

TRACK 2 AI/ML

### AWS Miami Learning Day Unleash the power of AI/ML by carefully selecting your use case

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### Al, ML, Deep Learning ...?



#### Artificial Intelligence (AI)

Any technique that allows computers to mimic human intelligence using logic, if-then statements, and machine learning



#### Machine learning (ML)

A subset of AI that uses machines to search for patterns in data to build logic models automatically



#### Deep learning (DL)

A subset of ML composed of deeply multi-layered neural networks that perform tasks like speech and image recognition



#### Generative Al

Powered by large models that are pretrained on vast corpuses of data and commonly referred to as foundation models (FMs)



## The impact of ML is growing in the public sector



### INCREASING EFFICIENCY

Al could generate \$41 billion in cost savings by federal and state governments.

—Deloitte



### FROM PILOTING TO OPERATIONALIZING

By the end of 2024, 75% of enterprises will shift from piloting to operationalizing AI

—Gartner



### ACCELERATING IMPACT

By 2035, public sector investments in AI will generate \$935 billion in societal value.

—Accenture



### Machine learning is going mainstream in public sector

#### **Emergency management**

Emergency management, emergency response

#### **Health and benefits**

Local hospitals and clinics, public health, child welfare, homelessness, seniors/youth, health/food, environmental



#### Constituent engagement

Contact center, website, mobile



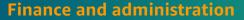
#### **Elections**

Registration, voter management, polling, voting management, candidate management



#### **Education and library**

K12 and early childhood, adult education, library



Tax, revenue, regulatory/compliance, fraud, budget, purchasing/procurement



#### Assessments and permitting

Planning and zoning, assessment, land admin/recorder of deeds, mapping, watershed, housing



#### **Economic development**

Grants and benefits administration, workforce development, corporate relations, land clearance/redevelopment



#### **Enforcement**

Police, jails, courts, animal control



#### **Utilities**

Electric, gas, water, sewer, waste management, generation/distribution



Traffic, mass transit, parking, airports, ports



#### **Use Case Identification and Selection**

Generative AI is the answer!



Great. What was the question?



#### Look for use cases that are:



#### **Impactful**

Early use cases should solve real business problems (or create new opportunities that matter to your business) and demonstrate the differentiated benefit of using generative Al to solve them.



#### Visible

Select use cases with broader visibility in your organization or create a communication plan to generate visibility



#### Relatable

Initial use cases shouldn't be limited to solving one problem.

Spark team members' imaginations and inspire them to think about what they can solve within their domains using generative Al.

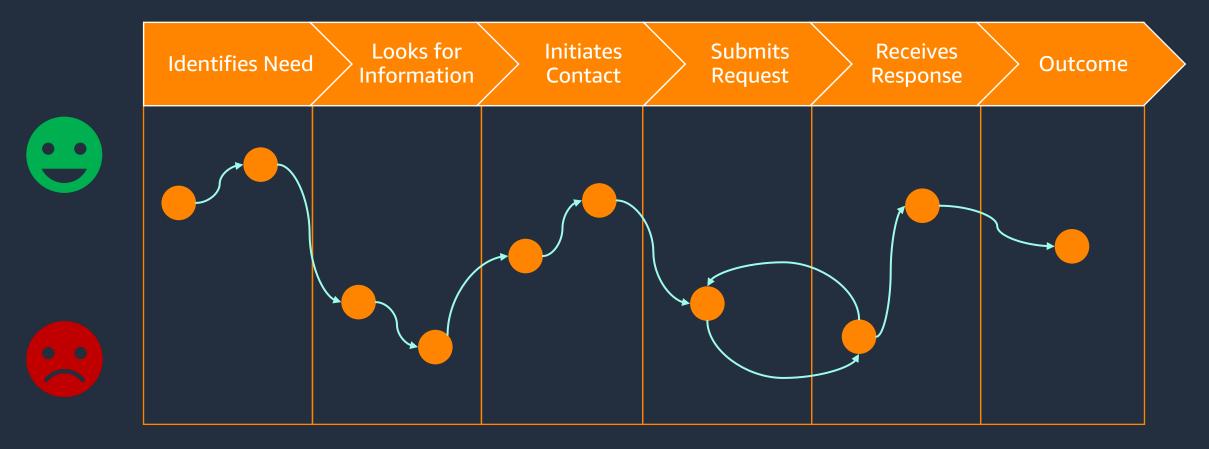


## AWS AI Use Case Explorer

Explore the Art of the Possible in Al



### **Constituent journey mapping**



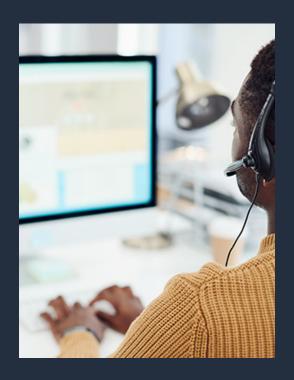
What are your constituents' journeys?

