



INNOVATE

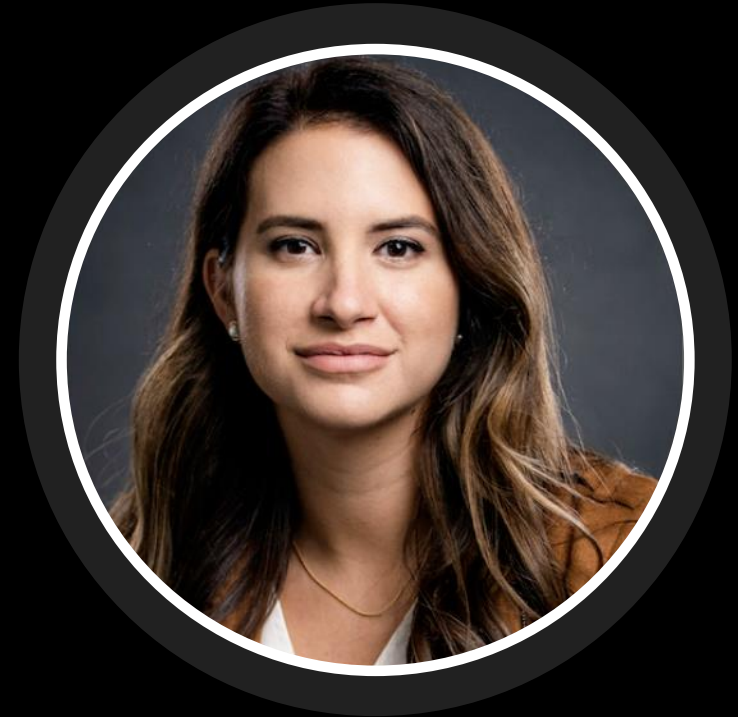
ONLINE CONFERENCE

Build AI-Powered Applications Without Any Machine Learning Expertise

Allie K. Miller
Global Head of Machine Learning BD, Startups & VC
Amazon Web Services

We're excited to have you.

- ✓ Popular use cases
- ✓ 7 easy ML products to use
- ✓ How to upskill your team



Allie K. Miller

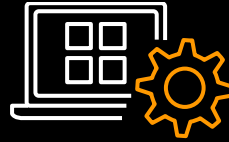
Global Head of Machine
Learning BD, Startups & VC

Our team of ex-founders and ex-VCs love startups.



Activate

- Free ML training
- Free ML workshops
- Credits
- Office hours
- Dedicated team



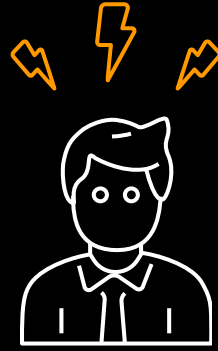
Build

- Broadest and deepest set of products
- Technical support
- Access to beta products and roadmap
- Speaking engagements
- Co-marketing



Connect

- Fundraising (VCs)
- Enterprise customers
- Partners (APN)
- Deep industry expertise
- Each other



You will be overwhelmed.
Find 1-2 things that excite you and your team.

\$156.5B

Revenue generated by AI hardware, software and services is expected to reach **\$156.5 billion worldwide** in 2020, according to market researcher IDC, up 12.3 percent from 2019.

