



The background features a complex, multi-colored geometric pattern composed of numerous triangles in shades of orange, red, yellow, and brown, radiating from a central point.

aws INNOVATE
AI / ML EDITION

Crea tus propios modelos para
detectar defectos y anomalías
sin ser experto en
aprendizaje automático

Anna Grüebler

Sr. AI Specialist Solutions Architect

Amazon Web Services

Agenda

¿Qué es detección de anomalías?

Demo 1: Detectando defectos en objetos

Demo 2: Detectando anomalías en métricas

Conclusión

¿Qué es detección de anomalías?

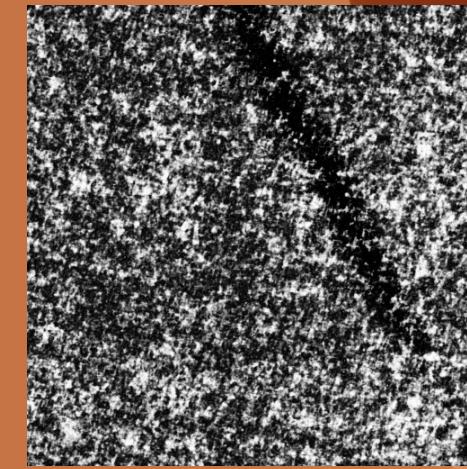
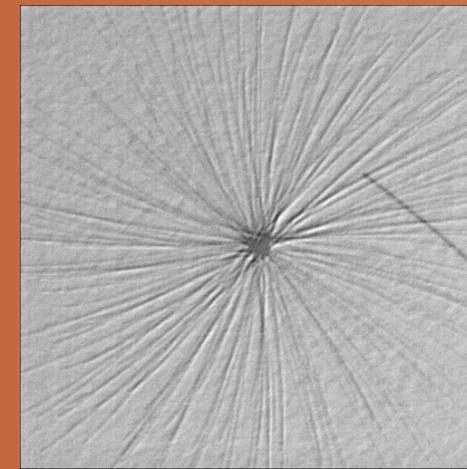
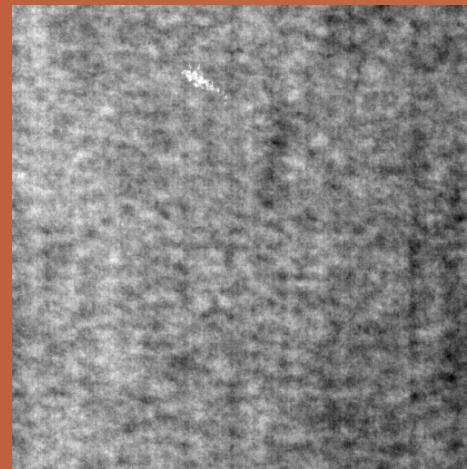
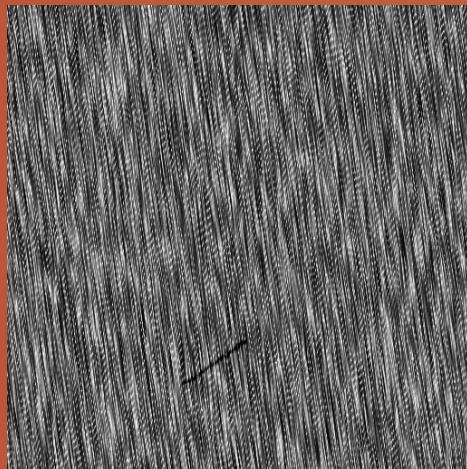
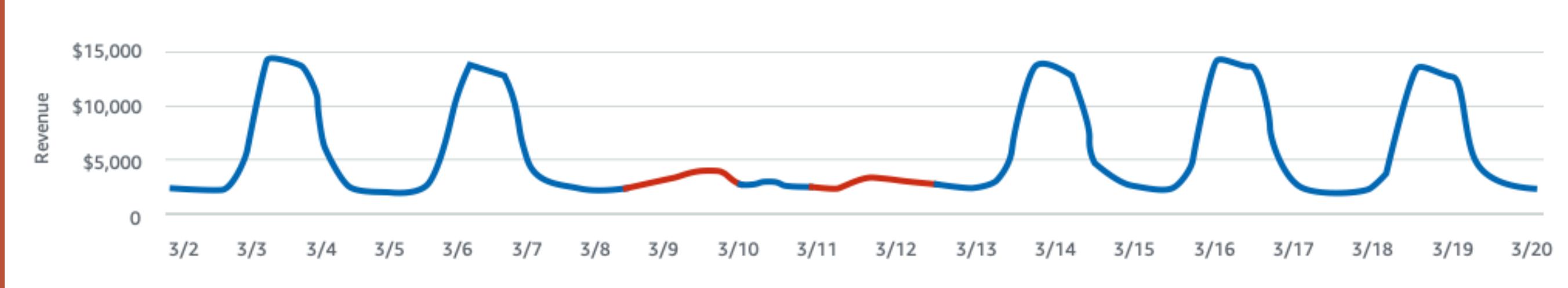
“Anomaly detection is the identification of rare items, events or observations which raise suspicions by differing significantly from the majority of the data”

