



AI Quality: The Next Big Challenge in AI

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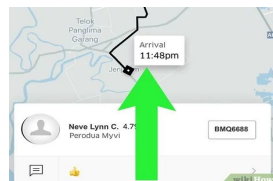


Introduction

Data Scientists have always focused on the performance of Artificial Intelligence/Machine Learning (AI/ML) systems. Recently, however, as the use of ML has moved from consumer to Enterprise and Government applications, increasing attention is being paid to the potential risks related to non-transparent ML systems. Enterprise organizations have struggled to move ML pilots into mainstream deployment. Regulators throughout the US and the world have issued warnings around the potential misuse of artificial intelligence in lending, employment, medical and other applications. Lawmakers, such as in the EU and New York City, have proposed or passed new laws regulating the risks of AI. To build and operate successful ML systems, developers need to account for both the performance and risks of AI/ML. This session will cover how a systematic approach to evaluating, testing and monitoring AI Quality leveraging end-to-end AI explainability technology can address the dual challenge around ML performance and risk.

Use of AI Moving from Consumer to Enterprise

Machine Learning First Used For



ETA

<https://www.google.com/hasrecenthorcs/algorithm>
Google's Search Algorithm and Ranking System
Google's ranking systems are designed to do just that: sort through hundreds of billions of webpages in our Search index to find the most relevant...

<https://www.google.com/search-ranking-research>
Ranking Results - How Google Search Works
Google's ranking systems are designed to do just that: sort through hundreds of billions of webpages and other content in our Search index to present the...

<https://trends.google.com/trends>
Google Trends
Explore what the world is searching. Enter a search term or a topic. Search. Or start with an example: traditional american dinner. To start with an example, try: traditional american dinner. To start with an example, try: traditional american dinner.

<https://www.linkedin.com/learning-center>
Search Engine Ranking and Visibility - Moz
Ranking refers to where a URL appears on a SERP (Search Engine Result Page). Search visibility refers to how prominently a piece of content is displayed in...

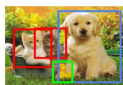
**Search
ranking**

Classification



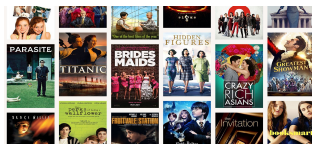
CAT

Object Detection



CAT, DOG, DUCK

**Cat
detection**



**Movie
recommendation**

It's now being used for

Zillow



Homebuying



Lending

amazon



Hiring



Pricing

Google Uber NETFLIX Microsoft



INFORMATION TECHNOLOGY STANDARDS

SC 42 - Artificial Intelligence

This Change Is Hurting Some Companies



Zillow to stop flipping homes for good as it stands to lose more than \$550 million, will lay off a quarter of staff

Last Updated: Nov. 3, 2021 at 12:36 p.m. ET

First Published: Nov. 2, 2021 at 4:21 p.m. ET

By [Jon Swartz](#)

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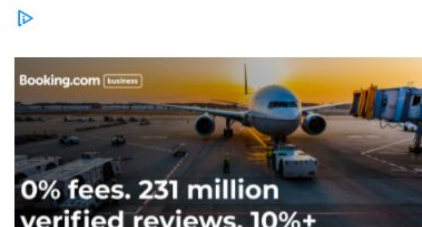
'We've determined the unpredictability in forecasting home prices far exceeds what we anticipated and continuing to scale Zillow Offers would result in too much earnings and balance-sheet volatility,' CEO tells investors

Hard to Build High Performing ML Models

This Change Is Hurting Some Companies

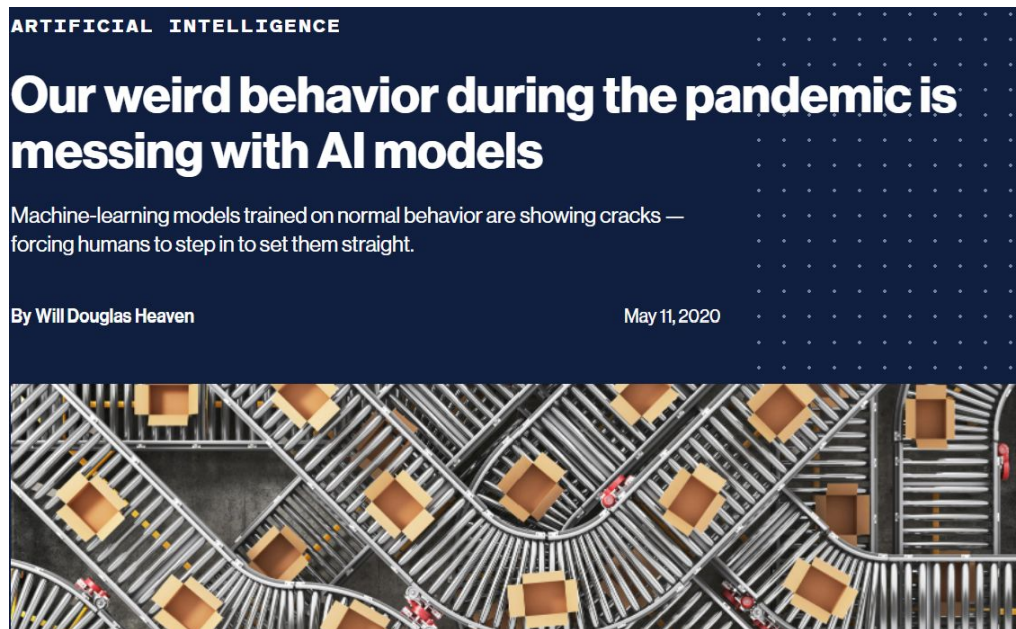
Apple Card algorithm sparks gender bias allegations against Goldman Sachs

