



METIS

DEMYSTIFYING DATA SCIENCE™

Artificial Intelligence: Building the Future of E-commerce

Kamelia Aryafar, Ph.D.

VP, Head of Data Science, Overstock

Introduction and Background



Leadership



Application



Theory

My journey to Data Science!

What We Will Learn in This Talk

- *What is AI, deep learning and machine learning?*
- *What are practical examples of AI in businesses today?*
- *How can I utilize AI in my business successfully?*
- *How can I build a successful Data Science team to deliver value?*
- *Strategic development of AI teams and the required cultural shifts*
- *Key takeaways*

What is Artificial Intelligence?

What is AI?

Artificial Intelligence: Human intelligence exhibited by machines

Machine Learning: An approach to achieve artificial intelligence

Deep Learning: A technique for implementing machine learning

Data Science

What is Data Science?

Extract insights from structured and unstructured data!

Use any tool and technique that makes sense!

Who is a Data Scientist?

A data-driven problem solver!

Diverse backgrounds make a better data science team!

How Can AI Help your Business?

How Can Data Science Help?

- *Who are our customers?*
- *How can we help them best to:*
 - *Find what they need => Discovery and Engagement*
 - *Find what they are inspired by => Retention*
- *How can we engage new customers? => Growth*

Data Science can help by creating new experiences, optimizing existing experiences internally and externally!

Customer Journey & Email Marketing

Reply-To: Overstock.com

 overstock™

17%
off
coupon**
shop now

up to *70% off**
+ free shipping*

the annual
clearance
event



Core Optimizations:

Machine learning techniques are often used to know who the customers are!

Ranking

overstock™ diamond engagement ring under 500 \$28.13 My Club O Gold Hi Kamel

Furniture Rugs Decor Bed & Bath Home Improvement Kitchen Outdoor Jewelry Watches Women Men Kids & Baby More


Diamond Engagement Ring Under 500 Jewelry & Watches

[Jewelry & Watch Store](#) / Jewelry Store / Rings / Search: diamond engagement ring under 500 1-60 of 19,860 Results

Showing results for "diamond engagement ring under 500" in Jewelry & Watches. Show instead results in [All Departments](#)


All Filters Categories Sales & Promotions Product Features Metals Brands Sort By Best Matched

SALE ENDS IN 2 DAYS




Sale \$215⁹⁹
MSRP \$549.00 \$303.01 OFF
Miadora Sterling Silver 1/5ct TDW Diamond Milgrain Bridal Ring Set
★★★★★ 154 Reviews

SALE ENDS IN 2 DAYS




\$168⁴⁹ - \$184⁴⁹
MSRP \$499.00 \$330.51 OFF
Miadora 10k White Gold Created White Sapphire and Diamond 3-Stone Engagement Ring
★★★★★ 34 Reviews

SALE ENDS IN 2 DAYS




Sale \$201⁸⁷ - \$208²⁴
MSRP \$539.00 \$337.13 OFF
Miadora 10k White Gold 1/10ct TDW Diamond and Created White Sapphire Engagement Ring
★★★★★ 9 Reviews

SALE ENDS IN 2 DAYS




Sale \$305¹⁴ - \$378²⁴
MSRP \$669.00 \$363.86 OFF
Miadora 10k Rose Gold Cushion-cut Checkerboard Morganite with Diamond Accents Engagement Ring (G-H, I2-I3)
★★★★★ 93 Reviews

SALE ENDS IN 2 DAYS




Sale \$1,045⁷⁹
MSRP \$2,209.00 \$1,154.21 OFF
Anello by Kobelli 14k White Gold 1 7/8ct Forever Brilliant Moissanite and 1/5ct TDW Diamond Engagement Ring
★★★★★ 10 Reviews


SALE ENDS IN 2 DAYS




SALE ENDS IN 2 DAYS




SALE ENDS IN 2 DAYS



SALE ENDS IN 2 DAYS



SALE ENDS IN 2 DAYS



Search as an AI Application:

Machine learning techniques are often used to personalize and rerank search results.

