

Measurēyes

Data-driven approach to
optimizing storefronts and window
displays

Globant Hackathon
The Future of Retail 2018

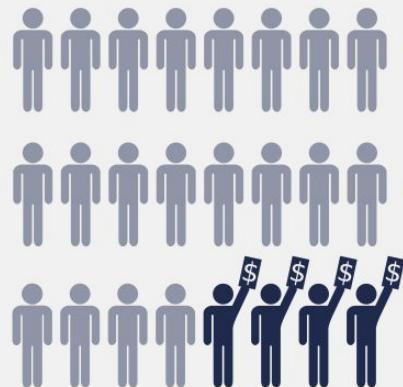




A/B Testing -- The Digital Paradigm

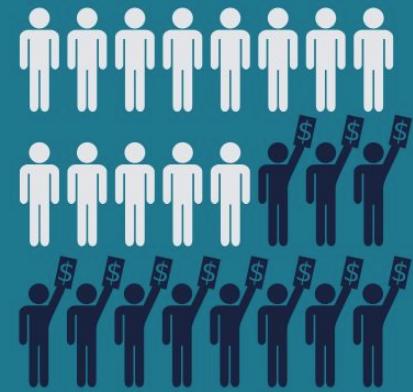
Original Content

16.67%
Conversion Rate



Alternative Content

45.83%
Conversion Rate



“Click-Thru Rate (CTR)”

“Conversion Rate”

What about “landing pages” in the physical world?



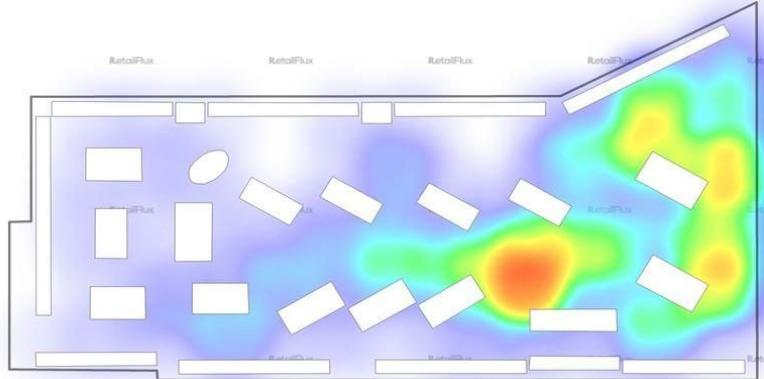
540% ↑
Sales
attributable to
window displays

According to study by Russell R. Mueller
<https://www.shopify.com/retail/6-visual-merchandising-tricks-to-boost-your-sales-per-square-foot>

