Debugging & Optimizing The User Experience

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Data Meets Experience

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Clarity
“analytics that puts users first”
availability ≠ usability
You expect this ≠ User sees this
Solving experience mysteries
The Mystery: Reddit Problem Report

Seeing weird purple ads with Bing?
Hi when I am searching using Bing, I receive really distracting bold bright purple ads
Finding purple ads

Search for sessions where:

- Ads are present
- Ads background color is not default
Find a clue in some examples

Mystery solved:
Capturing the real experience
Experience As Data
Modular Framework to Instrument the Experience

Layout → Viewport → Performance → Pointer → Network → Error → event batching → Lzstring compression → JSON Packet (XHR) → { "json": 1 }

https://github.com/microsoft/clarity-js
But watching every user session is no fun
Clarity Analytics

Log Service

Clarity Parser

Feature Extraction

Normalize Data

Insights Engine

Above Fold Time
Attention Score
Attributed Reading Time

Scientific Details:
- Scroll Distance
- Resize Count
- Layout Rectangles
- Performance Timings
- Viewport Resolution
- Click Count
- Image Count
- Touch Interactions

Applications:
- Anomalies
- Clustering
- Classification
- Fraud Detection
- Rage Clicks
- Malware
- Similar Sessions
Finding the unexpected
Detecting Layout Anomalies

<table>
<thead>
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<th>Top</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
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<td>18</td>
<td>22</td>
<td>40</td>
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<tr>
<td>48</td>
<td>18</td>
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</tr>
<tr>
<td>48</td>
<td>18</td>
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</tr>
</tbody>
</table>
Finding Unexpected Content on Bing

Bing layout anomalies:

- External ads displacing results
- Graphic ads blocking viewport
- Scripts hijacking search box
How many users are impacted?
Debugging Malware

Clarity observations:

• 5%+ users were impacted
• Pages loaded 50% slower
• 10X more script errors
Fixing Malware
Helps Our Users and Business

Product improvements:

• 10% increase in user engagement
• Multi-million $$ in revenue
• 50% faster page views

One of the most successful experiments in the Bing history.
Understanding metrics
Food Blog Basics

- Blog posts on recipes are long
- Bloggers are passionate and motivated
- Readers are in a hurry to cook the dish
Understanding User Abandonment

Clarity observations

- Users abandon before seeing the recipe
- Scrolling patterns (up & down) reflect confusion
- Dwell time is less than 30 seconds
Finding Similar Abandoned Sessions

Example

Scroll down and up

Scroll down
Finding Coverage Through Similar Sessions

Stats:
- 30% users
- Mobile > Desktop
- Impacts new users
Fixing User Abandonment

Product improvements:
• Added a “Jump to Recipe” button
• Abandonment goes down from 30% → 15%
• Boost in organic search rankings
User Delight

I came across a recipe once that had a little link at the top of the life story to take you directly to the recipe and I've never wanted to hug a stranger more in my life than I did that person.
Capturing common mistakes
The confused clicker

Users click on things that are not links.
Confused Clicks on Bing

Bad: Why on text that’s not a link?

Good: Classic F-Shape heatmap pattern.
Take action for your user experience
Improving your user experience

• Usability means more than availability

• Capture data about your user’s experience

• Use that data to debug and optimize your experience.

• Want to learn more?
  • Try it: https://www.clarity.ms
  • Contribute: www.github.com/Microsoft/clarity-js
Thank you