



🕒 2016年8月26日-27日

📍 北京珠三角JW万豪酒店

# World Of Tech 2016

## 移动互联网技术峰会

THE BEST MOBILE TECH IN HERE

**主办：51CTO**

# 数据科学+造型师颠覆传统服装零售业购物方式

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Twitter: @qqwjg

Wechat: 11367561

Linkedin: Jay Wang

August 2016

# About Me

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# History of Stitch Fix

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- Online personal styling service
- Founded in October 2010 by Katrina Lake (Harvard)
- Based in San Francisco, full-time + warehouse contractors + part-time stylists
- **Clients:**
  - No time for shopping
  - Want to discover something new
  - Fashion follower



# Product Lines

tops



bottoms



dresses



outerwear



accessory



shoes



Maternity



Petite



Mens'

# Four Elements of Daily Life



STITCH FIX™

TRUNK CLUB®  
MEN'S OUTFITTERS



UBER  
EATS



UBER  
RUSH



UBER

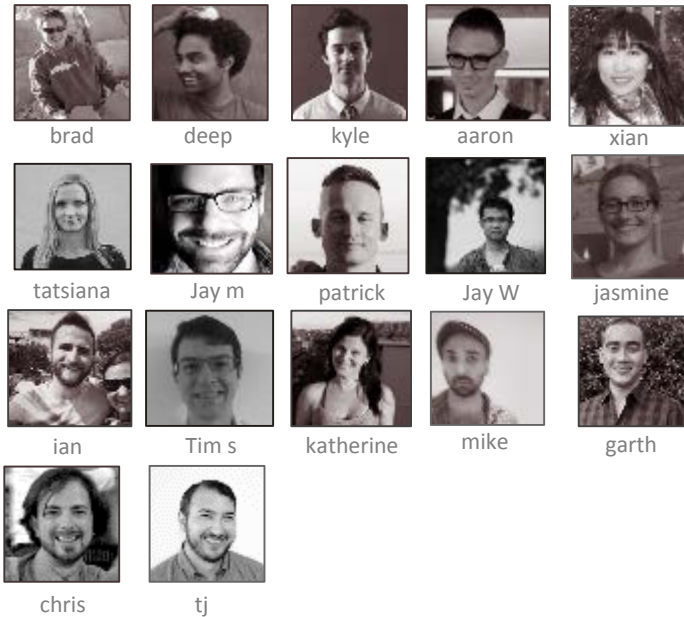


# Data science @stitch fix

## Client Algorithms



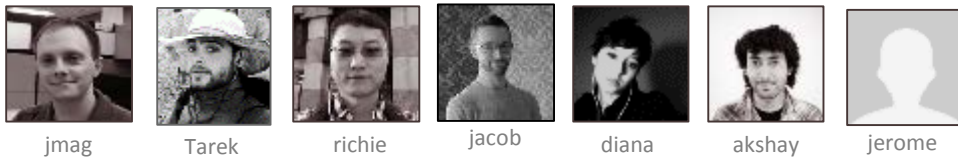
## Styling Algorithms



## Merchandise Algorithms



## Data Platform



# How Stitch Fix Works

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Create Your Style Profile.



Get Five Hand-picked Items.



Keep What You Like.  
Send Back the Rest.

How do you prefer clothes to fit the top half of your body?

- ✓ Mostly Tight / Form Fitting
- Prefer Fitted / Showing my Figure
- Straight**
- Mostly Loose
- Oversized

How do you prefer clothes to fit the bottom half of your body?



# How Stitch Fix Works

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Create Your Style Profile.



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# How Stitch Fix Works

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Create Your Style Profile.



Get Five Hand-picked Items.



Keep What You Like.  
Send Back the Rest.