Where are your bottlenecks?

Where is the greatest discontent?



### Top AI/ML use cases for state and local government



Employment Application This is a sample employment application form. and answer all questions. Personal Information Full Name: Jane Doe 555-0100 Phone Number: Home Address: 123 Any Street, Any Town, USA Same as home address Mailing Address: Work History Any Company (2018-Current) Current Company: Previous Company # 1 (2014-20) Company#1: Previous Role # 1 Previous Company #2 (2010-2014 Company#2: Previous Role # 2





Speech and language

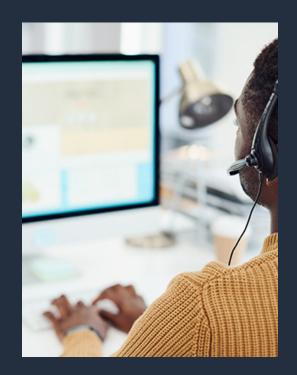
Intelligent document processing

**Computer** vision

**Predictions** and insights



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Any Role
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Speech and language

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### AI/ML-enabled constituent engagement

### **Engage citizens and drive improvements** in customer satisfaction

- Improve contact center agent effectiveness with real-time translation and decision support using Amazon Connect and Contact Center Intelligence
- Analyze call and text interactions with citizens to spot issues and trends and drive improvement
- Improve self service



## Using AI to improve agent efficiency

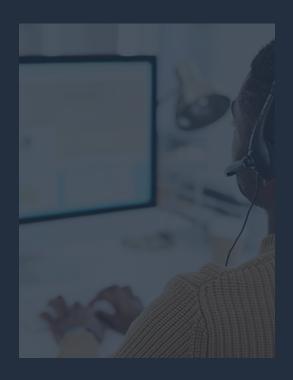
"During peak hours, previously you're 45-50 minutes on hold, and now that's has been reduced to about three and a half minutes. One of the other benefits we've gotten from Amazon Connect is sentiment analysis. On a call, we get real-time feedback on whether or not the customer was happy, frustrated, or angry..."

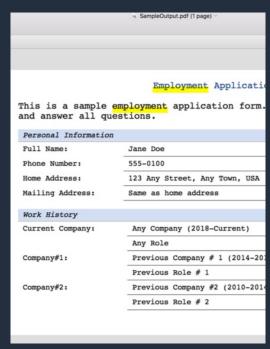
—Benny Chacko, Deputy General – LA County Internal Services Department





### Top AI/ML use cases for state and local government









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## Extract insights from unstructured content

Extract insights from unstructured documents and forms, like images, PDFs, and audio

- Analyze text with natural language processing (NLP) to identify topics, extract entities, understand sentiment, and classify documents with Amazon Textract, Amazon Rekognition, and Amazon Comprehend
- Translate content at scale with Amazon Translate



### **King County Assessor's Office**

#### **CHALLENGE**

Reduce data entry, eliminate data errors, and improve data time lines.

#### **SOLUTION**

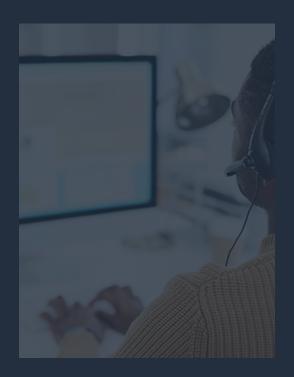
Intelligent documents processing for documents and electronic files, streamlining and unlock data and information from paper documents and electronic files

#### **RESULT**

King County employees will focus on higher value, more satisfying work, and ultimately help the county realize its vision for connected communities, connected data, and connected government."