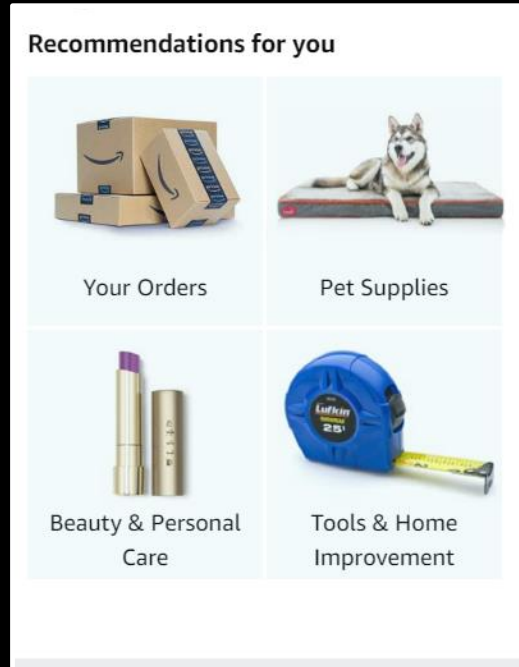
\$61.6B

ML startups raised \$61.6B in the second quarter of 2020, a 35% increase in a year.

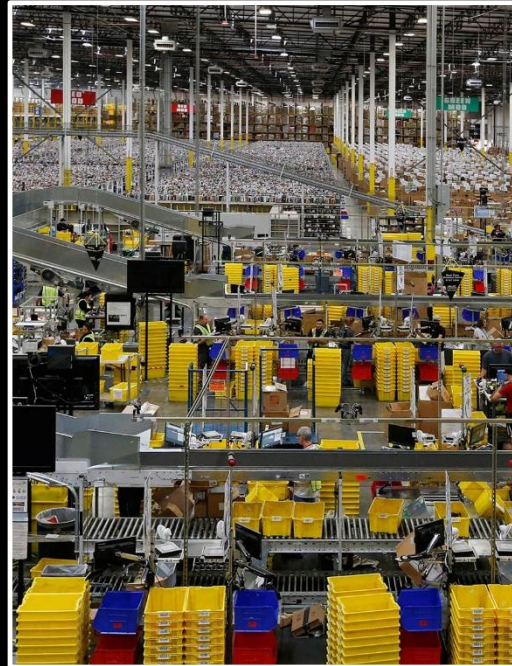
10%

LinkedIn reported that despite hiring at unicorns dropping 30%, **hiring in machine learning grew by 10%.**

Amazon's machine learning innovation at scale



4,000 products per minute sold on Amazon.com



1.6M packages every day



Billions of Alexa interactions each week



First Prime Air Delivery on **Dec. 7, 2016**

More machine learning happens on AWS than anywhere else

10,000+

customers have used machine learning on AWS



92% of **TensorFlow** projects run on AWS

91% of **PyTorch** projects run on AWS



AWS is among the top rated on **Stanford's 2020 deep learning benchmark, DAWNBench**, for the fastest training time, lowest cost, lowest inference latency, and deepest set of security features

Thousands of startups powered by AWS ML

coinbase



Aurora

common
edits

STUDIO71

stripe



CONVOY

Root
Insurance Co

DELHIVERY



TransferWise

affirm



DEEPMAP

cravelabs

TECTON



ABACUS.AI

In 2020, AWS had 250+ ML releases.



Add intelligence to apps
AI for healthcare, fintech,
manufacturing ML in
your database

Data prep and management
Accelerate ML training
Cost optimization
Improve dev ops
Serverless machine learning
ML in production