# How Stitch Fix Works

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Subscription-based online personal shopping service,  
provided by **data science + stylists**

## Types of service

Subscription & on-demand

Relational vs transactional

Delayed vs real-time

- \$20 styling fee
- 25% buy-5 discount

# The Life of a Fix

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Making a bet on every shipment



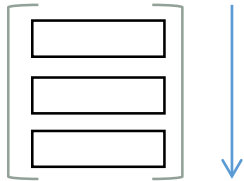
- Convenience
- Discovery

- Shipping both ways
- Disappointing client experience
- Inventory opportunity cost

# The Life of a Fix

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Recommendations



Human curation



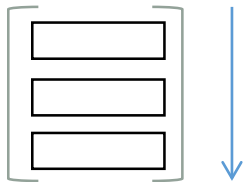
Fulfillment



# The Life of a Fix

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Recommendations



Human curation



Fulfillment



# Styling Algorithm

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Learn from data!

# Source of Data – User Profile

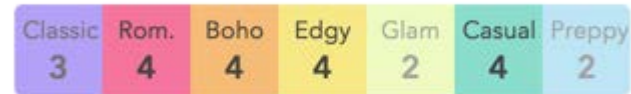
- Age, location, occupation
- Body size & measurement
- Color preference
- Style “rainbow”
- Price preference

Erin Sturm, 30 Mom Petites

Richfield, MN [\(weather\)](#)

## Profile Notes

I'm looking for more summer clothes.



[Pinterest](#)

5'2" 120 lbs. Occupation: Client Services

Bra	Tops	Dresses	Bottoms
34 DD	4 S	2 S	2 S

Top Fit: **Tight**


Bottom Fit: **Tight**

## Petite Preferences

Tops:	<b>Regular</b>	Pants/Denim:	<b>Petite</b>
Dresses:	<b>Regular</b>	Skirts:	<b>Petite</b>



# Source of Data – Client Feedback



**RETURNED**

Renee C | Melisa Printed Pencil Skirt

Size: S	Too big
Price: \$48	Too high
Style:	Like it
Fit:	Just OK

Return It  Keep It!

SIZE

Too small  Just right  Too big

STYLE

Hate it  Just ok  Like it  Love it

FIT/CUT

Hate it  Just ok  Like it  Love it

QUALITY

Poor  Average  Great

PRICE

Too high  Just right  A steal

COMMENTS?

client  
history



# Other Sources of Data

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inseam



locatio



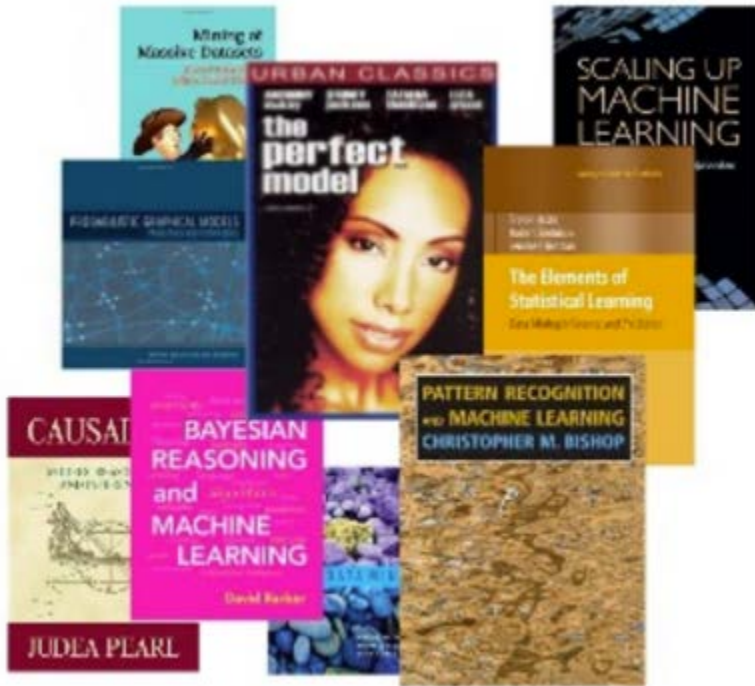
colo



request note

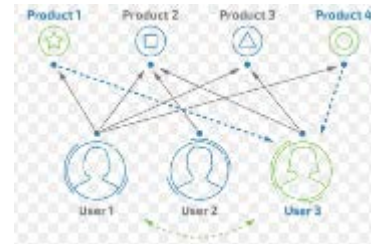
I am interested in a cute pair of stylish but casual shorts, also light colored jeans like you showed in the stitch fix picture with the Justine Split Neck Top also would be great.