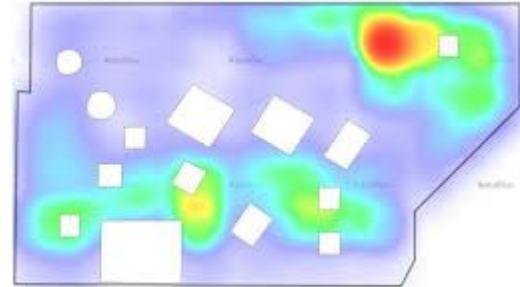




Market Competition

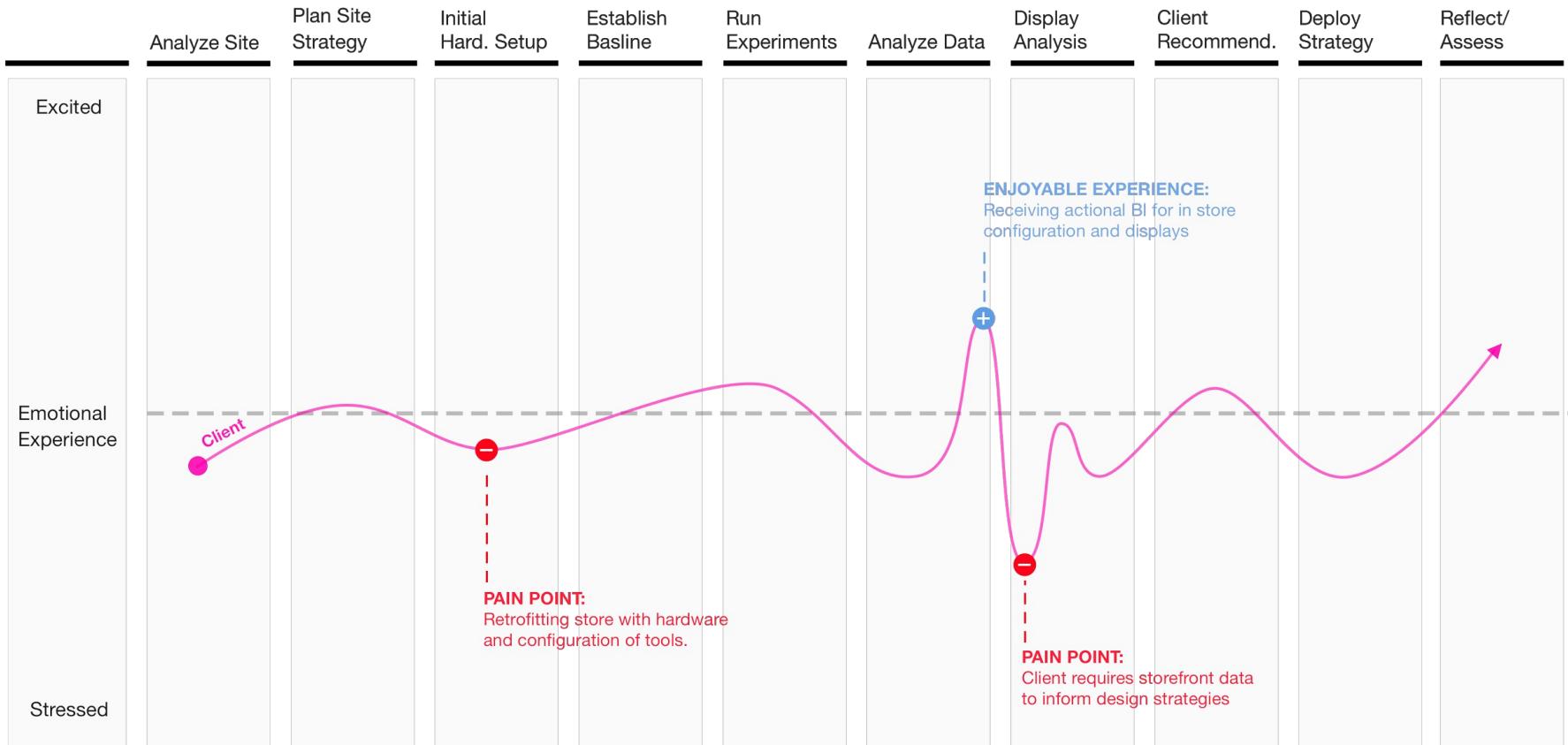


RetailNext

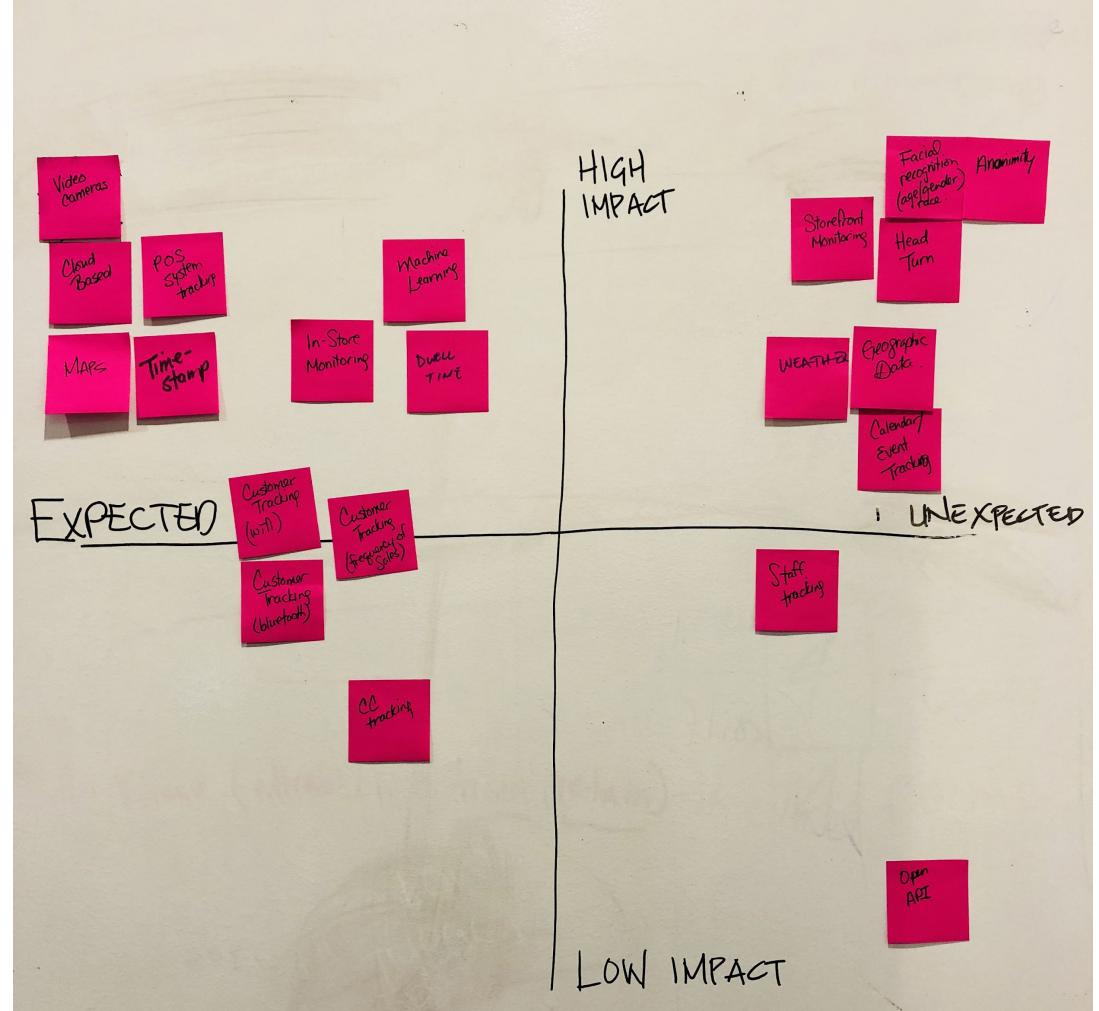


Competitive Analysis

	Storefront Monitoring	In-Store Monitoring	Head Turn	Dwell Time	Weather Tracking	Calendar/Event Tracking	Machine Learning	Cloud-based	POS System Tracking	Customer tracking (Bluetooth)	Customer tracking (WiFi)	Customer tracking (freq. & sales)	Anonymity
Our Team	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓
Priam Skylabs	✗	✓	✗	✓	✗	✗	✓	✓	✗	✗	✗	✗	✓
RetailNext	✗	✓	✗	✗	✓	✗	✗	✗	✓	✓	✓	✓	✗
Shopper Trak	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Brickstream	✗	✓	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗



Feature Prioritization



Product without -vs- with Offer (Gap Inc.)

