aws summit

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Using Amazon SageMaker to power Trouve - India's 1st visual discovery platform for the jewelry industry

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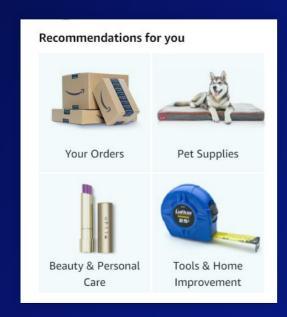


Agenda

- ML @ Amazon
- Overview of Amazon SageMaker
- Al usecase explorer
- Introduction to "Trouve"



Amazon - Machine learning innovation at scale







1.6M packages every day



Billions of Alexa interactions each week



First Prime Air delivery on December 7, 2016



The AWS AI/ML stack

BROADEST AND MOST COMPLETE SET OF MACHINE LEARNING CAPABILITIES

BUSINESS PROCESSES SEARCH CONVERSATION CODE + DEVOPS INDUSTRIAL HEALTH Amazon Personalize Amazon CodeGuru Amazon Monitron Amazon HealthLake Amazon Kendra Amazon Lex Amazon Forecast Amazon Transcribe Call Analytics Amazon CodeWhisperer Amazon Lookout for Equipment Amazon Comprehend Medical **SPECIALIZED** Amazon Transcribe Medical Amazon Fraud Detector Contact Lens Amazon DevOps Guru Amazon Lookout for Vision Amazon Lookout for Metrics Voice ID Amazon Omics ΑI **SERVICES TEXT SPEECH** VISION CORE Amazon Translate **Amazon Comprehend** Amazon Polly Amazon Transcribe Amazon Textract **Amazon Rekognition AWS Panorama** STUDIO IDE **CANVAS GROUND TRUTH** Train Deploy in STUDIO LAB **EDGE MANAGER** models production No-code ML for Label data Prepare data **AMAZON** Learn ML Geospatial **Build with** Manage edge devices business analysts **SAGEMAKER** ML notebooks Tune Manage Store features parameters and monitor CI/CD | GOVERNANCE | RESPONSIBLE ML **ML FRAMEWORKS AWS AWS** Habana

CPUs

GPUs

Inferentia

Trainium

FPGA

Gaudi

Amazon EC2

& INFRASTRUCTURE

PyTorch, Apache MXNet, TensorFlow

100,000+ customers use AWS for machine learning





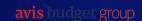


































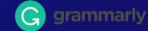








































































Indian customers















































betterplace

























































Amazon SageMaker helps organizations harness ML

Business analysts

Make ML predictions using a visual interface with Amazon SageMaker Canvas

Data scientists

Prepare data and build, train, and deploy ML models with Amazon SageMaker Studio

Amazon SageMaker

Infrastructure, tools, visual interfaces, workflows, orchestration, and collaboration

ML engineers

Deploy and manage models at scale with Amazon SageMaker MLOps



Overcoming the barriers to ML





No-code ML tools

Make ML predictions regardless of ML experience

Access, process, and label massive



Purpose-built data preparation tools

Access, process, and label data for ML

Disparate data science tools



Integrated ML tools in a single interface

Build, train, and deploy models using IDEs

Tedious, manual ML operations



Built-in MLOps

Automate and standardize MLOps practices

No- Code ML tools



Amazon SageMaker Canvas

BUILD ML MODELS AND GENERATE ACCURATE PREDICTIONS—
NO CODE REQUIRED



Quickly access and prepare data for Machine Learning



Built-in AutoML to build models and generate accurate predictions



Share models and datasets with data scientists so they can validate and further refine ML models



Usage-based pricing to avoid licensing fees and reduce TCO



Purpose-built data preparation tools



Amazon SageMaker Data Wrangler

EXPLORE, PREPARE, AND PROCESS DATA WITH LITTLE TO NO CODE

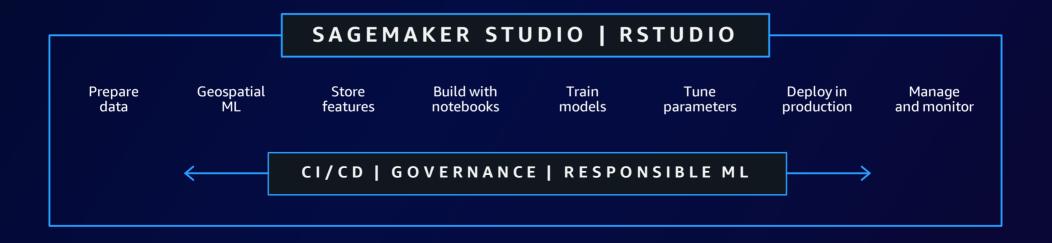




Integrated ML tools in a single interface



Amazon SageMaker Studio brings tools for every step of the ML lifecycle under one unified visual user interface