[Wikipedia, “Anomaly detection”,
retrieved January 2021]

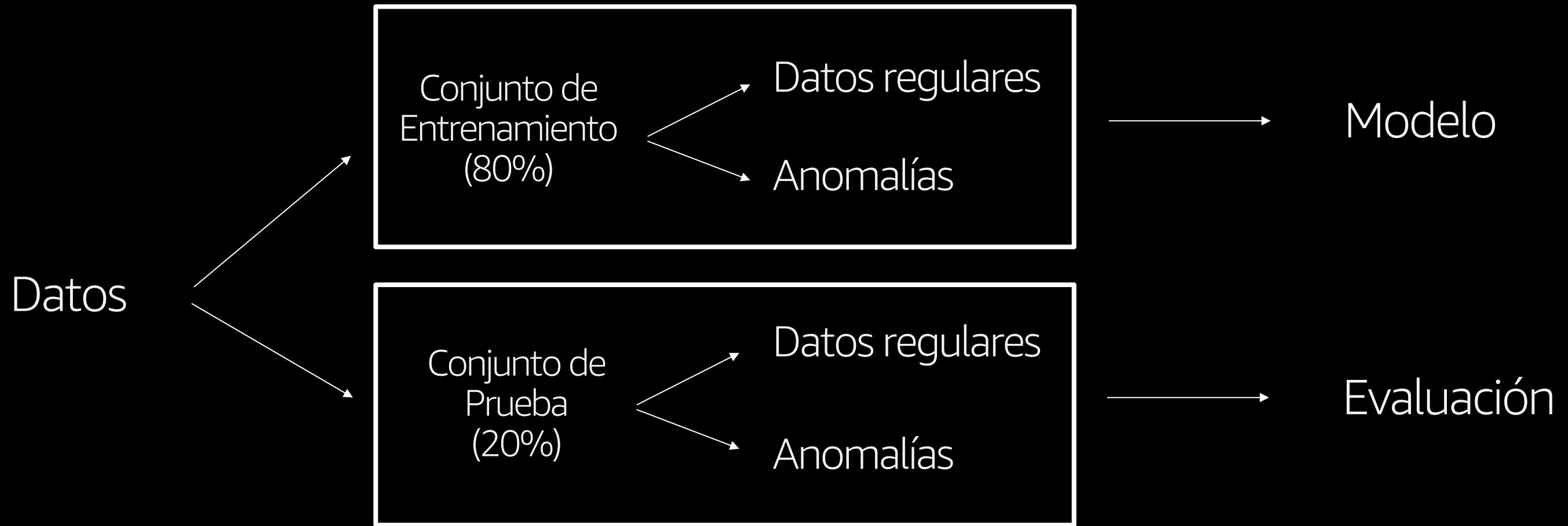
“La detección de anomalías nos permite encontrar comportamientos atípicos y problemas en los datos.”

[Yo]

aws INNOVATE
AI / ML EDITION



¿Qué necesitamos para empezar? (aprendizaje supervisado)

