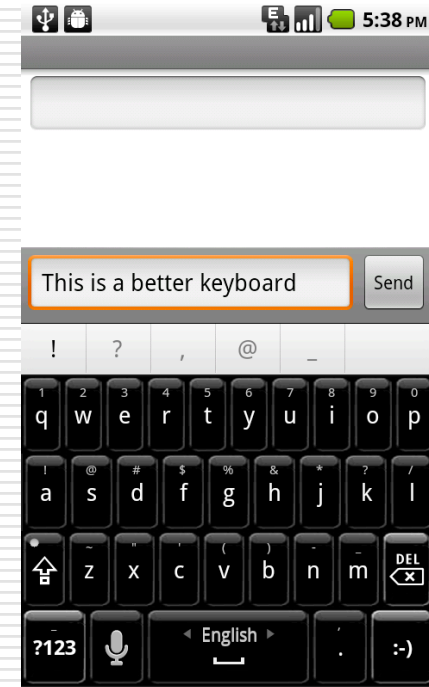
# Mobile Devices: Soft Keyboards



iPhone 4  
(show Web)



iPad

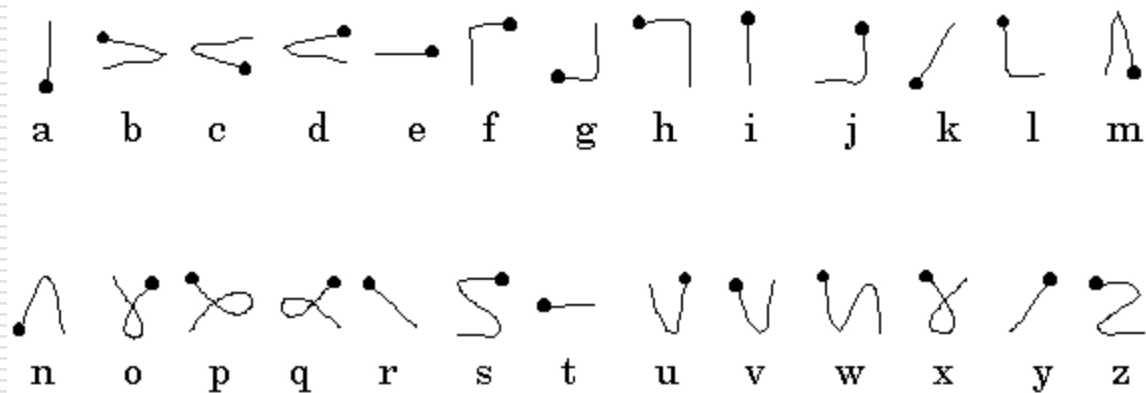


BetterKeyboard  
for Android  
(show clip)  
(show Web)

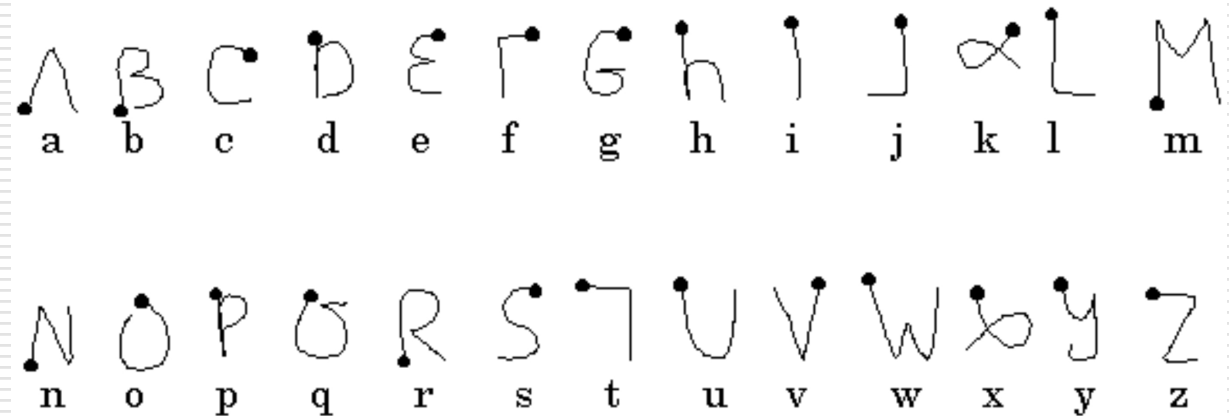
<http://vimeo.com/8869525>

# Stroke Alphabets

□ Used for stylus input (e.g., Palm)



Unistroke



Graffiti



# Stroke Alphabets (cont.)



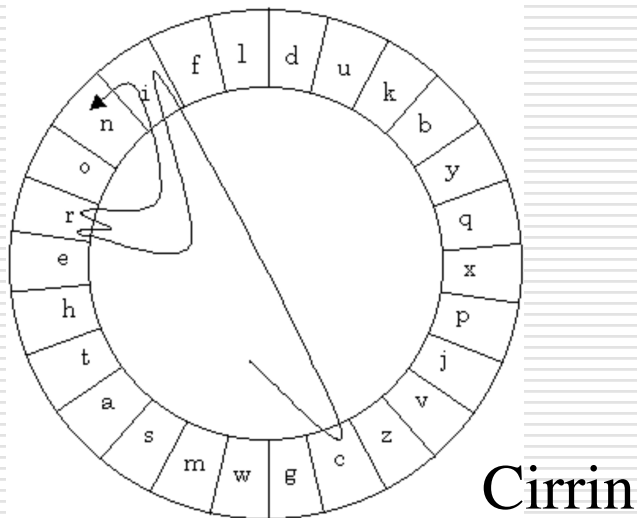
MDTIM

Jot

# Stroke Alphabets (cont.)

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- Stoke on top of keyboard
  - Swype (show clip)
  - SlideIt (show clip)
  
- Alternative strokes



# Virtual Keyboards

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- My Work
  - (show clip)
  
- Jian Chen & Doug Bowman
  - (show clip)

# Other Methods

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- Voice
  - Android voice control
  
- Gestures
  - ASL