The AWS ML Stack

AI SERVICES

HEALTH AI

NEW
Amazon HealthLake

NEW
Amazon Transcribe Medical

NEW
Amazon Comprehend Medical

INDUSTRIAL AI

NEW
AWS Panorama + Appliance

NEW
Amazon Monitron

NEW
Amazon Lookout for Equipment

NEW
Amazon Lookout for Vision

ANOMALY DETECTION

NEW
Amazon Lookout for Metrics

CODE AND DEVOPS

NEW
Amazon DevOps Guru

NEW
Amazon CodeGuru

VISION

NEW
Amazon Rekognition

SPEECH

NEW
Amazon Polly

NEW
Amazon Transcribe
+Medical

TEXT

NEW
Amazon Comprehend
+Medical

NEW
Amazon Translate

NEW
Amazon Textract

SEARCH

NEW
Amazon Kendra

CHATBOTS

NEW
Amazon Lex

PERSONIZATION

NEW
Amazon Personalize

FORECASTING

NEW
Amazon Forecast

FRAUD

NEW
Amazon Fraud Detector

CONTACT CENTER

NEW
Contact Lens

NEW
Voice ID
For Amazon Connect

ML SERVICES

NEW
Amazon SageMaker

Label data

NEW
Aggregate & prepare data

NEW
Store & share features

Auto ML

Spark/R

NEW
Detect bias

Visualize in notebooks

Pick algorithm

Train models

Tune parameters

NEW
Debug & profile

Deploy in production

Manage & monitor

NEW
CI/CD

Human review

SAGEMAKER STUDIO IDE

NEW: SageMaker JumpStart

NEW: Model management for edge devices

FRAMEWORKS & INFRASTRUCTURE

NEW
TensorFlow

NEW
mxnet

NEW
PyTorch

NEW
GLUON

NEW
Keras

NEW
scikit-learn

NEW
H2O

DeepGraphLibrary

Deep Learning AMIs & Containers

GPUs & CPUs

Elastic Inference

Trainium

Inferentia

FPGA

If your startup deals with
images, cameras, video, or
media files...

Amazon Rekognition Features



OBJECT, SCENE, AND ACTIVITY



CUSTOM LABELS



CONTENT MODERATION



TEXT



PPE DETECTION



FACE DETECTION AND ANALYSIS



FACE COMPARE & SEARCH



CELEBRITY RECOGNITION



VIDEO SEGMENTS



LIVE STREAM VIDEO



PATHING

Updated



New



Common applications of Amazon Rekognition

Automated image and video analysis at scale



WORKPLACE SAFETY

PPE detection
Vehicle or person detection
Person of interest



IDENTITY VERIFICATION

Test taker fraud detection
Know your customer (KYC)
Service access verification



MEDIA ANALYSIS

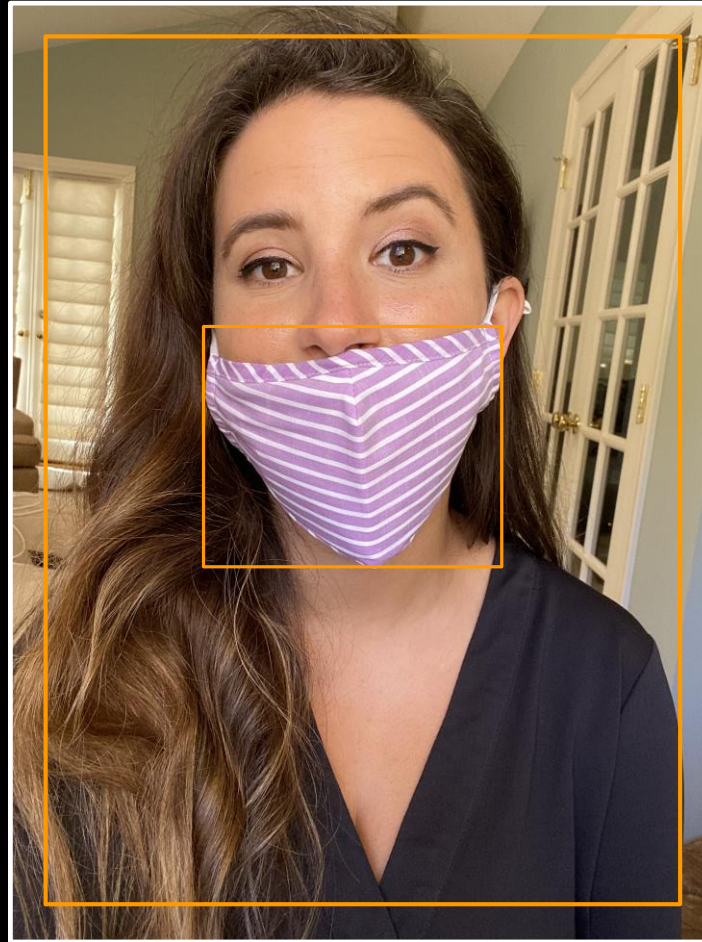
Search & discovery tagging
Content operations
Inappropriate content