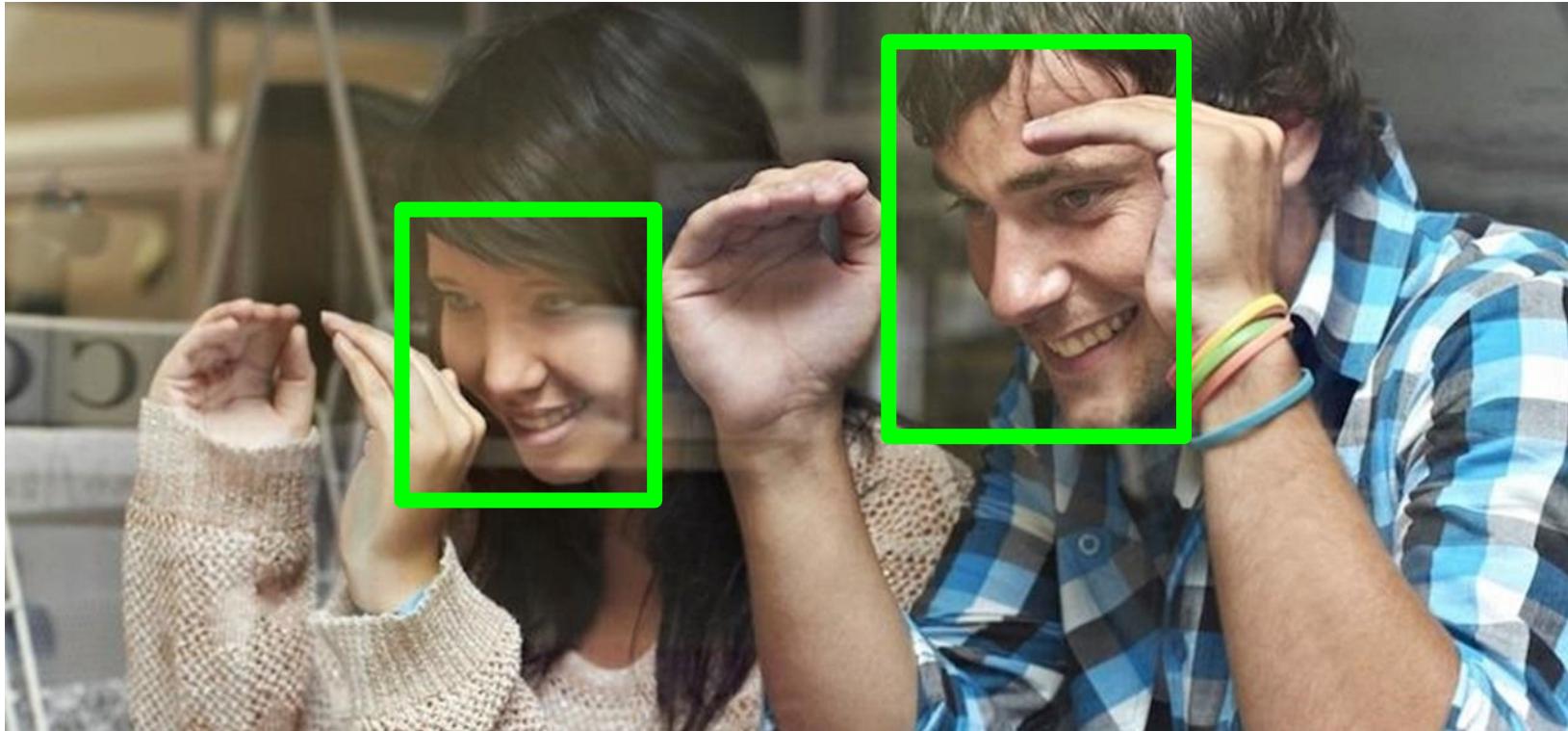


A



B

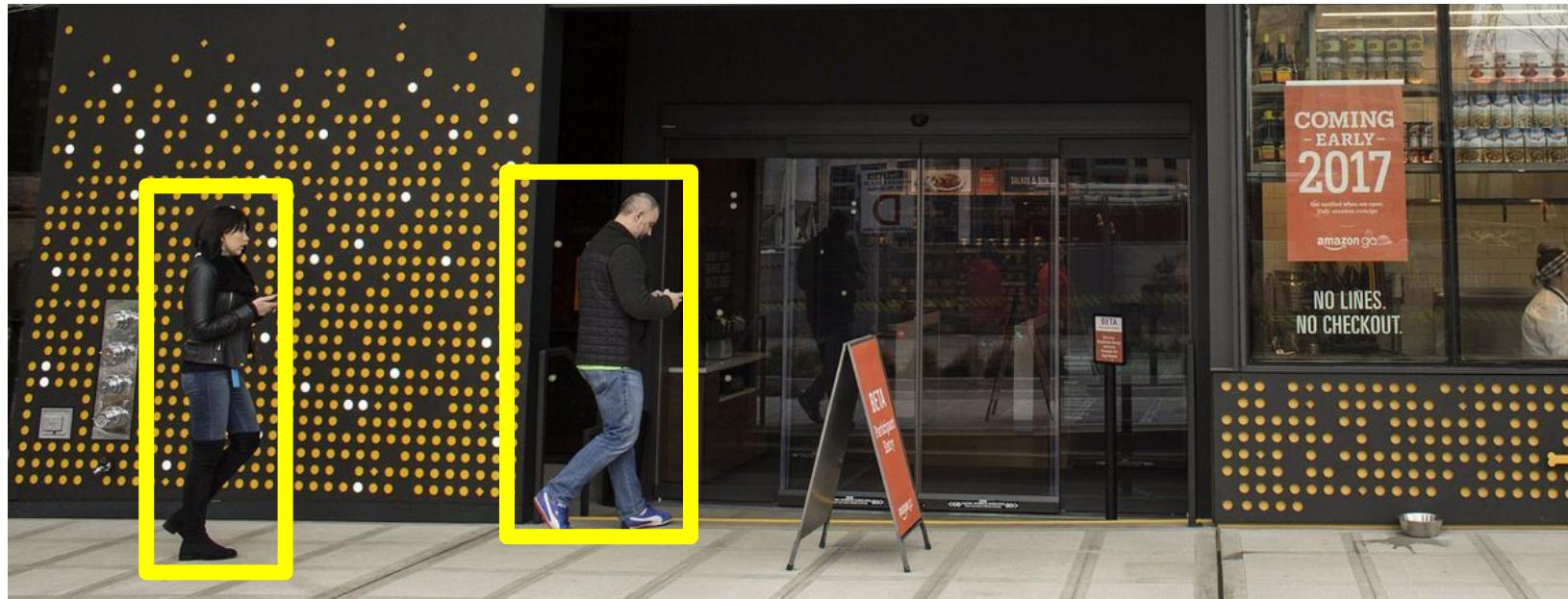
Measurēyēs





Computer Vision

1. Person detection → Foot Traffic Count
2. Face detection → Head Turn Count



Facial Detection and Analysis

Demographic Data

Age Range 29-45
Gender: Male 96.5%

Facial Landmarks

EyeLeft, EyeRight, Nose
RightPupil, LeftPupil
MouthRight, LeftEyeBrowUp
Bounding Box

Image Quality

Brightness 23.6%
Sharpness 99.9%

Emotions

Happy 83.8%
Surprised 0.65%

General Attributes

Smile:True 23.6%
EyesOpen:True 99.8%
Beard:True 99.5%
Mustache:True 99.9%

Facial Pose

Pitch 1.446
Roll 5.725
Yaw 4.383



Data Processing

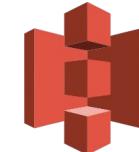
1. Collect video feed
2. Facial detection
3. Convert to database
4. Store in S3
5. Combine with weather, store POS, location, events, and demographic data.
6. Query with Amazon Athena
7. Display results on dashboard
8. Serve recommendations



Video Streaming Data



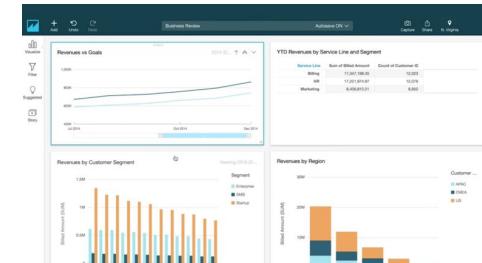