Built-in MLOps capabilities



Amazon SageMaker MLOps

STREAMLINE THE ML LIFECYCLE



Automate ML workflows to scale model development



Build CI/CD pipelines for ML to accelerate model deployment



Catalog model versions, metadata, metrics, and approvals for traceability and reusability



Track lineage for troubleshooting and compliance



Maintain accuracy of predictions after models are deployed



Amazon SageMaker key benefits

MOST COMPLETE
END-TO-END ML SERVICE



Amazon SageMaker feature tour

PREPARE DATA AND BUILD. TRAIN. AND DEPLOY ML MODEL FOR ANY USE CASE

PRFPARF -

Geospatial

Visualize geospatial data

Ground Truth

Create high quality datasets for ML

Data Wrangler

Aggregate and prepare data for ML

Processing

Built-in Python, BYO R/Spark

Feature Store

Store, catalog, search, and reuse features

Clarify

Detect bias and understand model predictions

BUILD

Studio Notebooks & Notebook Instances

Fully managed Jupyter notebooks with elastic compute

Studio Lab

Free ML development environment

Built-in Algorithms

Integrated tabular, NLP, and vision algorithms

JumpStart

UI based discovery, training, and deployment of models, solutions, and examples

Autopilot

Automatically create ML models with full visibility

Bring Your Own

Bring your own container and algorithms

Local Mode

Test and prototype on your local machine

TRAIN & TUNF -

Fully Managed Training

Broad hardware options, easy to setup and scale

Distributed Training Libraries

High performance training for large datasets and models

Training Compiler

Faster deep learning model training

Automatic Model Tuning

Hyperparameter optimization

Managed Spot Training Reduce training cost by up to 90%

Debugger and Profiler Debug and profile training runs

Experiments

Track, visualize, and share model artifacts across teams

Customization Support

Integrate with popular open source frameworks and libraries

DEPLOY & MANAGE -

Fully Managed Deployment
Ultra low latency, high throughput inference

Real-Time Inference

For steady traffic patterns

Serverless Inference For intermittent traffic patterns

Asynchronous Inference

For large payloads or long processing times

Batch Transform

For offline inference on batches of large datasets

Multi-Model Endpoints

Reduce cost by hosting multiple models per instance

Multi-Container Endpoints

Reduce cost by hosting multiple containers per instance

Shadow Testing

Validate model performance in production

Inference Recommender Automatically select compute instance

and configuration

Model Monitor

Maintain accuracy of deployed models

Kubernetes Operators & Components

Manage and monitor models on edge devices

Edge Manager

Manage and monitor models on edge devices

Governance

Model Cards | Dashboard |

MLOps: Pipelines | Projects | Model Registry Workflow automation, CI/CD for ML. central model catalog

Canvas

Generate accurate machine learning predictions—no code required

Studio | RStudio Integrated development environment (IDE) for ML

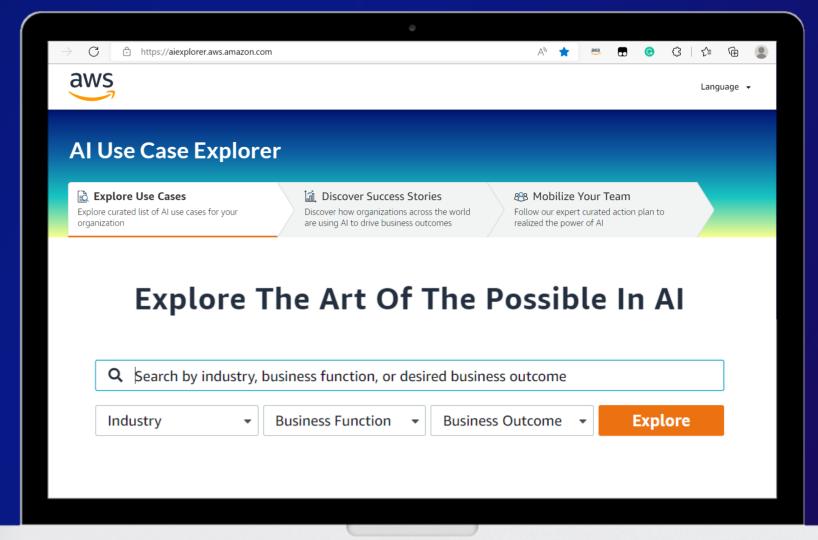
MEN!