INDUSTRIAL & RETAIL

Parts classification
Inventory management
Damage detection

Rekognition adds PPE Detection



Person detected	99.9 %
Face detected	99.9 %
Face cover detected	99.9 %
Face cover on nose : false	50 %
Head detected	99.9 %

Amazon Rekognition Custom Labels

How it works

Step 1:

Guided experience to
create labeled images



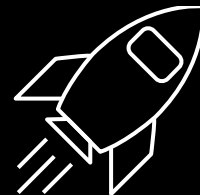
Step 2:

“Train” with a single
click / API call.
Evaluate with **no
coding** and **no ML
experience**



Step 3:

Use with **fully
managed, scalable,
available APIs**



Core Benefits

No ML expertise required

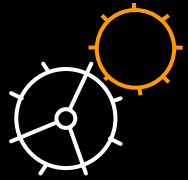
Low Code / No Code

Less training data
Tens to hundreds of images
instead of tens of thousands

Fully managed by AWS

If your startup deals with documents, forms, invoices, or frankly anything on paper...

How documents are processed today



Manual
processing

- Expensive
- Error Prone
- Time Consuming



Optical Character
Recognition (OCR)

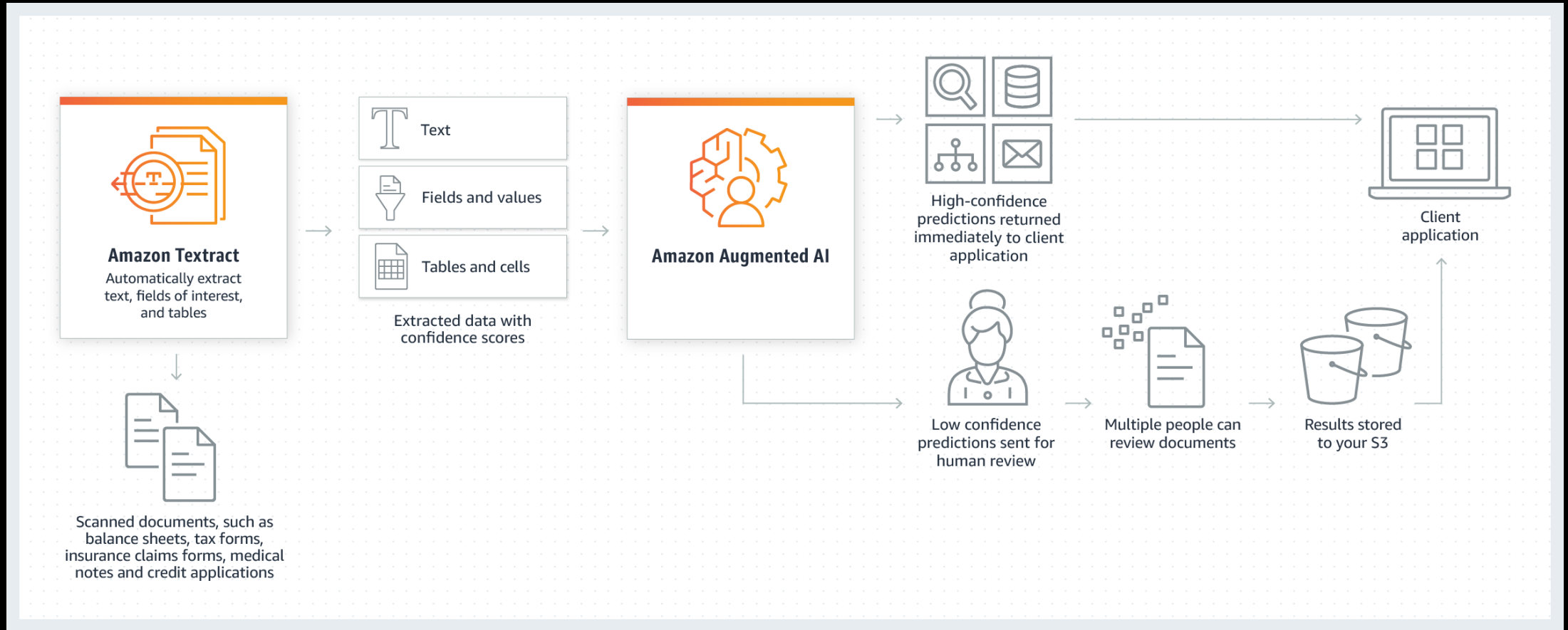
- Simple Documents Only
- Error Prone
- Flat Bag of Words