Personalization and Recommendations

Amazon Fashion

WOMEN

MEN

GIRLS

BOYS


BABY

LUGGAGE

SALES & DEALS

Clothing, Shoes & Jewelry > Women > Shoes > Boots > Ankle & Bootie

item



Roll over image to zoom in

Similar Items RecSys

Customers who viewed this item also bought

CLARKS

\$57.60 - \$131.95

CLARKS

\$52.79 - \$140.00

CLARKS

\$53.41 - \$84.90

CLARKS

\$59.99

Customers who bought this item also bought

Clarks Women's Enfield River Boot

★★★★★ 28

\$53.41 - \$84.90

Clarks Women's Carleta Lyon Boot

★★★★★ 126

\$57.60 - \$131.95

Clarks Women's Malia Skylar Wide Shaft Riding Boot

★★★★★ 46

\$50.40 - \$190.00

Clarks Women's Malia Mccall Boot

★★★★★ 68

\$42.77 - \$89.99

Clarks Women's Brielle Andi Wedge Pump

★★★★★ 71

\$42.99 - \$95.00

Clarks Women's Malvet Doris

★★★★★ 12

\$57.01 - \$114.90

Clarks Women's Malvet Helen Boot

★★★★★ 46

\$56.00 - \$114.99

Clarks Women's Brynn Sandra Boot

★★★★★ 23

\$71.21 - \$94.95

Clarks Women's Carleta Paris Boot

★★★★★ 45

\$46.76 - \$141.95

Clarks Women's Narine Flora Dress Pump

★★★★★ 25

\$67.81 - \$101.61

Clarks Women's Boylan Dawn Ankle Bootie

★★★★★ 193

\$53.67 - \$150.00

Clarks Women's Enfield Tess Boot

★★★★★ 194

\$35.63 - \$150.00

Clarks Women's Enfield Way Boot

★★★★★ 17

\$59.99

Clarks Women's Malia Skylar Riding Boot

★★★★★ 48

\$45.82 - \$190.00

Clarks Women's Gelata Siena Boot

★★★★★ 59

\$52.79 - \$140.00

Clarks Women's Spye Astro Boot

★★★★★ 149

\$48.74 - \$129.95

Clarks Women's Haydn Pearl Flat

★★★★★ 62

\$84.99 - \$85.00

Customers who viewed this item also viewed

Clarks Women's Carleta Lyon Boot

★★★★★ 126

\$57.60 - \$131.95

Clarks Women's Enfield River Boot

★★★★★ 28

\$53.41 - \$84.90

Clarks Women's Gelata Siena Boot

★★★★★ 59

\$52.79 - \$140.00

Clarks Women's Spye Astro Boot

★★★★★ 149

\$48.74 - \$129.95

Clarks Women's Enfield Tess Boot

★★★★★ 194

\$35.63 - \$150.00

Clarks Women's Brynn Sandra Boot

★★★★★ 23

\$71.21 - \$94.95

Clarks Women's Enfield Way Boot

★★★★★ 17

\$59.99

Clarks Women's Carleta Paris Boot

★★★★★ 45

\$46.76 - \$141.95

Clarks Women's Malvet Helen Boot

★★★★★ 46

\$56.00 - \$114.99

Clarks Women's Boylan Dawn Ankle Bootie

★★★★★ 193

\$53.67 - \$150.00

Clarks Women's Malvet Maria Boot

★★★★★ 37

\$56.87 - \$99.95

Clarks Women's Malia Charter Boot

★★★★★ 39

\$54.99 - \$89.99

Clarks Women's Malia Mccall Boot

★★★★★ 68

\$42.77 - \$89.99

Clarks Women's Gelata Italia Black Combi Leather Ankle Boots

★★★★★ 100

\$52.49 - \$139.99

Clarks Women's Kalea Aleita Boot

★★★★★ 153

\$56.00 - \$87.03

Clarks Women's Breccan Shine Bootie

★★★★★ 15

\$56.00 - \$87.03

Clarks Women's Rosalyn Lark Boot

★★★★★ 30

\$65.80 - \$140.00

RecSys:

Various recommender systems are used to personalize product pages based on user history, actions and product content.

Deep Learning

User Clicks



50% Glam



Glam



Style Transfer

Enable users to explore different styles through your platform.

