

# How Machine Learning improves the UX of 500K merchants



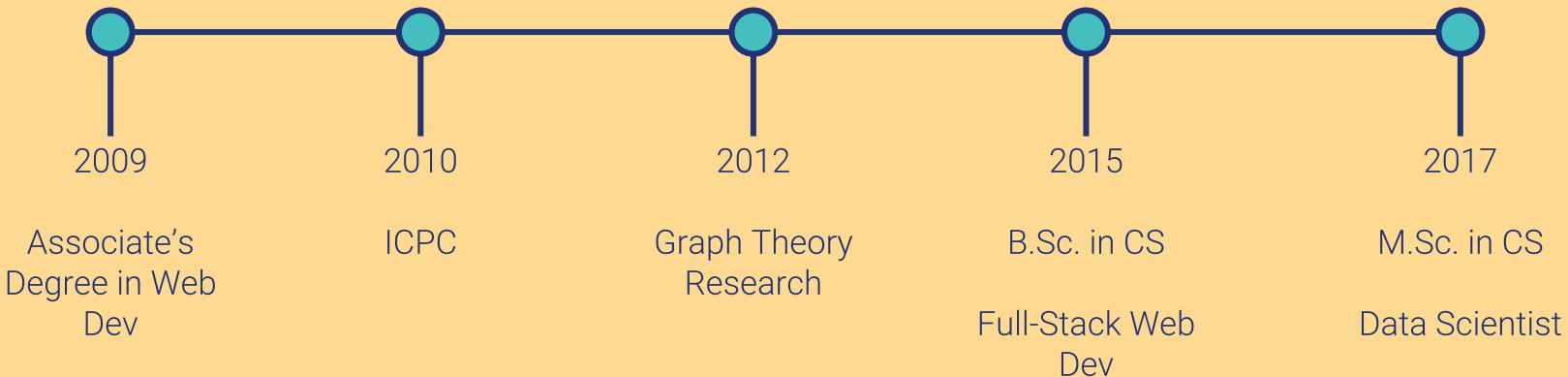
# How Data improves the UX of 600K merchants

