do you see what I see?

Andrew Clay Shafer
Our mission:

to transform how the world builds software
Scientific Visualization
What, How, Why
What & How

https://flowingdata.com/
Why, Why, Why
Software is Eating the World
BS

Software just all of a sudden got hungry?
super computers in every pocket connected to each other and all human knowledge by high speed networks
31 billion devices & 4 billion people connected to the internet by 2020

15 Billion connected devices

5 Billion connected devices

BMW offer full in-car internet

Launch of Google TV and best-seller Freebox Revolution

Tablets take off with the launch of Apple iPad

Sales of laptops overtake desktop PCs for the first time
what is disrupting everything are
the experiences being created
every aspect of performance and experience that can be optimized will be
optimizing the performance and delivery of software with software
why visualization?
2/3 of the brain is "involved" in vision

–involved in “air quotes”
neurons devoted to visual processing take up about **30 percent** of the cortex, as compared with 8 percent for touch and just 3 percent for hearing.
‘visual’ is a big part of the average human experience
more why

Information Radiation & Inquiry
detection and determination
almost everyone has data
not everyone has insight
almost no one takes action
How the Circle Line rogue train was caught with data

But the incidents seemed to occur at random...
Marey Chart of One Train
It seemed almost like there was a “trail of destruction”.

Could it be something that was not in our dataset that caused the incidents?
Time of clustered incidents strongly implies that the interference could be linked to a single train.
we decided to identify the train the old school way—by reviewing video records of trains arriving at and leaving each station at the times of the incidents.
unemotional mystery solved
software visualization of software
(define (factorial n)
  (if (= n 1)
    1
    (* n (factorial (- n 1))))
)
in the large
in the small
This experiment is completed and is no longer reporting any new data. If you have not done so already, you can update your page to reflect a winning combination.

**Variations (2)**

<table>
<thead>
<tr>
<th>Variation</th>
<th>Status</th>
<th>Est. conv. rate</th>
<th>Chance to Beat Orig.</th>
<th>Observed Improvement</th>
<th>Conv./Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>Enabled</td>
<td>19.6% ± 3.6%</td>
<td>0%</td>
<td>-</td>
<td>47 / 240</td>
</tr>
<tr>
<td>Variation 1</td>
<td>Enabled</td>
<td>15.9% ± 3.3%</td>
<td>-14.7%</td>
<td>-18.7%</td>
<td>39 / 245</td>
</tr>
</tbody>
</table>

No high-confidence winner found. Learn more.
post facto analysis

real time strategy
we are surrounded by data gold mines about our software and systems

the software we build

the services we deploy

the people who use our software

ourselves
Shafer’s Conjecture: we posses more than enough unambiguous information about our software and systems to make impactful positive changes with little effort that we don’t see clearly
learning hasn’t happened until behaviors have changed
help each other see
Thank You

@littleidea