Al Use Case Explorer

Easily find the most relevant Al use cases with related content and guidance to make them real

aiexplorer.aws.amazon.com







We've had three big ideas at Amazon: Put the Customer first.
Invent.
And be patient.

- Jeff Bezos,
Founder and Executive Chair, Amazon.com



AWS in synergies, leveraging a plethora of services to run ERP focused on automating clients in jewelry industry



Vivek K. Das

Founder Unlearn Innovation Pvt Ltd

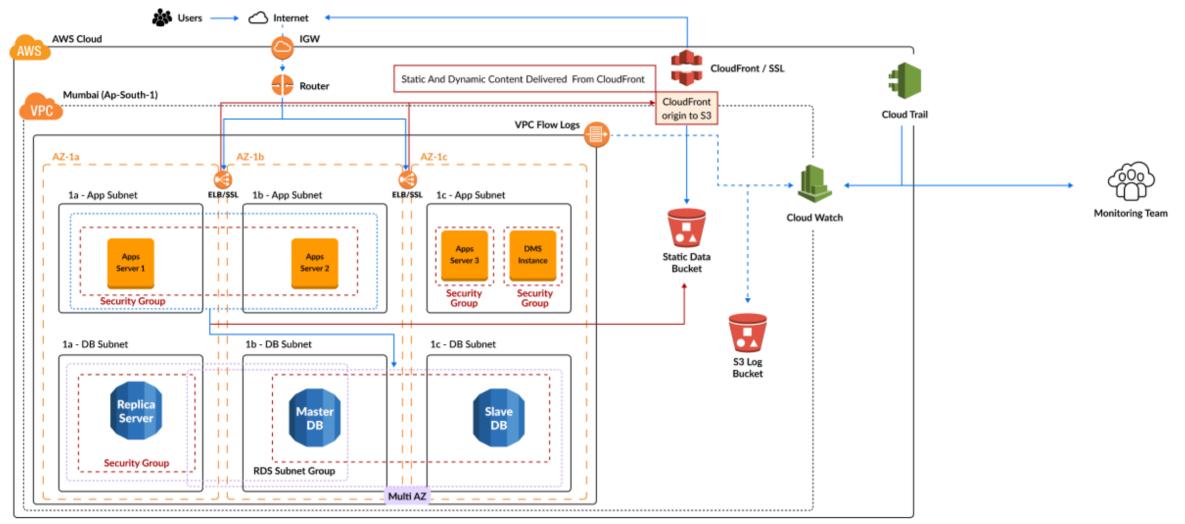


We cater to more than +20,000 users in +7 countries and almost all states in India





Right from Oracle RDS for DBS to EC2 instance for our application, S3 and CDN for images and many more



Our fascinating eyes & brain: Nature's Best Al and ML





TROUVE

Trouve was born,
As a product of Unlearn to bring visual search
for jewelry to life in custom data sets



We love & retain image interpretation: Why?



90%

Information Transmitted
To Brain Is Visual

MIT

13 Milli Seconds

Taken By Human Brain To Identify Images Seen

MIT

35%

Markers Plan To Optimise For Visual Search

Search Engine Journal

45%

Retailers Now Use Visual Search In UK

Tech HQ

55%

Consumers Say Visual Search Assists In Developing Their Style And Taste.

Pinterest

Early Adopter Brands That Redesign Their Websites To Support Visual And Voice Search Will Increase Digital Commerce Revenue By 30%.

Gartner



36%

Consumers Conducted
A Visual Search

The Intent Lab

Shopping Online For Jewellery, Clothing Or Furniture, More Than 85% Of Respondents Respectively Put More Importance On Visual Info Than Text Info

The Intent Lab

Typing is past, Visual is future



Few facts to highlight

- 1. India has more jewelry outlets than medicine shops
- 2. The Global Image recognition market is expected to be worth over \$77 Billion by 2025*
- 3. Personalization is the key to customer experience



Few Cases: How visual search has impacted the jewelry industry





2. Signet in USA implemented a solution with visual search & has seen an increase in sales. **584% to be precise**



Chow sang sang in China with 800 stores increased conversion by
 8.2X using visual discovery



There was a gap in solutions, And In India, None were easily adoptable and affordable.