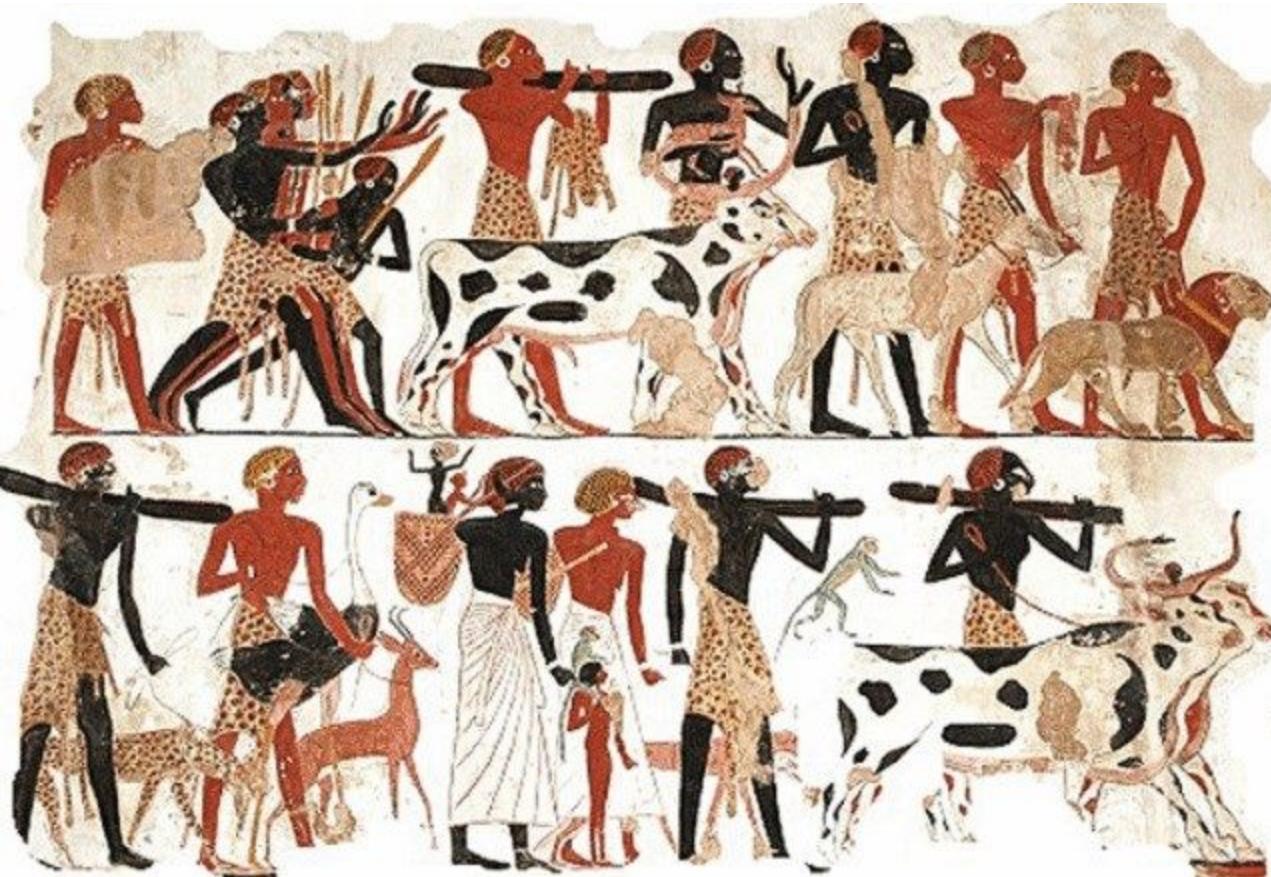




## Hi, I'm Breno!

- Data Scientist @Shopify
  - M.Sc. in ML
  - Web Dev for many years
  - Beanie collector (15 so far)
- 
- @brenolf\_ (Twitter)
  - @brenolf (GitHub)
  - //breno.io