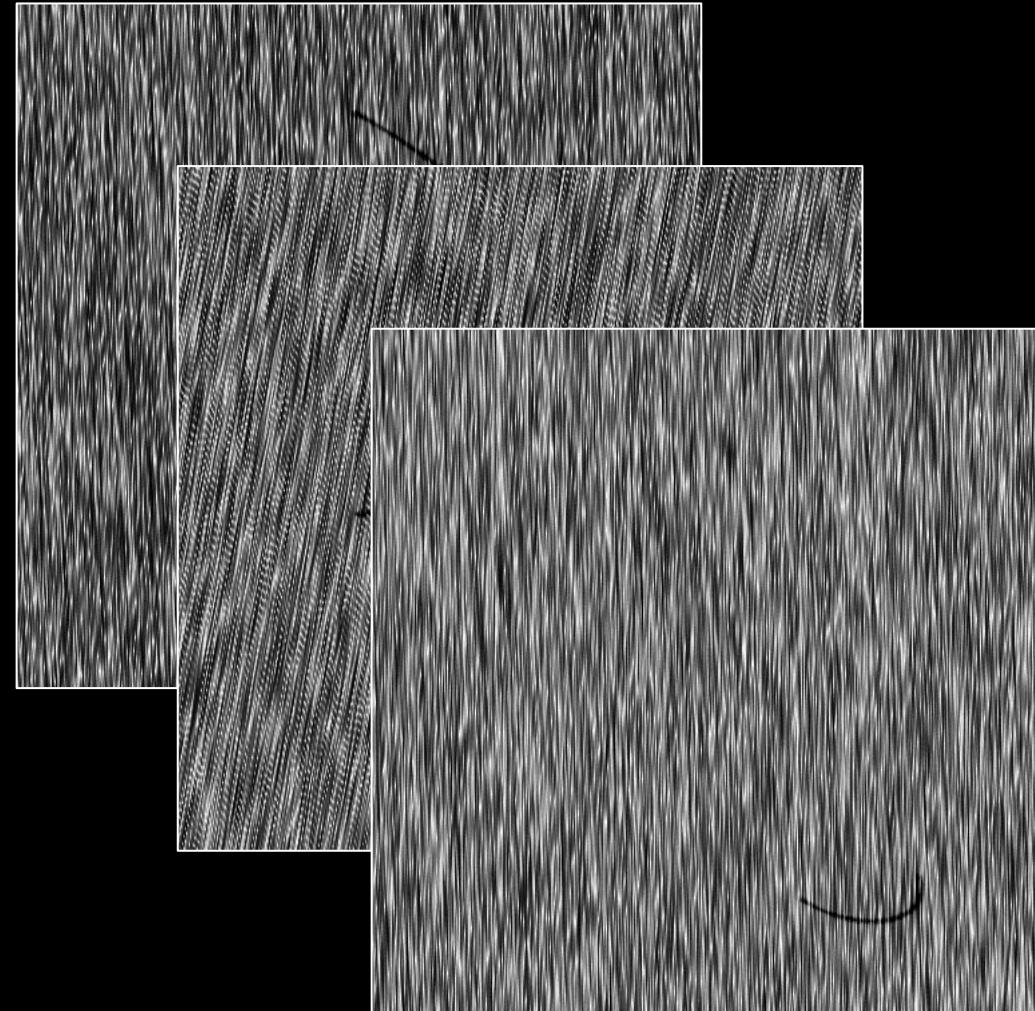
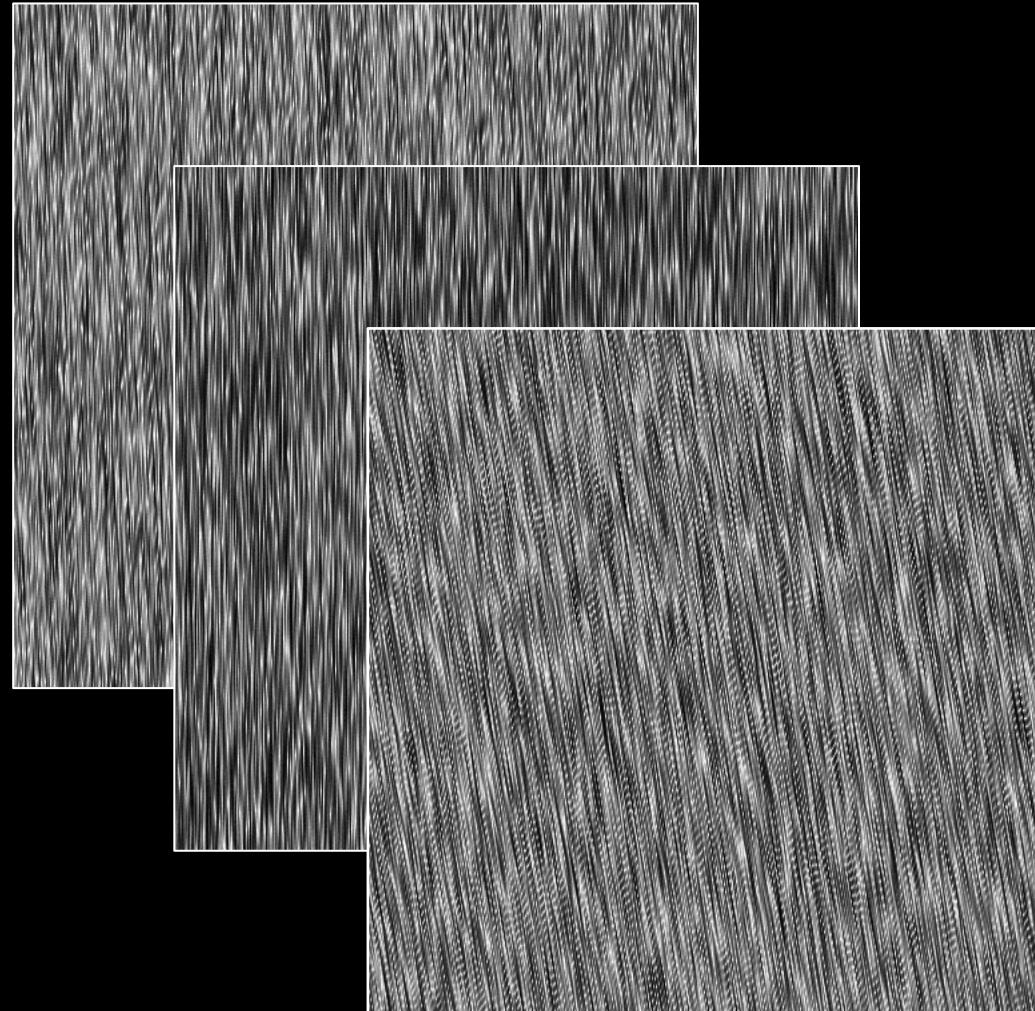