# Smart Algorithms



- Logistic regression
- Elastic net
- Collaborative filtering
- Factorization machine
- LDA
- NLP and computer vision

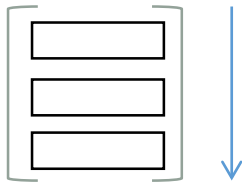
$$\begin{array}{c} \text{User} \\ \text{A} \\ \text{B} \\ \text{C} \\ \text{D} \end{array} \begin{array}{c} \text{Item} \\ \text{W} \ \text{X} \ \text{Y} \ \text{Z} \\ \begin{array}{|c|c|c|c|} \hline 4.5 & 2.0 & & \\ \hline 4.0 & & 3.5 & \\ \hline 5.0 & & & 2.0 \\ \hline 3.5 & 4.0 & 1.0 & \\ \hline \end{array} \end{array} = \begin{array}{c} \text{User Matrix} \\ \begin{array}{|c|c|c|c|} \hline 1.2 & 0.8 & & \\ \hline 1.4 & 0.9 & & \\ \hline 1.5 & 1.0 & & \\ \hline 1.2 & 0.8 & & \\ \hline \end{array} \end{array} \times \begin{array}{c} \text{Item Matrix} \\ \begin{array}{|c|c|c|c|} \hline 1.5 & 1.2 & 1.0 & 0.8 \\ \hline 1.7 & 0.6 & 1.1 & 0.4 \\ \hline \end{array} \end{array}$$



# The Life of a Fix

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Recommendations



Human curation



Fulfillment



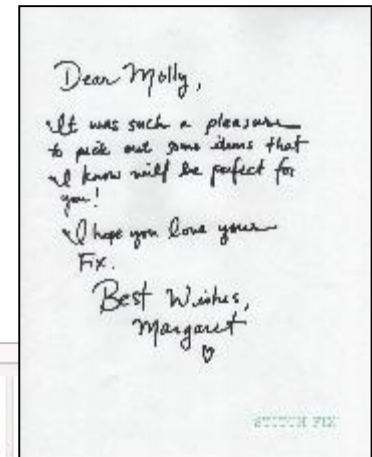
Everyone's personal stylist  
Not sales people

# Humans excel at unstructured data

Humans expand the scope of data and interactions we can consider



*I am going on a cruise next month - send me some dresses for sunny weather!*



# Human-computer Interaction

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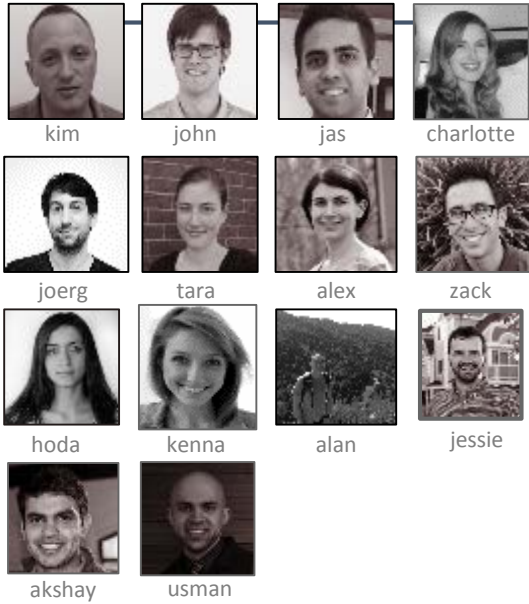
## Algorithms