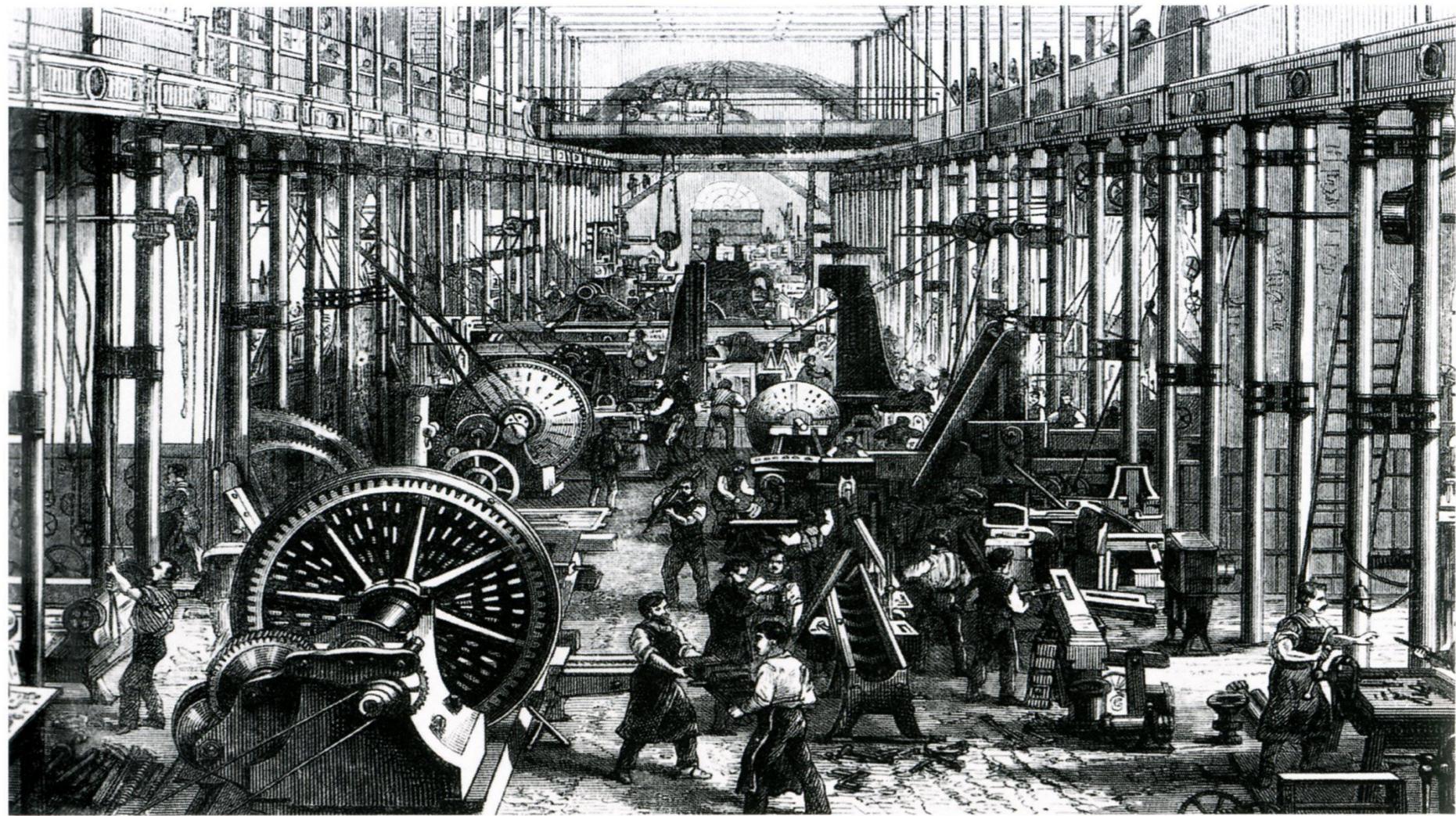




Currency helped scaling  
human production.