AWS Rekognition



amazon
S3



Amazon Athena



Custom Dashboard



Processed Video Streaming Data

Head-Turns (HT)

timestamp	loc_id	cust_id	head_turn	dwell	M/F	age	race
8/25/2018 10:34:12 AM	436	12849267	0	0	1	2	4
8/25/2018 10:34:13 AM	436	13060294	0	0	1	1	1
8/25/2018 10:34:14 AM	436	13378106	0	0	0	2	2
8/25/2018 10:34:15 AM	436	13316538	0	0	1	2	0
8/25/2018 10:34:16 AM	436	12886586	1	28	0	2	0
8/25/2018 10:34:17 AM	436	12764063	0	0	1	1	2
8/25/2018 10:34:18 AM	436	12877506	0	0	1	2	1
8/25/2018 10:34:19 AM	436	13299370	0	0	1	1	2
8/25/2018 10:34:20 AM	436	13044637	1	11	1	1	0
8/25/2018 10:34:22 AM	436	12985366	0	0	0	1	3
8/25/2018 10:34:23 AM	436	13206138	0	0	0	2	1
8/25/2018 10:34:24 AM	436	13184905	1	7	0	0	1
8/25/2018 10:34:25 AM	436	12518112	0	0	1	2	0
8/25/2018 10:34:26 AM	436	13440632	0	0	1	2	2
8/25/2018 10:34:27 AM	436	12587553	0	0	1	2	2
8/25/2018 10:34:29 AM	436	12841259	0	0	0	1	0
8/25/2018 10:34:31 AM	436	13254603	0	0	0	1	2
8/25/2018 10:34:32 AM	436	12763029	1	2	1	2	4

