



TOUCH/GESTURES









TOUCH/GESTURES





11.6"

12.5"

Lenovo IdeaTab Lynx

Lenovo ThinkPad Twist



5



11.6"

12.5"

13.3"









12.5"



Dell XPS 12





Windows[®] 8

40M licenses sold Dec 2012

6% Surface share of Windows 8 devices

6% of notebook sales are hybrids



10



11.6"

12.5"

13.3"

11





TOUCH/GESTURES





TOUCH/GESTURES





20"

Sony Tap 20



















21.5"

27.5"

Apple iMac

Apple iMac









Source: http://live.leapmotion.com/about.html

Will be bundled with Asus computers.







TOUCH/GESTURES





TOUCH/GESTURES





TOUCH/GESTURES



TOUCH MATTERS

How do we design for it?





TOUCH



PRINCIPLES

- Content is the UI (the action)
- Enable direct manipulation of objects & content
- Reduce the distance as much as possible between user & content
- Reduce visuals that are not content
- Guessable, predictable, physical

GUI Paradigm



WINDOWS



MENUS



Touch Paradigm

Content Direct Manipulation Gestures Feedback





19px

Paste Options
 Keep source formatting Match destination formatting Keep text only
Set default paste
OK Cancel

23px

Paste Options
Keep source formatting
Match destination formatting
Keep text only
Set default paste
OK Cancel

Touch Target Sizes



TOUCHABLE

minimum control size (6mm)

5pX minimum spacing between (2mm)

40×40px <

TOUCH-ENABLED

commonly used control size (10mm)



Target Size Influences Error Rate

% OF MISSED TAPS











5mm minimum control size

7mm recommended size

10mm common controls size

TOUCH FIRST



7mm minimum control size

10mm recommended size

10mm+ common, errors, edge size

2mm minimum spacing between



Keyboard/Mouse First







Keyboard/Mouse First

The quick brown fox jumps over the lazy dog.

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The quick brown fox jumps over the lazy dog.

TOUCH	MODE	(CONT	EXT)
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Touch First

TOUCH OPTIMIZED

Mail		Jetsetter It's a Shore Thing	✓ 5/29/12
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Hotmail	2	Tim Epling Contact	0
Exchange	1	Tim Epling Contact	0
Inbox 2		Lisa Epling RE: Madeline's b'day party	5/28/12
Drafts Sent items		Lisa Epling RE: Madeline's b'day party	5/28/12
Outbox		Relationship Church Care Ministry Project	5/28/12
Junk		auto-confirm@amazon.com Your Order with Amazon.com	✓ 5/27/12
Deleted items		Lisa Epling RE: Madeline's b'day party	5/27/12
			3
	Move	Feedback Pin to Start Mark unread	Sync


Redesigning for Touch



Adapt existing desktop application to be touchoptimized



"Having a laptop with touch is having a laptop with an extra gear."





Source: http://intel.ly/KIJ4Lv





New Update

Map

Weather

People

Luke Wroblewski Ended up staying in KS and saw some

Topeka KS.



Oswego Chasers 290 followers 98 updates

92/68 according to our measurements just west of Alva, OK. We're keeping an eye on some distant Cu to our west.







Oswego Chasers

Chim Hansen Based on our forecast team's research yesterday, it looks like south central Nebraska is a likely target.

nice wall clouds! Spending the night in



+

3

12



Benny LaHonda

some nice thunderstorms have developed north of dallas and tarrant counties expect heavy rains downburst winds and dangerous



Jenny Willston

We're considering going back into chase mode to check out a storm near St Louis MO. Mother nature just doesn't want this chase to be over.



Oswego Chasers

We didn't luck out with daytime convection



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New Update	
Location	
Lat E 🕶 -82 17 28.4208 🚔	
Long N 💙 -102 11 41.3658 🚔	
Date & Time Small Targets	
Date 07/20/2012	
Add Picture Add Video	
F-Scale V	
Damage	
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Conditions	
Text, not Touch Optimized	
0 Notifications	41 Working online 😜



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"But I have lots to fit on the screen..."

- Touch forces simplification & reduction
- Decide which actions are most important
- What stays on the screen, what goes away
- Big targets work for mouse, small targets don't work for touch



TOUCH TARGETS

- Use appropriately sized targets
- Maintain spacing between targets
- Consider touch optimized controls
- Embrace simplification



Тар

Briefly touch surface with fingertip.



Double Tap

Rapidly touch surface twice with fingertip.





Source: http://www.lukew.com/touch

Swipe/Drag

Move fingertip over surface without losing contact.



Flick

Quickly brush surface with fingertip.





Pinch

Touch surface with two fingers and bring them closer together.



Spread

Touch surface with two fingers and move them apart.





Source: http://www.lukew.com/touch

Press

Touch surface for extended period of time.

Press & Tap

Press surface with one finger and briefly touch surface with second finger.

"Avoid [these] because they are often triggered accidentally and difficult to time correctly."

Press surface with one finger and move second finger over surface without losing contact.





Source: http://www.lukew.com/touch Source: http://bit.ly/yJ3N2d

Rotate

Touch surface with two fingers and move them in a clockwise or counterclockwise direction.









OBJECT-RELATED	ACTIONS	
user action	gesture	description
Delete	drag (across item or off-screen)	Move fingertip over surface without losing contact
Move	drag (and drop)	Move fingertip over surface without losing contact
	OR OR OR OR OR	Move two to five fingertips over surface without losing contact









We didn't luck out with daytime convection

Scroll Bar Control

Tweester

New Update

Мар

Weather

People

Luke Wroblewski





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Jenny Willston





Oswego Chasers

We didn't luck out with daytime convection yesterday, but we did get some nice lightning pictures on our way back to Wichita last night.





Allow any number of fingers

- People often touch with more than one finger
- Touch interactions shouldn't change radically based on the number of fingers



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New Update

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Feed	
New Update	+
Map	3
People	12

SUNY

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Gestures as keyboard shortcuts in touch interfaces

- Consider gesture-based access to common actions or information
- Maintain non-gesture support









Provide feedback

- Immediate visual feedback for touch gestures
- Change color, size, or move interactive elements









Content follows fingers

• Elements that can be moved or dragged should follow touch gestures

Browsing content with touch

• Use large canvases that support panning & zoom





"But how will anyone know these gesturebased interactions are possible?"



Discovering Gestures



- 1. Removal of Options
- 2. Content Teases
- 3. Animation Cues
- 4. Just-in-time Education

































Big screens invite big gestures

- Let people use entire screen as control
- Swipe and paw instead of precise tapping


TOUCH GESTURES

- Don't be afraid to experiment
- But be aware of discoverability issues
- Use affordances (teases, just in time education) appropriately