Rules and
template-based extraction

- Limited by Accuracy of OCR
- Dev and Management Overhead
- Templates are Brittle

How to embed Textract in your workflow



Textract extracts raw text, forms, and tables

Sample document

Employment Application

Application Information

Full Name: Jane Doe

Phone Number: 555-0100

Home Address: 123 Any Street, Any Town. USA

Mailing Address: same as above

Previous Employment History

Start Date	End Date	Employer Name	Position Held	Reason for leaving
1/15/2009	6/30/2011	Any Company	Assistant baker	relocated
7/1/2011	8/10/2013	Example Corp.	Baker	better opp.
8/15/2013	Present	AnyCompany	head baker	N/A, current

Your document must be in JPEG, PNG or PDF format.
It must be smaller than 5 MB, and have fewer than 10 pages.
The limits for uploading a document in the console are different than the API.
For more information, see the Amazon Textract limits. [Info](#)

Reset document

Raw textFormsTablesHuman review new

Search

Lines

Employment Application

Application Information

Full Name: Jane Doe

Phone Number: 555-0100

Home Address: 123 Any Street, Any Town. USA

Mailing Address: same as above

Previous Employment History

Start Date

End Date

Employer Name

Position Held

Reason for leaving

1/15/2009

6/30/2011

Any Company

Assistant baker

relocated

7/1/2011

8/10/2013

Example Corp.

Baker

better opp.

8/15/2013

Present

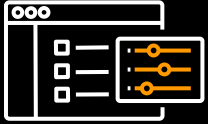
AnyCompany

head baker

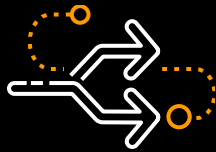
N/A, current

If your startup deals with paragraphs, emails, tweets, form fills, or any “natural language”...

Typical Amazon Comprehend use cases



Automation of
email workflows



Customer support
tickets routing



Documents and
media tagging



Document data
extraction



Customer sentiment
analysis



Contact center
call analysis



Personally Identifiable
Information (PII)
detection and redaction

Amazon Comprehend

Discover insights and relationships in text



Documents

Email, chat,
social, phone
calls and more



Amazon
Comprehend

Automatically
extract insights
from text



Entities
+ Custom Entities



Key Phrases



PII
(Personally Identifiable
Information)



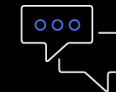
Sentiment



Document
Classification



Topics



Language



Syntax

Amazon Comprehend: entity detection and PII redaction

Entities

Key phrases

Language

PII

Sentiment

Syntax

Analyzed text

Hello Kevin Miller, Your AnyCompany Financial Services, LLC credit card account 1111-0000-1111-0000 has a minimum payment of \$24.53 that is due by July 31st. Based on your autopay settings, we will withdraw your payment on the due date from your bank account XXXXXX1111 with the routing number XXXXX0000.