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Speech and language

document processing

**Computer** vision

Predictions and insights



## Content analysis and object detection

Extract insights and identify objects of interest from large volumes of images and videos with Amazon Rekognition

- Detect personal protective equipment (PPE) to improve worker safety
- Analyze vehicle traffic and pedestrian and bicycle safety
- Detect objects of interest in video and reduce human effort required to review footage



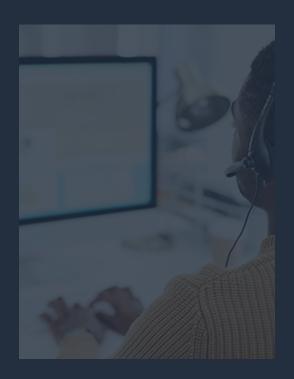
## Assessing damage from natural disasters

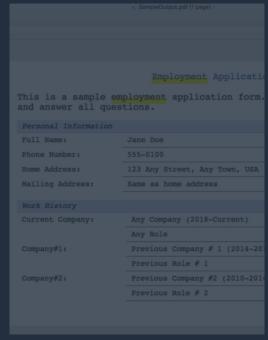
EagleView runs deep learning models on AWS to make quicker, more accurate assessments of property damage within 24 hours of a natural disaster. Amazon Elastic Inference makes those workflows more cost effective at scale.





### Top AI/ML use cases for state and local government









Speech and language

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Computer vision

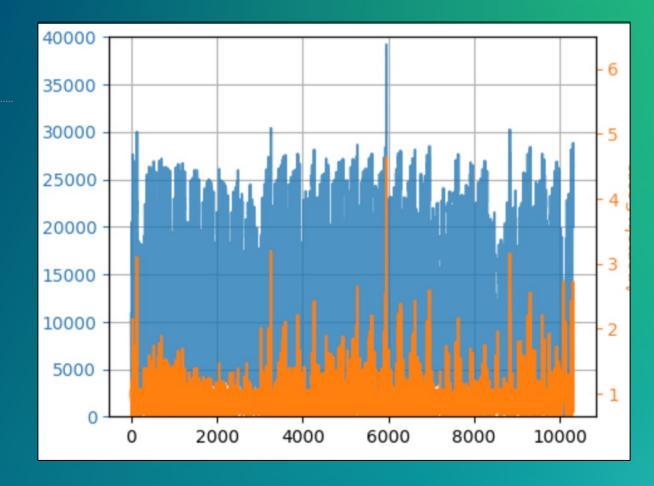
**Predictions** and insights



## Fraud detection and prevention

### Detect and prevent fraud, waste, and abuse

- Enhance accuracy and speed to help detect and prevent waste fraud and abuse
- Managed service approach with prebuilt
   ML models for fraud detection
- Supervised and unsupervised models for developing highly targeted models to utilize customer data as part of fraud prevention efforts







## Identify fraud and other anonymous activities

FINRA, one of the largest security regulators in the United States, was established to monitor and regulate financial trading practices; using Amazon EMR, FINRA can capture, analyze, and store a daily influx of 135 billion records in order to identify fraud and other anonymous activities

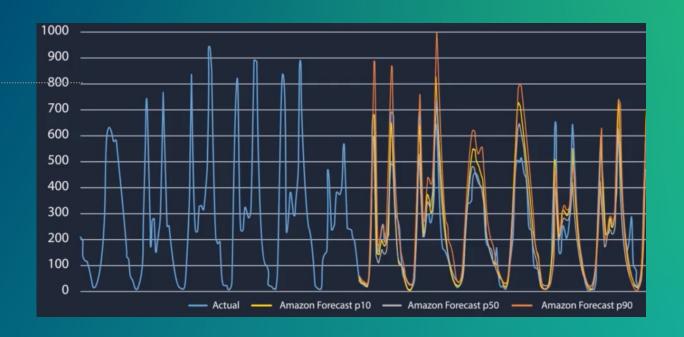




## Machine learning to forecast trends and support decisions

### Accurate, time series forecast with machine learning

- Predicting service demand or program activities
- Allocating resources to optimize impact and outcomes for citizens
- Financial planning and revenue / cost forecasts



## Predictions and forecasts from internet of things (IoT) and sensor data

Leverage data from smart cities and facilities

- Smart cities
- Predictive maintenance
- Facility management

Learn more about Amazon Monitron







### AI/ML use cases in education



Chatbots and virtual tutors Hyper personalization Scheduling Course engagement Higher order skills development Enhance learning experience

Automating administrative processes Content generation Dynamic Q and A Generative AI enhanced analytics Code generation Regulatory, grant, and compliance Automate proposal and review processes Access XXL data sets for new insights Research summarization Predictive maintenance