Conversions

timestamp	loc_id	cust_id	head_turn	units_sold
8/25/2018 10:34:12 AM	436	12849267	0	4
8/25/2018 10:34:13 AM	436	13060294	0	1
8/25/2018 10:34:14 AM	436	13378106	0	6
8/25/2018 10:34:15 AM	436	13316538	0	2
8/25/2018 10:34:16 AM	436	12886586	0	6
8/25/2018 10:34:17 AM	436	12764063	0	3
8/25/2018 10:34:18 AM	436	12877506	0	5
8/25/2018 10:34:19 AM	436	13299370	0	2
8/25/2018 10:34:20 AM	436	13044637	0	3
8/25/2018 10:34:22 AM	436	12985366	0	6
8/25/2018 10:34:23 AM	436	13206138	0	5
8/25/2018 10:34:24 AM	436	13184905	1	6
8/25/2018 10:34:25 AM	436	12518112	0	4
8/25/2018 10:34:26 AM	436	13440632	0	2
8/25/2018 10:34:27 AM	436	12587553	0	6
8/25/2018 10:34:29 AM	436	12841259	0	2
8/25/2018 10:34:31 AM	436	13254603	0	5



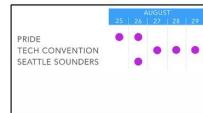
Measurēyes



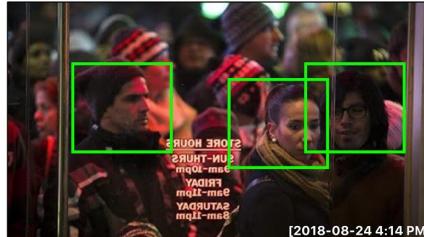
Live video feed Seattle



Weather forecast



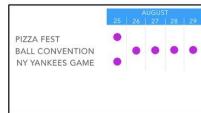
Events nearby



Live video feed New York City



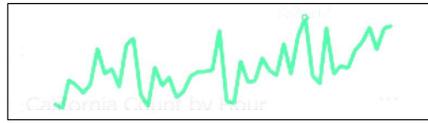
Weather forecast



Events nearby



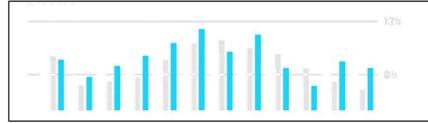
Deployments



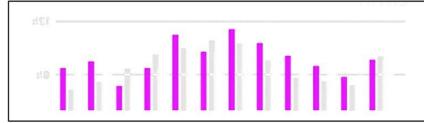
Head Turn Rate



Head Turn Rate



Foot Traffic



Foot Traffic



Average HTR



Average HTR

Cities

Daily Rev.

Anaheim	40, 058
Boston	100, 201
Charleston	30, 000
Hartford	200, 895
Jacksonville	400, 568
Los Angeles	125, 002
New York	300, 123
Pittsburg	75, 990
San Antonio	60, 123
Washington	82, 567
Charleston	30, 000
Hartford	200, 895
Jacksonville	400, 568
Los Angeles	125, 002
New York	300, 123
Pittsburg	75, 990
San Antonio	60, 123

Advantages

1. Low cost hardware
2. Replicable technology
3. Applicable across many industries



NORDSTROM **GameStop**
POWER TO THE PLAYERS®



SEPHORA

The Sephora logo consists of a stylized black 'S' shape above the word "SEPHORA" in a bold, black, sans-serif font.

Thank you!



timestamp	gender	age	HT
now	M	adult	1

Bu Huang
Data Scientist

Mellisa Kaiser
UX Designer

Sunny Lee
UX Designer

Nguyen Ngo
Data Scientist

Steve Wald
Data Scientist



References

1. Google Face Detection Documentation.
<https://cloud.google.com/vision/docs/detecting-faces>
2. “How to measure impact of visual merchandising”.
<https://ixtenso.com/en/story/18621-how-to-measure-the-impact-of-your-visual-merchandising.html>
3. AWS: “Working with Stored Videos”:
<https://docs.aws.amazon.com/rekognition/latest/dg/video.html>
4. AWS Kinesis: <https://aws.amazon.com/kinesis/>
5. Keiran Dahl, “This Technology Makes It Possible to A/B Test Brick-and-Mortar Stores”:
<https://contently.com/strategist/2014/11/14/this-technology-makes-it-possible-to-ab-test-brick-and-mortar-stores/>