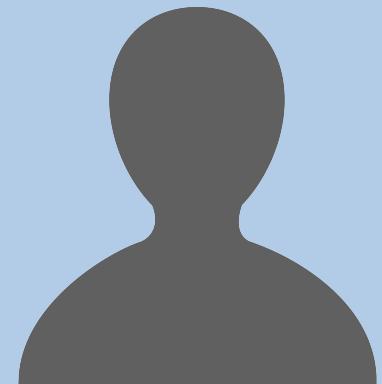








**Tech shaped the way  
we interact with  
products.**



## Shopify in numbers\*

175  
countries

600k  
merchants

\$1B  
over 2017 BFCM

\$55B  
total sales

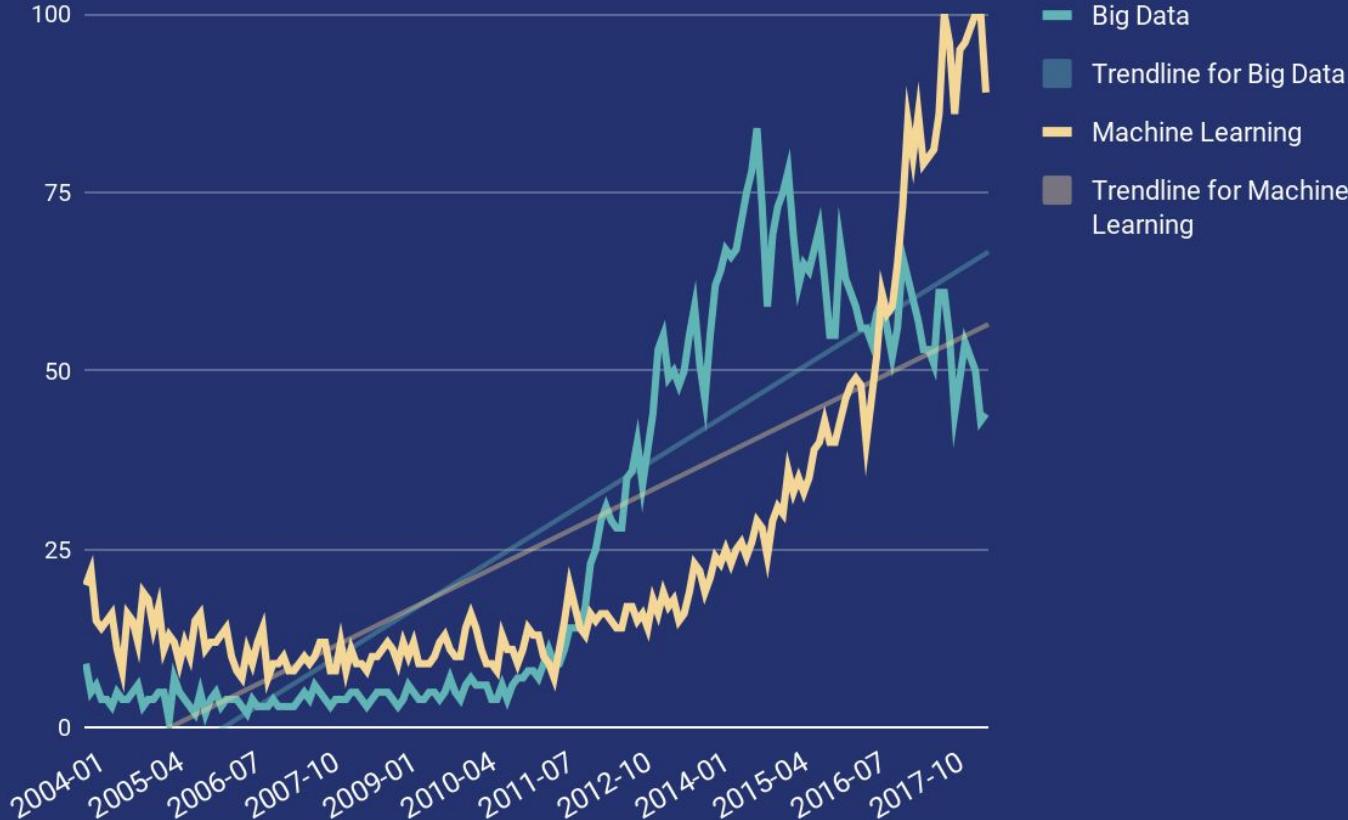
**So much DATA!**





**Almost everything  
now can be done  
by just asking**

# Searches on AI over time



**“A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P, if its performance at tasks in T, as measured by P, improves with experience E.”**

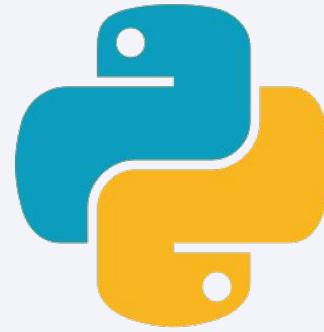
Tom Mitchell - Carnegie Mellon University