Boost productivity

Enhance research, libraries, athletics

Metadata creation and tagging

### AI/ML use cases in healthcare







Patient to trial matching

Multi-modal data analysis



### Clinical efficiency

Longitudinal patient records for full patient picture

Automate medical image interpretation



### Operational efficiency

Auto-generate referral letters, clinical coding, and prior authorization

Intelligent document processing



### Patient experience

Patient outcome prediction

Personalize patient discharge instructions and treatment plans



#### Digital health

Patient care concierge

Remote care management



### **Generative AI on AWS**





### Question: What is generative artificial intelligence?

- Creates new content and ideas, including conversations, stories, images, videos, and music
- Powered by large models that are pretrained on vast corpuses of data and commonly referred to as foundation models (FMs)

BLOOM











#### **Common GenAl use cases**



Text generation



Q&A



Text summarization



Text extraction



Paraphrase rephrase



Search



Code generation



Image generation



Image classification



Audio generation



Video generation



### Start your Al journey today



Select the right use case



### Start your Al journey today



Select the right use case

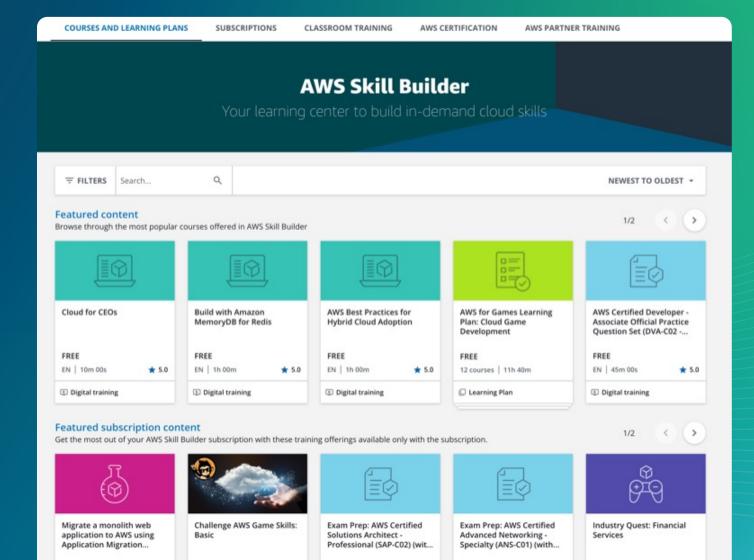


Empower your teams through a variety of training opportunities



#### **SKILLBUILDER.AWS**

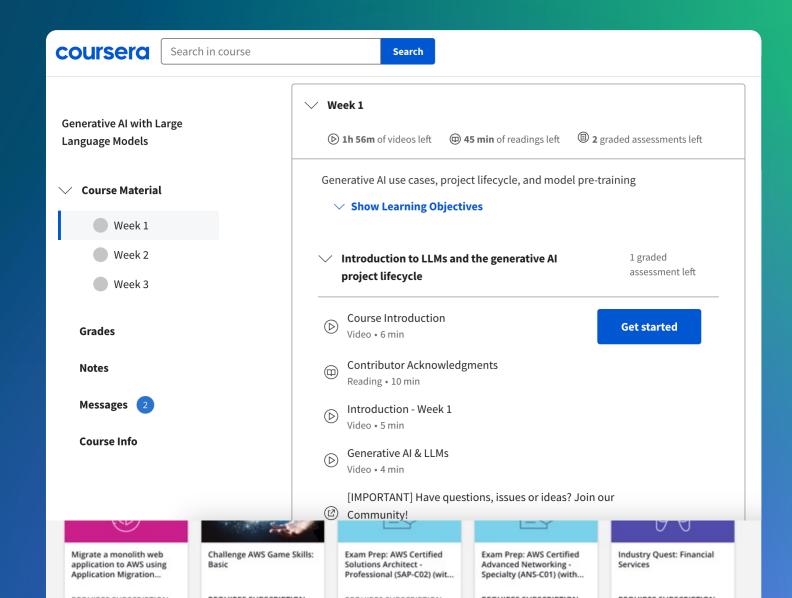
## 600+ digital courses





# Hands-on generative Al training opportunities

Learn the fundamentals of generative AI for real-world applications





### Start your generative Al journey today



Select the right use case



Empower your teams through a variety of training opportunities



Get started on a PoC for your top use cases



## Thank you!

Jesse Roberts slgjesse@amazon.com

#### Please fill out the session survey



Track 2, Session: Unleash the power of AI/ML by carefully selecting your use case