Entrepreneur David Heinemeier Hansson says his credit limit was 20 times that of his wife, even though she has the higher credit score



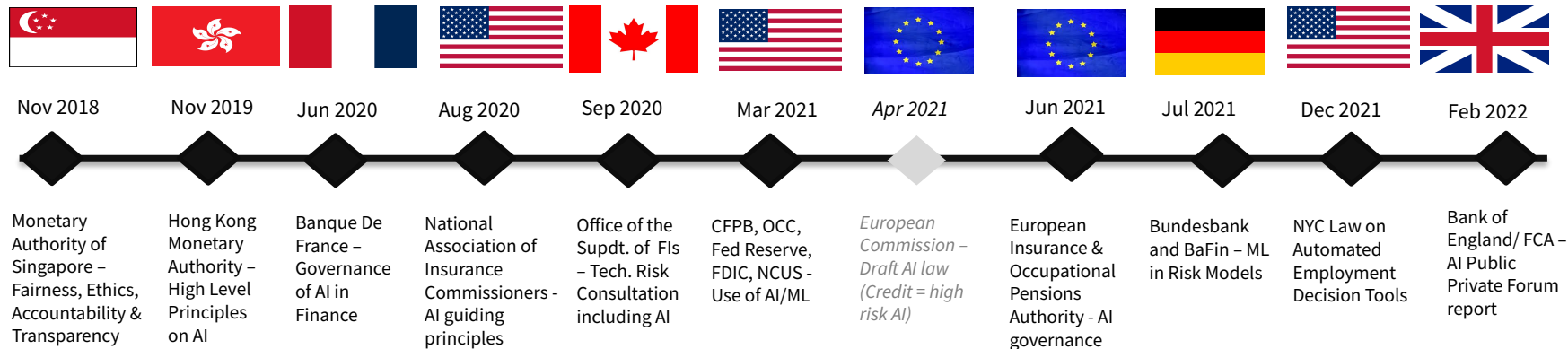
Enterprise ML Models Bring New Risks

This Change Is Hurting Some Companies



**Hard to Maintain Performance & Manage
Risks Over Time**

Regulators Scrutinizing AI Risks



“at the CFPB, we will also be closely watching for digital redlining, disguised through so-called neutral algorithms, that may reinforce the biases that have long existed.”

- Rohit Chopra, CFPB

High Failure Rates in Enterprise AI

Failure rates for analytics, AI, and big data projects = 85% – yikes!

July 23, 2019 by Brian T. O'Neill

Enterprise AI Demands a New Approach: AI Quality

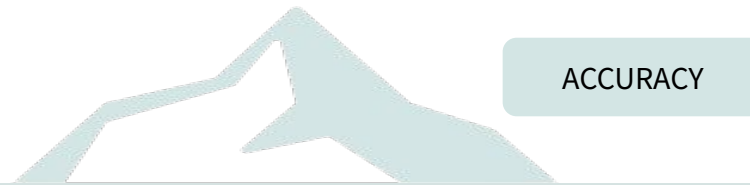


ComputerHope.com



**Enterprise AI requires AI Quality: balance
between performance & risk mitigation**

What is AI Quality?



ACCURACY

What is AI Quality?

