

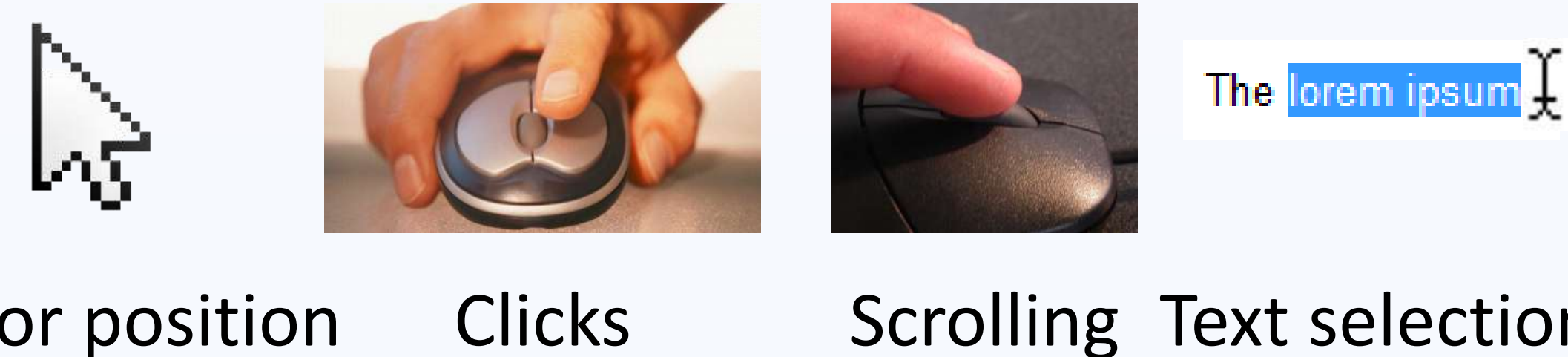
Large-Scale Analysis of Individual and Task Differences in Search Result Page Examination Strategies

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1. Understanding how Web searchers interact with search results

- more detailed signals than just clicks
- more scalable method than gaze tracking

2. Log cursor positions and user interactions on the search results page in detail



3. Automatic clustering by user

- 22k users w/ > 20 queries ; > 80 features for each query

4. User cluster descriptions

- Cursor heat maps for user clusters based on non-navigational tasks



Economic

- > 75% of users
- > Little time on SERP
- > Focused, fast mouse movements
- > Click quickly
- > <1 result click per query on avg