¿Qué Podemos hacer con el modelo? (aprendizaje supervisado)

Datos nuevos → Modelo → Predicción (si/no)

Demo 1 – Detectando defectos en productos

Ejemplo – texturas industriales (512x512 px)



Home
Topics
Committees
Important Dates
Author information
Program
Invited Speakers
Prizes
Registration
Local Information
Previous Conferences
Contact
Imprint
Data Protection

DAGM 2007

29th Annual Symposium of the German Association for Pattern Recognition

Prizes

- DAGM award for best submissions (total of Eur 4000)
- Olympus award (total of Eur 5000)
- Competition: Weakly Supervised Learning for Industrial Optical Inspection (total of Eur 3000)
- Design award for new DAGM logo (total of Eur 1050)
- DAGM SMI Young Talents Prize (total of Eur 2250)

Weakly Supervised Learning for Industrial Optical Inspection

DAGM 2007 and the German Chapter of the European Neural Network Society (GNNS) offer a competition in which every interested participant of the Symposium can take part.

The competition is inspired by problems from industrial image processing. In order to satisfy their customers' needs, companies have to guarantee the quality of their products, which can often be achieved only by inspection of the finished product. Automatic visual defect detection has the potential to reduce the cost of quality assurance significantly.

The competitors have to design a stand-alone algorithm which is able to detect miscellaneous defects on various



Services ▾

Q s3



alex @ acasal ▾

Ireland ▾

Support ▾

AWS CloudShell

Actions ▾



eu-west-1

[cloudshell-user@ip-10-0-65-44 ~]\$ █



Model performance metrics [Info](#)

Status

 Hosted

Status message

The model is running

Date created

January 13th, 2021 at 4:24:07 PM

Train duration

1 hour 29 minutes 7 seconds

Test images

229 images

Precision



24 anomalies were correct out of
24 total predictions

Recall



24 anomalies were predicted out of
24 total anomalies

F1 score



The overall model performance.

bit.ly/lookout-for-vision-demo-script

Demo 2 – Detectando anomalías en medidas



Machine learning

Amazon Lookout for Metrics Preview

Easily detect anomalies in your data

Amazon Lookout for Metrics is a machine learning service that continuously analyzes your business data for anomalies based on the same technology used by Amazon.com – with no machine learning experience required.

Getting started

To begin using Amazon Lookout for Metrics, create a detector.

[Create detector](#)

How it works



Create a detector

A detector monitors your dataset, finds anomalies and analyzes their impact.



Add a dataset

Select the data that you want to monitor.

Amazon Lookout for Metrics



Detectors

▼ innovate-demo-detector

Details

Dataset

Alerts

Anomalies

Amazon Lookout for Metrics > Detectors > innovate-demo-detector

innovate-demo-detector

Activate

Edit

Delete

▼ How it works: Detector setup



Create a detector

A detector monitors your dataset, finds anomalies and analyzes their impact.



Add a dataset

Select the data that you want to monitor.



Activate detector

Activate the detector to start monitoring the data for anomalies.



Add alerts - optional

Send automated anomaly alerts to Lambda functions, Webhooks, cloud applications like Slack, PagerDuty, and DataDog, or to SNS topics with subscribers that use SMS, email, or push notifications.

View and tune results.



View anomalies

See which metrics are impacted, identify their root cause, and tune the results to improve accuracy.

View anomalies

Created

1 added

Backtest complete

Add alerts

github.com/aws-samples/amazon-lookout-for-metrics-samples

Conclusión

Thank you!

Anna Grüebler
gruebler@amazon.co.uk