ACCURACY

REAL WORLD MODEL PERFORMANCE

- Conceptual Soundness
- Stability/Monitoring & Reliability
- Segment & Global Performance

SOCIETAL FACTORS

- Fairness & Transparency
- Security & Privacy

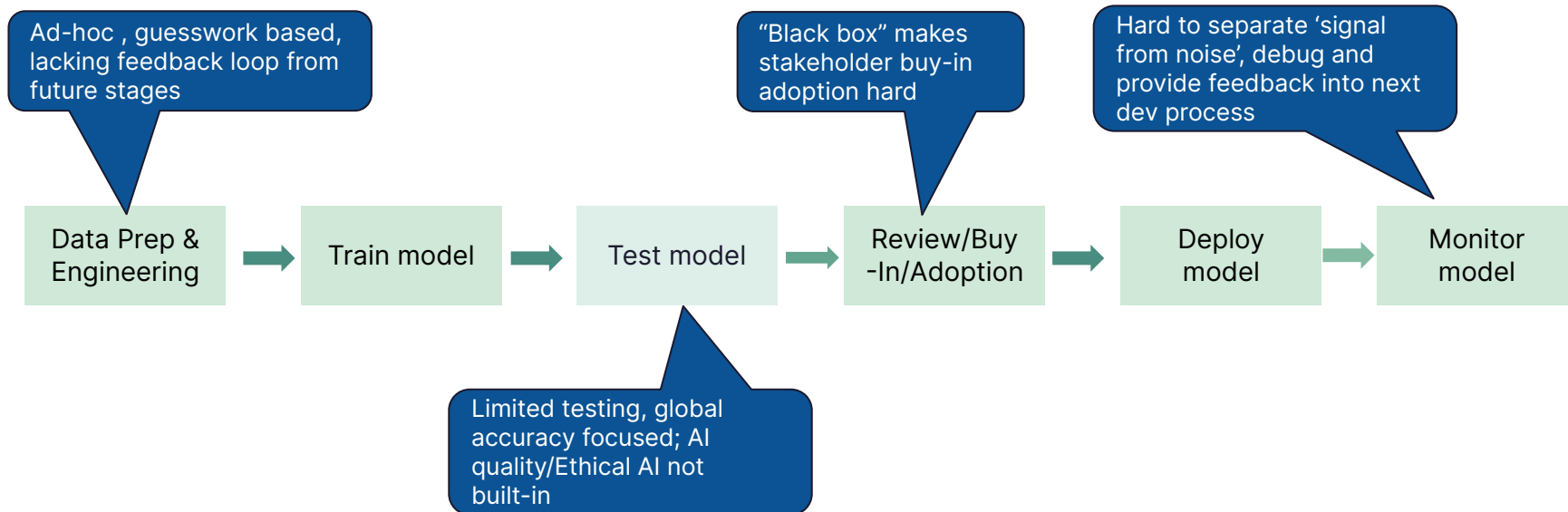
OPERATIONAL FACTORS

- Explainability & Collaboration
- Documentation

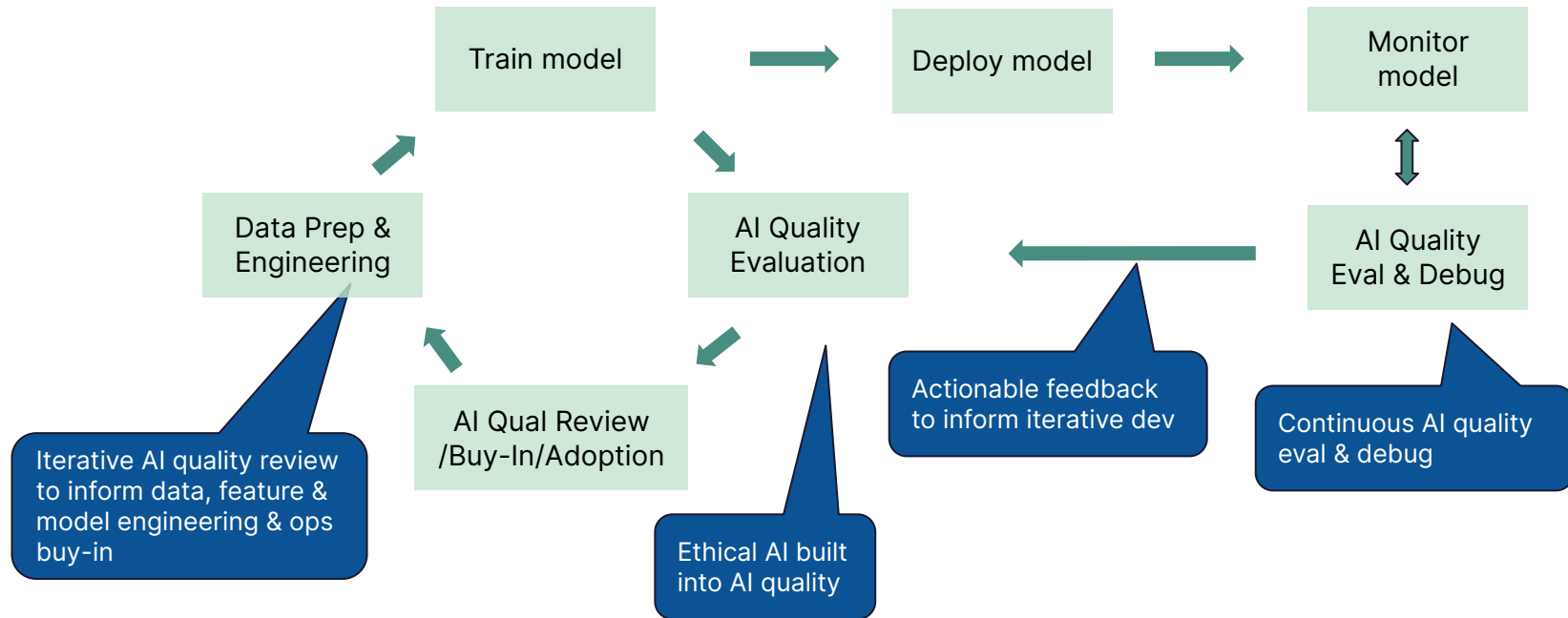
DATA QUALITY

- Missing data
- Bad data

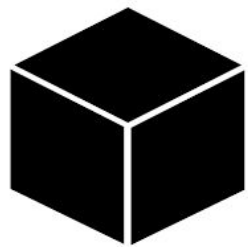
Current AI Methodologies & Tools Not Sufficient



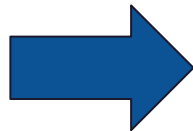
Need Iterative AI Quality Tools & Mindset



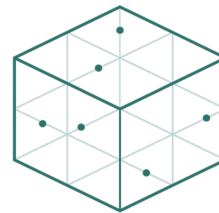
AI Explainability is Key to AI Quality



Black Box AI

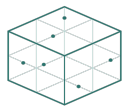


AI Explainability

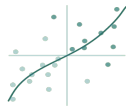