- Computation
- Perfect memory
- Finding pattern from massive data

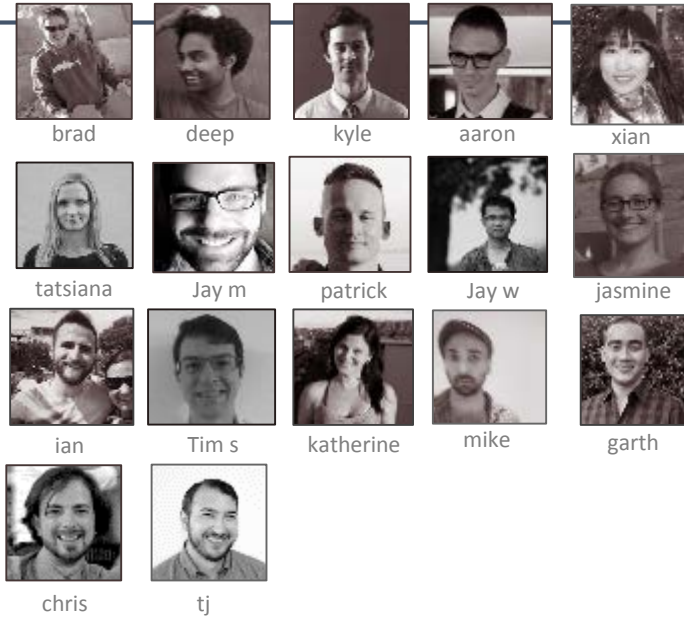
## Stylists

- Fashion experiences
- Intuitions, highly nonlinear
- Foster client-stylist relationship

Client Algorithms



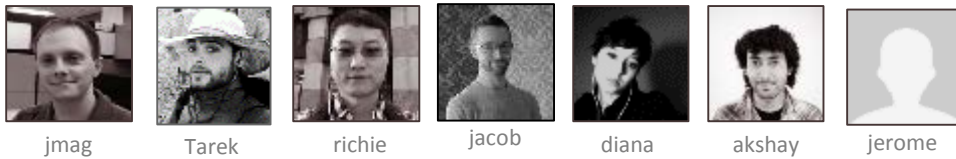
Styling Algorithms



Merchandise Algorithms



Data Platform



Data science @stitch fix

# Data science @Stitch Fix

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## Client Algorithms

- Marketing
- Demand forecasting
- Improve user profile
- CX

## Styling Algorithms

- Minx Algorithms
- Human computation
- Stylist analytics

## Merch Algorithms

- Inventory Mgmt Algorithms
- Merch insights
- Clearance

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**Data Platform** (infrastructure | patterns | frameworks)



# Data science applications @Stitch Fix

## Request note suggestions

The screenshot displays a user's profile on the Stitch Fix website. The user is Meghann D'Andrea, 37, from Norristown, PA. Her request notes indicate she is looking for work-appropriate attire and is open to color. Her profile notes mention a preference for knee-length skirts and dresses. The website shows a grid of 15 clothing items with their respective match percentages and prices. A 'View Fix' button is visible at the bottom right of the grid.

**Assigned to Lailani Alferez - Reassign**

**Meghann D'Andrea, 37**  
Norristown, PA (weather)

**Requests for Fix #4**  
Looking for cute skirts, dresses and tops for work. Nothing too short, I work in a professional environment and am 38L.

**Profile Notes**  
I usually wear a lot of black but am looking to expand more into color. Anything stomach slimming is a must and dresses and skirts should be knee length.

Class	Item	Value
Class	Item	Value
3	3	3
2	3	2
2	2	2

**5'5" 216 lbs. Occupation: Management**

Size	Top	Dresses	Bottoms	Shoes
38 DD	14 XL	14 XL	14 XL	8.5 M

**Body Proportions**

Shoulder	Arm	Torso	Bottom	Curve
Average	Average	Average	Average	Curvy

**Fit Preferences**  
Top Fit: Loose      Bottom Fit: Fitted

**Pant/Denim Preferences**  
Style: Bootcut

**Request Note Suggestions**

Item	Match %	Price
Skirt	46%	\$58
Skirt	45%	\$64
Skirt	45%	\$58
Skirt	35%	\$58
Skirt	48%	\$58
Skirt	41%	\$58
Skirt	39%	\$64
Skirt	40%	\$49
Skirt	35%	\$58
Skirt	39%	\$58
Skirt	39%	\$58

**View Fix**

# Data science applications @Stitch Fix

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## Inventory Optimization

### Preseason Planning

Long-range, top-down,  
forecast inventory position,  
recommend assortments

### Inseason Management

Short/Med-range, track  
plan vs forecast, open to  
buy, allocation + clearance



# Thank you

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**Linkedin: Jay Wang**