Your latest statement was mailed to 100 Main Street, Anytown, WA 98121. After your payment is received, you will receive a confirmation text message at 206-555-0100. If you have questions about your bill, AnyCompany Customer Service is available by phone at 206-555-0199 or email at support@anycompany.com.

▼ Results

Q Search

< 1 2 > ⚙

Entity	Type	Confidence
Kevin Miller	Person	0.99+
AnyCompany Financial Services, LLC	Organization	0.99+
1111-0000-1111-0000	Other	0.92
\$24.53	Quantity	0.99+
July 31st	Date	0.99+
XXXXXX1111	Other	0.82
XXXXX0000	Other	0.84
100 Main Street, Anytown, WA 98121	Location	0.99+
206-555-0100	Other	0.99+
AnyCompany	Organization	0.90

Entities

Key phrases

Language

PII

Sentiment

Syntax

Analyzed text

Hello Kevin Miller, Your AnyCompany Financial Services, LLC credit card account 1111-0000-1111-0000 has a minimum payment of \$24.53 that is due by July 31st. Based on your autopay settings, we will withdraw your payment on the due date from your bank account XXXXXX1111 with the routing number XXXXX0000.

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▼ Results

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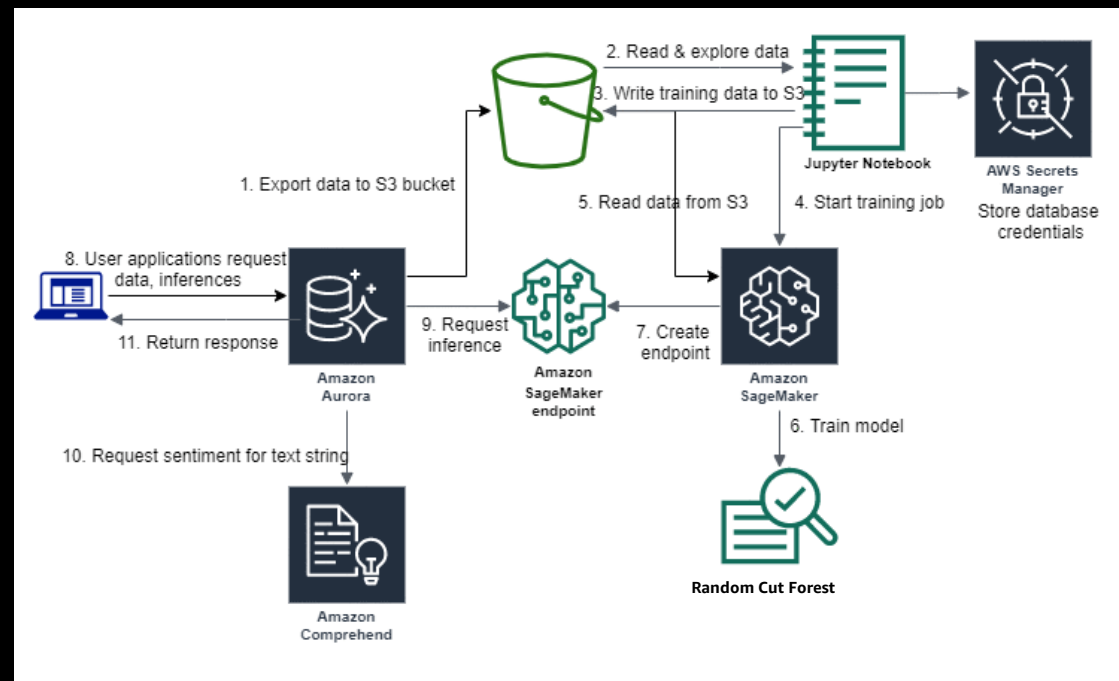
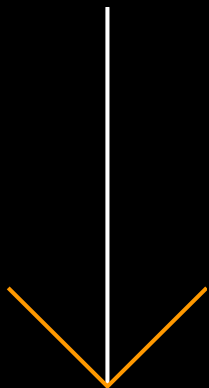
< 1 > ⚙