**Transparent,
Managed AI**

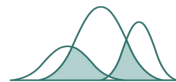
AI Explainability Enables AI Quality Tooling



Explainability



Error Analysis



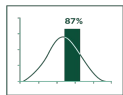
Model Monitoring



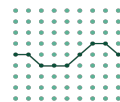
Bias & Fairness



**Conceptual
Soundness**



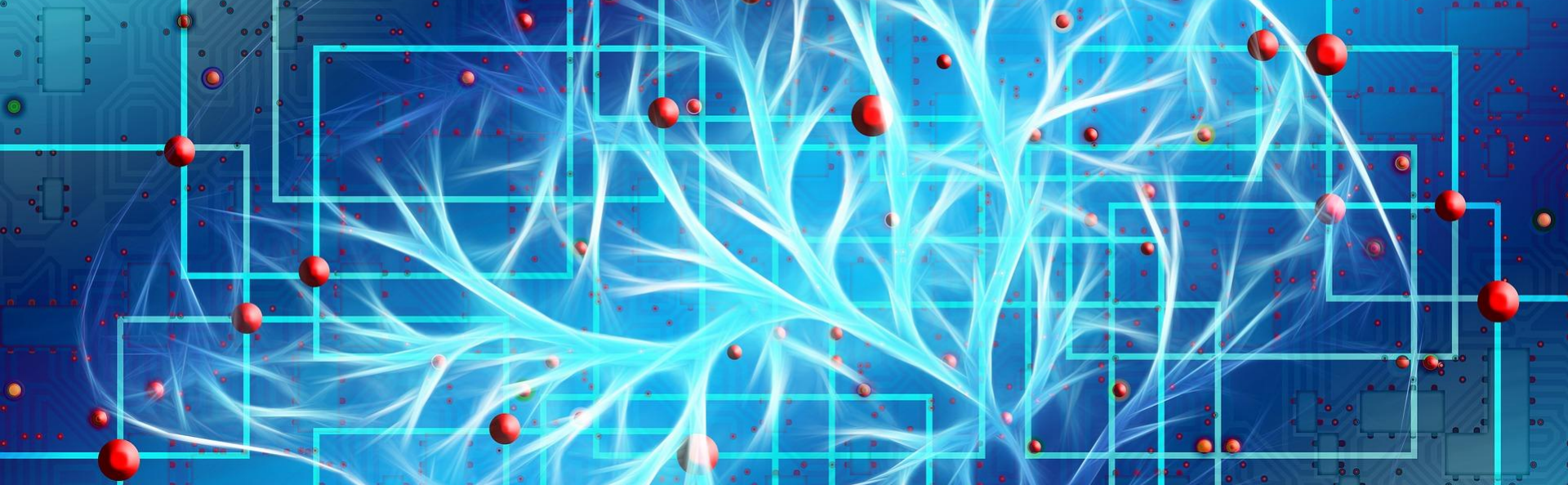
**Segment
Analysis**



**Root Cause
Analysis**



Reporting



Summary

Succeeding in Enterprise AI requires balancing performance and risk and using AI Quality methodologies and tooling throughout the life cycle

AI Explainability, error analysis, root cause, responsible AI and monitoring technologies can enable iterative AI quality

Thank you

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