**...but experience requires  
information!**

**“Rule #1: Don’t be afraid to launch a product without machine learning.”**

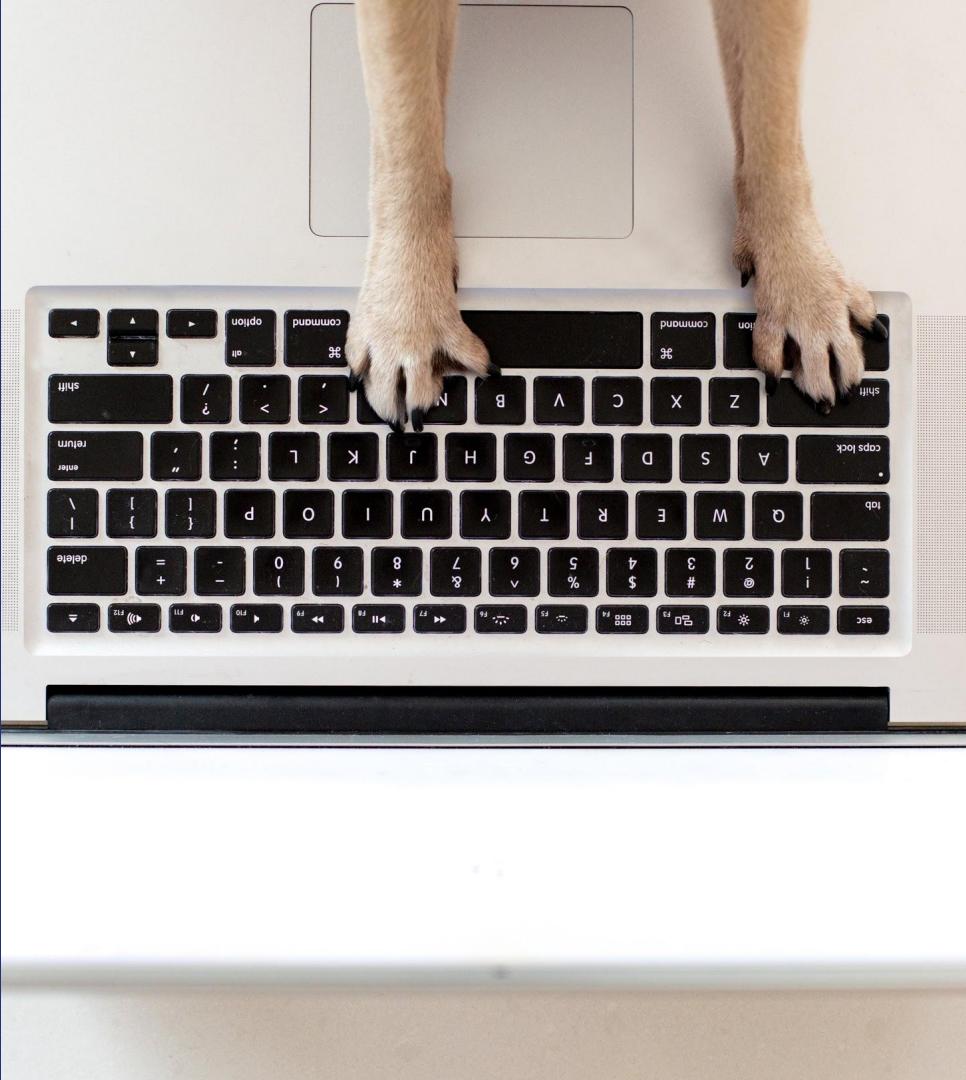
- Google’s Rules of Machine Learning

# **How we did it at Shopify**





# Dashboards



## Overview dashboard

Last year

compared to Jan 1 – Dec 31, 2016

### Total sales

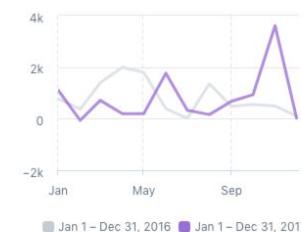
**\$9,621.72**

[View report](#)

↓0.9%

Point of Sale	\$6,119.63	↑ 14%
Draft Orders	\$1,834.68	↓ 47%
Online Store	\$884.41	↑ 327%
Shopify POS for Android	\$783.00	↑ 20%

### SALES OVER TIME



### Online store conversion rate

**1.06%**

↑256%

### CONVERSION FUNNEL

Added to cart	7.28%	↑ 157%
55 sessions		
Reached checkout	4.63%	↓ 9%
35 sessions		
Purchased	1.06%	↑ 256%
8 orders		

### Online store sessions

**756**

[View report](#)

↑13%

### Visitors

632

↑ 10%

### SESSIONS OVER TIME



### Returning customer rate

**47.06%**

↓0.7%

### CUSTOMERS



### Total orders

**97**

[View report](#)