Entity	Type	Confidence
Kevin Miller	Name	0.99+
1111-0000-1111-0000	Bank account number	0.91
July 31st	Date time	0.99+
XXXXXX1111	Bank account number	0.99+
XXXXX0000	Bank routing	0.99+
100 Main Street, Anytown, WA 98121	Address	0.99+
206-555-0100	Phone	0.99+
206-555-0199	Phone	0.99+
support@anycompany.com	Email	0.99+

► Application integration

Amazon Aurora ML

ML inference with SQL



```
1 create function anomaly_score(value real) returns real
2   alias aws_sagemaker_invoke_endpoint endpoint name 'random-cut-forest-model-demo';
3
4 set @score_cutoff = (select avg(anomaly_score(value)) + 3 * std(anomaly_score(value)) from nyc_taxi);
5
6 select *, anomaly_detection(value) score from nyc_taxi
7   where anomaly_detection(value) > @score_cutoff;
```

Amazon Translate: go global and local

Translation

Source language

Auto (auto) ▼

Did you know that there are online tools that can translate your content for you?

82 characters, 82 of 5000 bytes used. [Info](#)

Detected language: English (en)

Target language

French (fr) ▲

Q

Afrikaans (af)

Albanian (sq)

Amharic (am)

Arabic (ar)

Armenian (hy)

Azerbaijani (az)

Bengali (bn)

Bosnian (bs)

Bulgarian (bg)

Canadian French (fr-CA)

Catalan (ca)

Chinese (zh)

Chinese Traditional (zh-TW)

Croatian (hr)

Czech (cs)

Danish (da)

Dari (fa-AF)

Dutch (nl)

English (en)

Estonian (et)

Finnish (fi)

French (fr)

Georgian (ka)

German (de)

Greek (el)

Gujarati (gu)

Target language

French (fr) ▼

Saviez-vous qu'il existe des outils en ligne qui peuvent traduire votre contenu pour vous ?

Is this translation what you expected? Please leave us [feedback](#)

If you're looking to leverage ML
to create auto-tracking for
internal metrics...

Amazon Lookout for Metrics

Automatically detects anomalies in business and operational time series data and identifies their root cause.



Detects anomalies faster and more accurately with ML and over 20 years of experience at Amazon.

Diagnoses likely issues at scale with greater confidence by providing actionable results.

Continuous improvement over time by incorporating human in the loop feedback.



If you have SKUs (videos, blog posts, consumer goods, discount offers, courses)...

Amazon Personalize

How it works

User events/interactions

(views, signups, conversions, etc.)