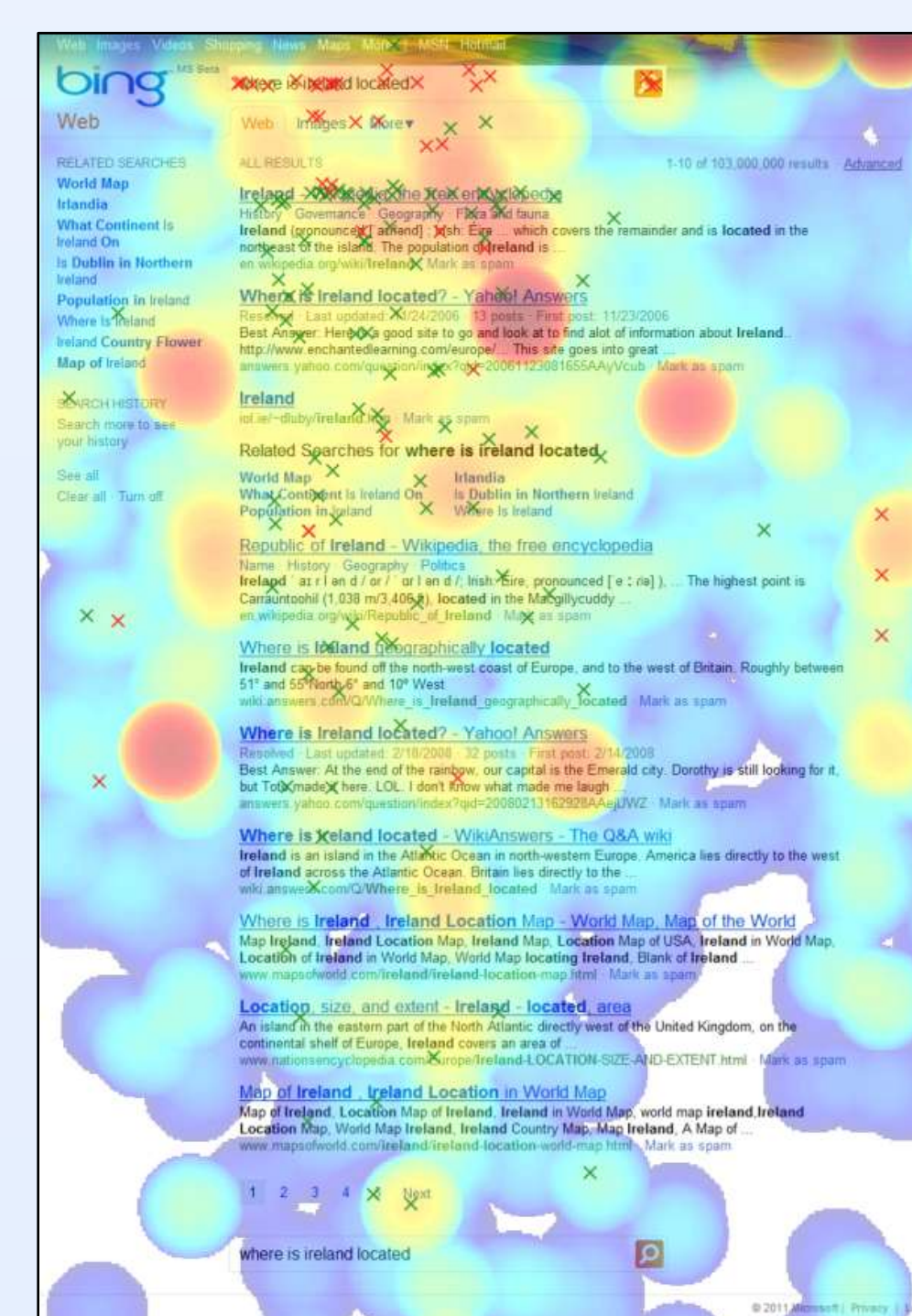
Exhaustive-Active

- > 16% of users
- > Thoroughly examine SERP
- > Little cursor idle time
- > Click a lot
- > Abandon rarely



Exhaustive-Passive

- > 9% of users
- > Spend longest time on SERP
- > Cursor often idle for a long time
- > Click a lot
- > Abandon often



Descriptive Features for User Clusters (Non-Navigational Tasks)

		Cluster	Exhaustive-Passive	Exhaustive-Active	Economic
		Number of Users	232	408	1905
Feature					
Time			Long time on SERP		Short time on SERP
	TrailTime		446.00	156.14	28.03
Clicks			Many R clicks		Few R clicks
	HyperlinkResultClickCount		1.10	1.30	0.85
			Many NH clicks		Few NH clicks
	NonHyperlinkClickCount		0.70	0.85	0.40
			Late first R click		Early first R click
	TimeToFirstResultClick		88.74	144.56	21.05
			Less abandons		More abandons
	NoClick		0.17	0.13	0.20
Re-Query			More search box		Less search box
	ClickInSearchBox		0.08	0.06	0.04
Scrolling			More scrolls		Less scrolls
	Scroll		0.19	0.21	0.13
Cursor			More hover results		Less hover results
	FractionTopTenHovered		0.28	0.29	0.22
			Slow mouse move		Fast mouse move
	TrailSpeed		130.70	118.31	209.11
			Short mouse move		Long mouse move
	MedianMouseMovementDistance		83.75	80.34	94.79
			More reading w/ mouse		Less reading w/ mouse
	Reading		0.05	0.05	0.04
		More cursor idle		Less cursor idle	
	Cursor Idle		34.40	9.68	2.21

Task Differences

Feature		Task Type	
		Nav.	Non-nav.
Clicks	TrailTime (secs)	49.59	62.93
	HyperlinkResultClickCount	0.91	1.02
	NonHyperlinkClickCount	0.49	0.57
	TimeToFirstResultClick (secs)	21.24	29.31
	NoClick	0.13	0.16
ClickInSearchBox		0.11	0.16
Scroll		0.12	0.17
Cursor	FractionTopTenHovered	0.19	0.22
	TrailSpeed (px/second)	180.21	167.43
	MovementDistance (px/move)	80.92	82.94
	Reading	0.04	0.05
	Cursor Idle (secs)	4.31	3.74

Implications

- > Improved click prediction
- > Improved search result ranking
- > Tailored search experiences

Make it efficient!
Show as much info as possible!
Make it entertaining?