↓20%

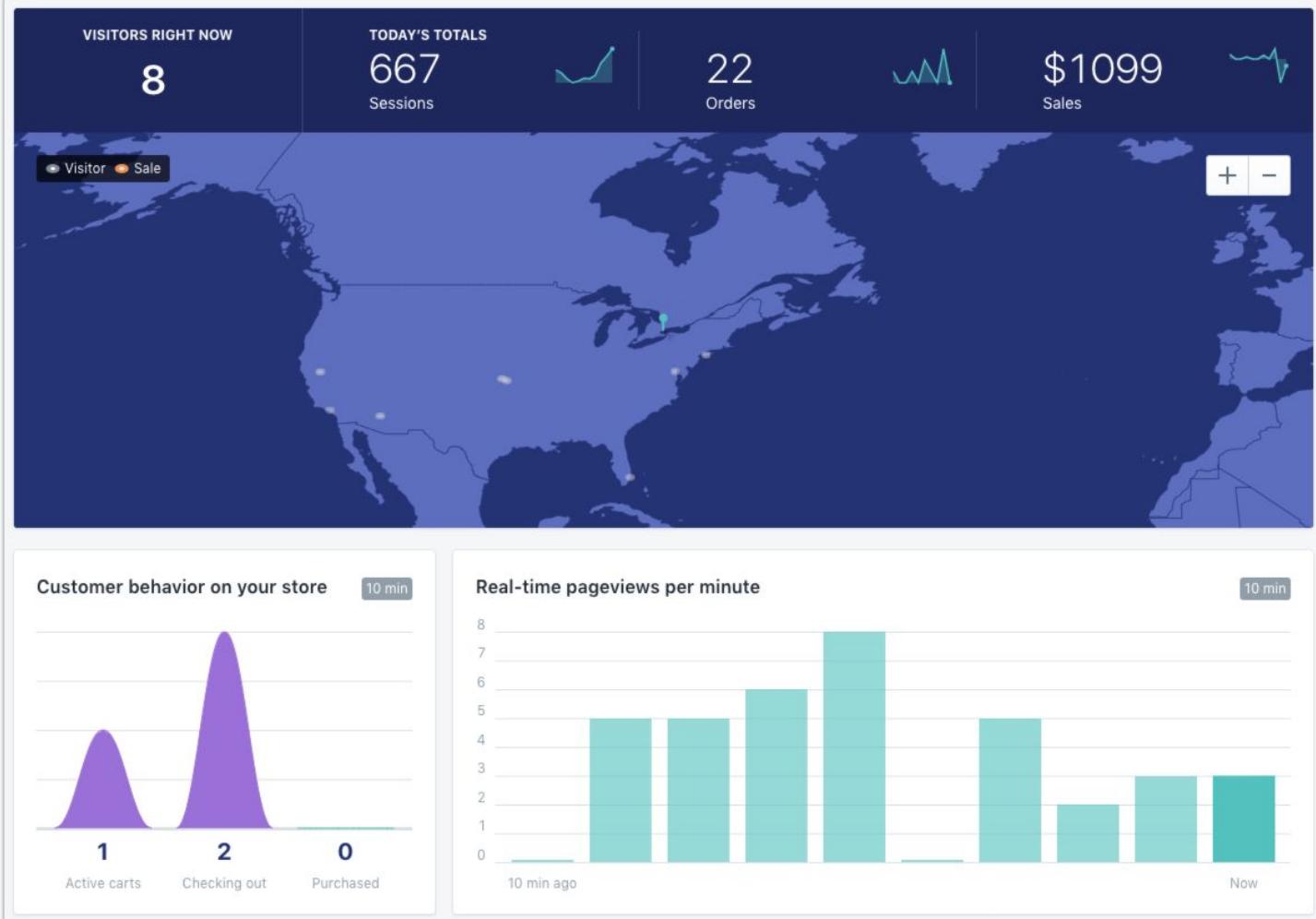
### ORDERS OVER TIME



### Online store sessions by location

[View report](#)

### Online store sessions by device type



# Shopify Capital



**Provide merchants timely  
access to affordable funding  
to help them grow**

A screenshot of a Shopify dashboard showing a promotional offer for Shopify Capital. The page features a sidebar with navigation links like Home, Orders, Products, Customers, Analytics, Discounts, Apps, Sales Channels (Online Store, Facebook), Settings, Open in services/internal, and Logged in as Shopify. The main content area has a dark blue header with a search bar and an A/B testing indicator. The central message is "You're eligible for funding from Shopify Capital" with a subtext about easy access to funding for business growth. To the right is a stylized illustration of a tree with green leaves and yellow flowers. Below this, a section titled "Choose the offer that's right for you" presents three funding options: \$210 (Recommended), \$270, and \$310, each with a "Request" button.

You're eligible for funding from Shopify Capital

Shopify Capital gives you easy access to funding so you can focus on growing your business.