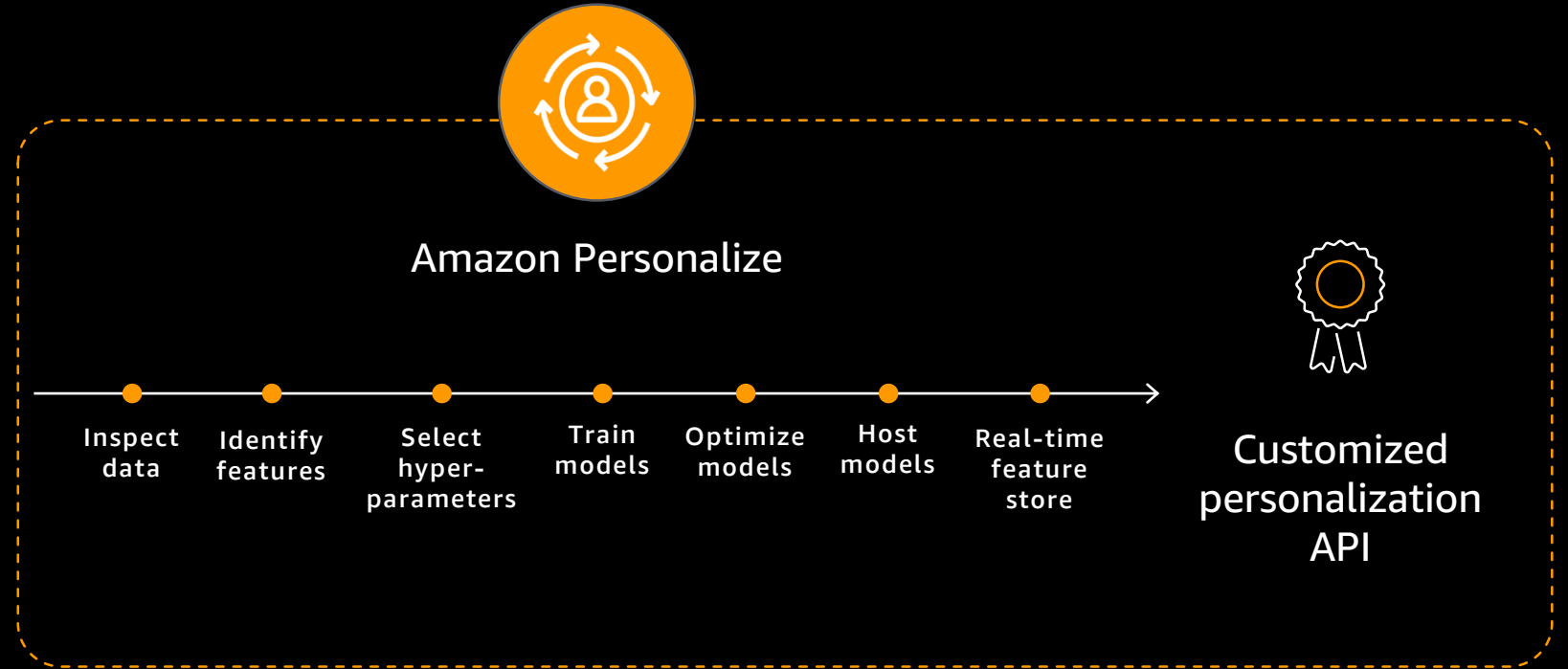
Item metadata

(details of articles, products, videos, etc.)



User metadata

(age, location, etc.)



The AWS ML Stack

AI SERVICES

HEALTH AI

NEW Amazon HealthLake

Amazon Transcribe Medical

Amazon Comprehend Medical

INDUSTRIAL AI

NEW AWS Panorama + Appliance

NEW Amazon Monitron

NEW Amazon Lookout for Equipment

NEW Amazon Lookout for Vision

ANOMALY DETECTION

NEW Amazon Lookout for Metrics

CODE AND DEVOPS

NEW Amazon DevOps Guru

Amazon CodeGuru

VISION

Amazon Rekognition

SPEECH

Amazon Polly

Amazon Transcribe
+Medical

TEXT

Amazon Comprehend
+Medical

Amazon Translate

Amazon Textract

SEARCH

Amazon Kendra

CHATBOTS

Amazon Lex

PERSONIZATION

Amazon Personalize

FORECASTING

Amazon Forecast

FRAUD

Amazon Fraud Detector

CONTACT CENTER

Contact Lens

Voice ID
For Amazon Connect

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TensorFlow

mxnet

PyTorch

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leap

DeepGraphLibrary

Deep Learning AMIs & Containers

GPUs & CPUs

Elastic Inference

Trainium

Inferentia

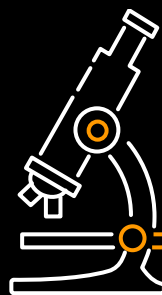
FPGA



Learn

aws.training/machinelearning

ml.aws



Connect

Account Manager

or

tinyurl.com/startupMLcontact



Build

Pick one for the next dev cycle

Thank you!

Allie K. Miller