Advertising Technologies

Etsy

stud earrings

Search

Sell on Etsy

Register

Sign in

Cart

Clothing & Accessories

Jewelry

Craft Supplies & Tools

Weddings

Entertainment

Home & Living

Kids & Baby

Vintage

Show results for:

All categories > "stud earrings" (363,150 Results)

Sort by: Relevancy

All categories

Jewelry

Craft Supplies & Tools

Weddings

Accessories

Home & Living

Paper & Party Supplies

Bath & Beauty

Art & Collectibles

Toys & Games

Bags & Purses

Clothing

Pet Supplies

Electronics & Accessories

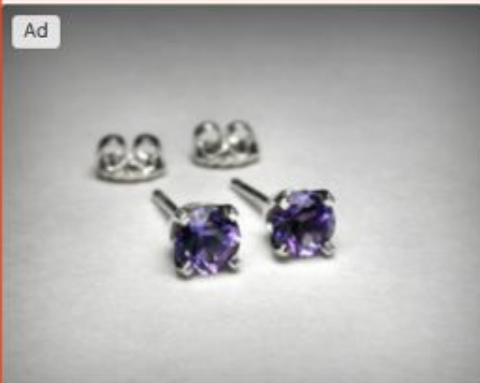
Shoes

Books, Movies & Music

Refine your search

Shop location


Ad



14K Amethyst Earrings Genuine AAA Amet...
PristinityJewelry

\$99.00

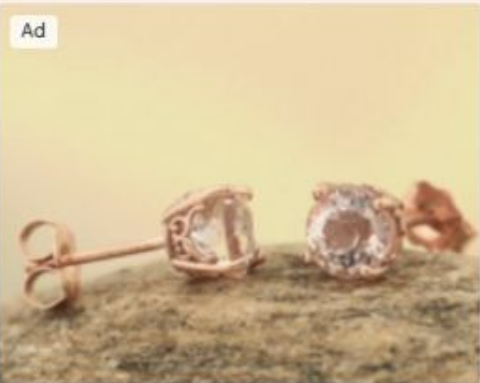
Ad



SINGLE 2mm 14k SOLID Rose Gold Stud E..
tinysparklestudio

\$37.50


Ad



AAA Morganite Earring, Fancy Scroll Earrin..
GNGJewel


\$185.00

Ad




Rainbow glitter studs mom wife wood stu...
starlightwoods


\$27.75




Small Earring Set of Three | Mix and Match...



Mint Succulent Earrings. Gift. Polymer cla...



Hook Stud Earrings, Sterling Silver, Gold P...



Rose gold Druzy earrings, Faux Druzy stud...

Personalized Marketing Campaigns

Other Applications

- Fraud detection and prevention
- Customer relationship management
- Offsite Marketing
- Supply chain optimization
- ...

Data Science can be used in different places for different products and different teams!

Building Successful Data Science Teams

Pain Points

- Integrate data scientists with business to deliver value:
 - Data science team structures
- Data science in production:
 - How does data science add value to your organization?
- Data science tool set

Data Science Team Structures

Centralized

+

Synergy, ownership,
mentorship,...

–

Disconnect with business,
Silo effect, slower hiring,...

Embedded

+

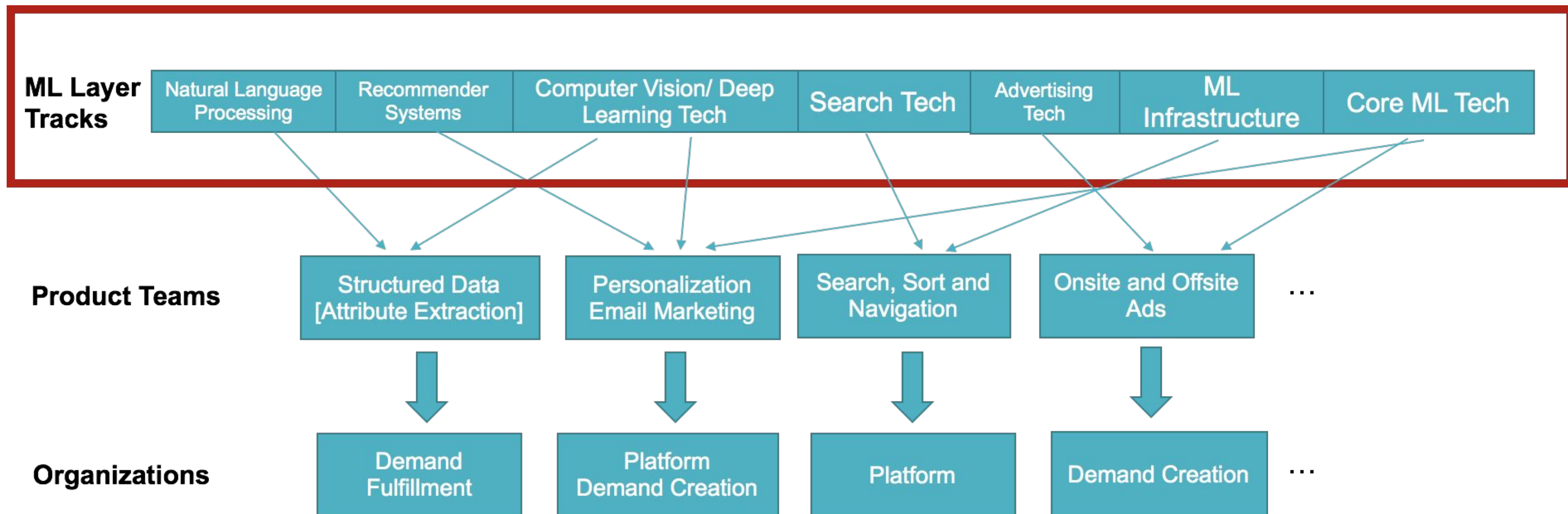
Direct business impact,
fast hiring ,...