Choose the offer that's right for you

Offer	Amount	Description
Recommended	\$210	You'll send 10% of your daily sales until you've remitted \$237. <a href="#">Request \$210</a>
	\$270	You'll send 13% of your daily sales until you've remitted \$305. <a href="#">Request \$270</a>
	\$310	You'll send 15% of your daily sales until you've remitted \$350. <a href="#">Request \$310</a>

# Merchants might use data as a trust score of their performance!



You're eligible for up to \$310 from Shopify Capital

Get ready for spring and summer with an advance from Shopify Capital. You can use the funds to buy more inventory, invest in marketing, or catch up on your accounts payable.

[View funding offers](#) [Remind me later](#)

[View funding offers](#) [Remind me later](#)

Shopify Capital is available to eligible merchants.

# Order Risk



### Risk Analysis

The following risks were assessed for this order:

- ✗ **Shopify has determined that this order has a high risk of fraud**
- ✗ **The customer used a web proxy when placing this order**
- ✓ The billing address street matches the file at the credit card company.
- ✓ The billing address zip or postal code matches.
- ✓ The Card Verification Value matches.

Orders that seem suspicious should be verified with the customer. [Learn more.](#)

This order was placed from IP address  
127.0.0.1.

# 2013

Risk Level

NO RISK      LOW      MEDIUM <b>HIGH</b>
<ul style="list-style-type: none"><li>✗ The billing street address is incorrect.</li><li>✗ The billing zip or postal code is incorrect.</li><li>✗ The Card Verification Value is incorrect.</li></ul>
<a href="#">View full risk analysis</a>
What can I do?
<ul style="list-style-type: none"><li>🚫 Due to the high risk of fraud we <b>strongly</b> recommend reviewing this order.</li><li>📞 Phone the customer to verify their identity and the legitimacy of the purchase.</li><li>🚫 Don't fulfill unless you're sure this is a legitimate order.</li></ul>
<a href="#">Learn more about fraud prevention.</a>

2014

**Risk level**

LOW MEDIUM **HIGH**

- ⚠** The credit card verification value (CVV) does not match the credit card.
- ⚠** The billing address street does not match the street for the credit card.
- ⚠** The billing address zip or postal code does not match the credit card address.

[View full risk analysis](#)

**What can I do?**

- 🚫** Due to the high risk of fraud we **strongly recommend** reviewing this order.
- 📞** Phone the customer to verify their identity and the legitimacy of the purchase.
- 🔴** Don't fulfill unless you're sure this is a legitimate order.

[Learn more about fraud prevention.](#)

# 2015

### Risk analysis

**X**

LOW MEDIUM HIGH

We strongly recommend reviewing this order.

**⚠ Risk Indicators**

- Billing address ZIP or postal code is incorrect
- A high risk internet connection (web proxy) was used to place the order

**✓ Successful checks**

- Billing street address is correct
- Billing address ZIP or postal code is correct
- Card Verification Value (CVV) is correct
- Age verification passed.

Phone the customer to verify their identity and determine if they placed the order.

Uncertain if this order is fake? Cancel the order and refund it to avoid receiving a chargeback.

Don't capture payment or fulfill this order unless you're sure it's legitimate.

**Additional Information**

This order was placed from IP address: 192.168.64.2

[Learn more about fraud prevention](#)

# 2016

Fraud analysis X

LOW MEDIUM HIGH

**What you can do**

Contact the customer to verify their identity and the purchase before you fulfill the order. Learn more about our improved [fraud analysis](#), or how you can [prevent fraud](#).

Cynthia Perros  
 Email [laura.perros15@gmail.com](mailto:laura.perros15@gmail.com)

**Indicators**

- Some characteristics of this order are similar to fraudulent orders observed in the past
- Card Verification Value (CVV) is correct
- Billing address or credit card's address wasn't available
- Billing address ZIP or postal code isn't available to match with credit card's registered address
- There was 1 payment attempt
- Payment was made with 1 credit card
- Location of IP address used to place the order is Levallois-perret, France
- Shipping address is 2 miles from location of IP address
- Billing country matches the country from which the order was placed
- The IP address used to place the order isn't a high risk internet connection (web proxy)

**Additional Information**

- This order was placed from IP address: 195.132.164.37

2017

# Main Takeaways

- Ship boldly, even without ML
- Be user-obsessed and use data to leverage their own potential
- Iterate slowly over models/dashboards; less is usually more



# Thanks!

@brenolf\_ //breno.io  
shopify.com/careers