–

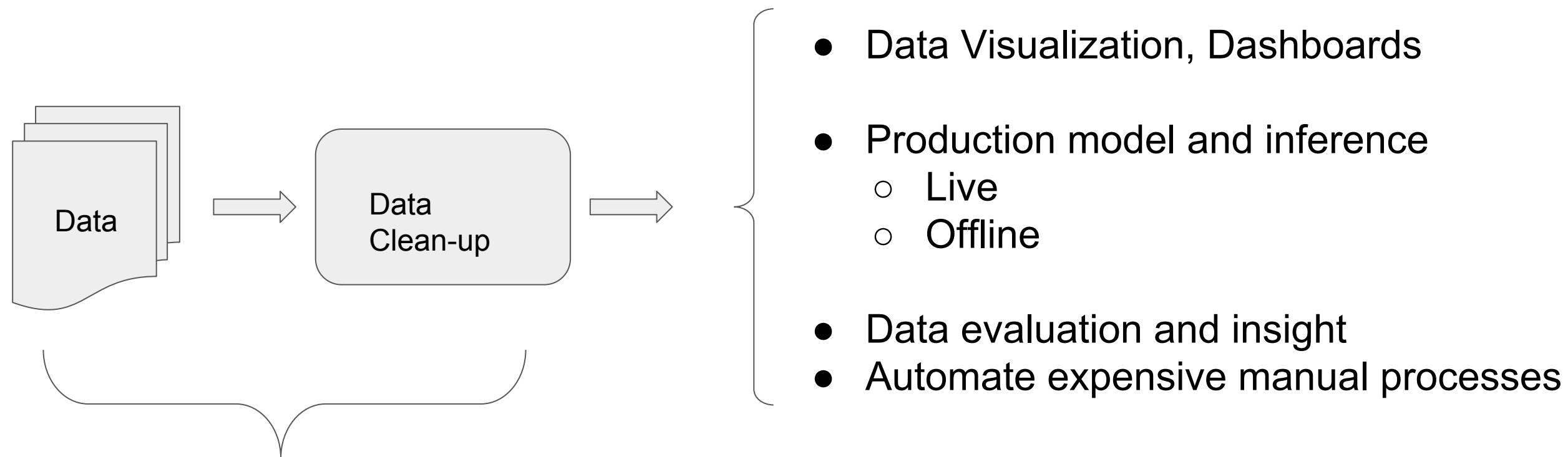
Lack of mentorship,
duplicated effort,
technical debt ,...

No right answer!

Data Science as a Platform Team



Data Science in Production



Clear requirements defined by business!
What are you expecting from your data scientists?

Data Science Tool Set

- Cloud Offerings
- Different languages
- Open source or not?

Use the best tool for the job!

Culture Shift: Experiment-driven Culture

- Enable teams to run valuable A/B tests
 - opportunity sizing
 - Aligning data science teams with strategic initiatives
- Establish best practices for experimentation
 - Offline validation metrics
 - Establish online/offline performance correlation
- Data science is an iterative process! Don't expect quick wins!

Key Takeaways

AI in practice

- AI can reshape the future of your business
- Enable data science teams to
 - Integrate with business
 - Experiment-driven culture
 - Deliver value

Thank you!

Kamelia Aryafar, Ph.D. | VP, Head of Data Science, Overstock



@karyafar

