

*Microsoft Cognitive Services*

# Applied AI: Real-World Use Cases for Azure Cognitive Services



# Paige Bailey

*Sr. Cloud Developer Advocate*

## Work Experience

- Focus at Microsoft is *machine learning* and *artificial intelligence*.
- Prior to joining Microsoft, was a *data scientist* and *geophysical application developer* in the energy industry for 5 years.
- *GIS Technician* (Esri products) for two years.

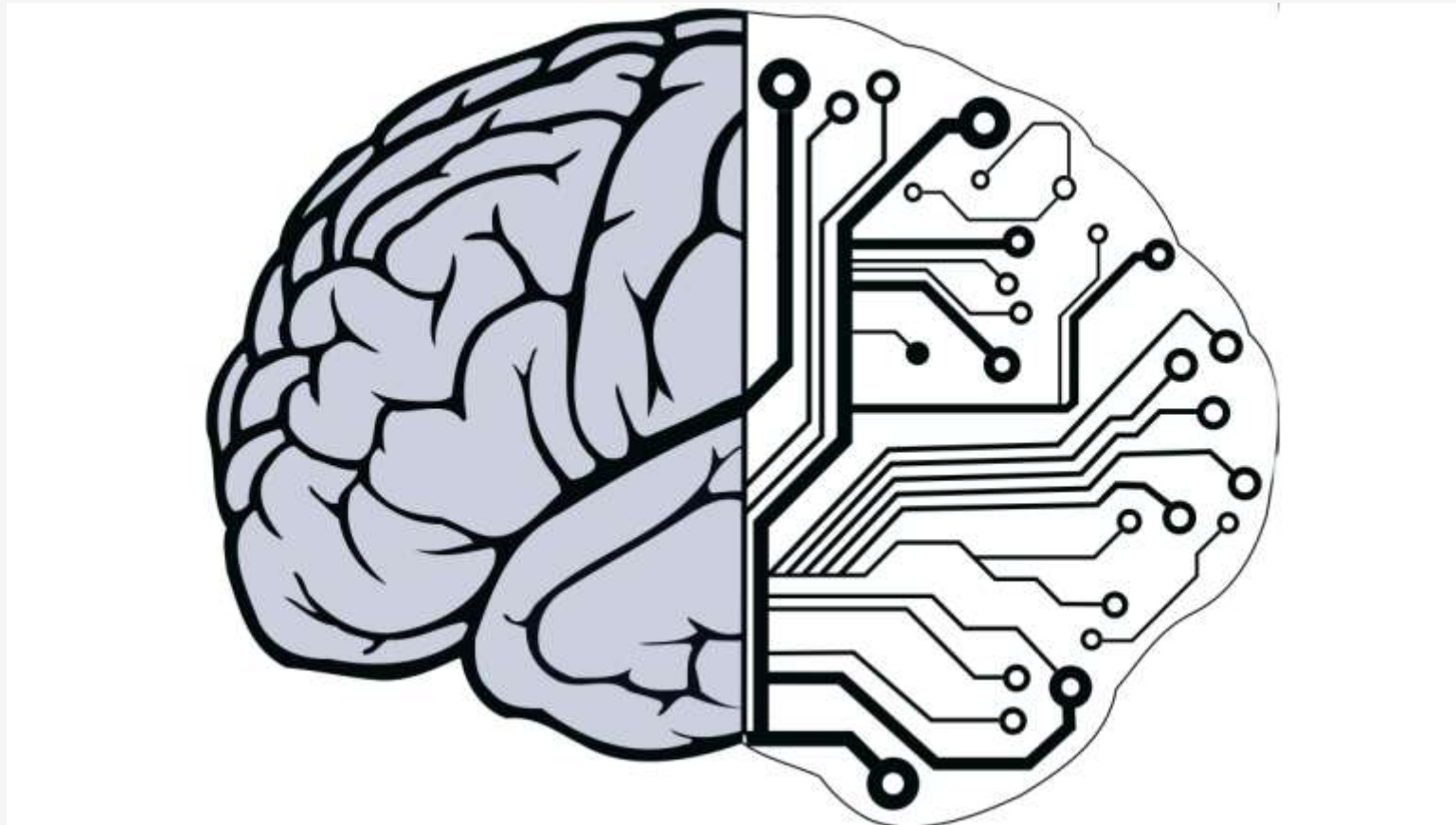
## Toolkit

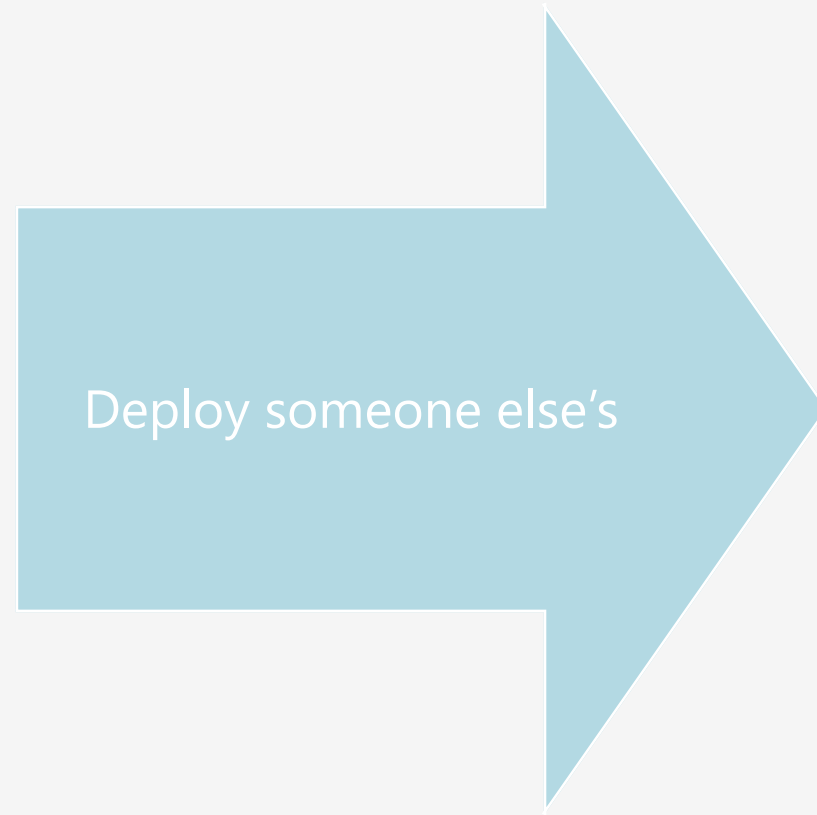
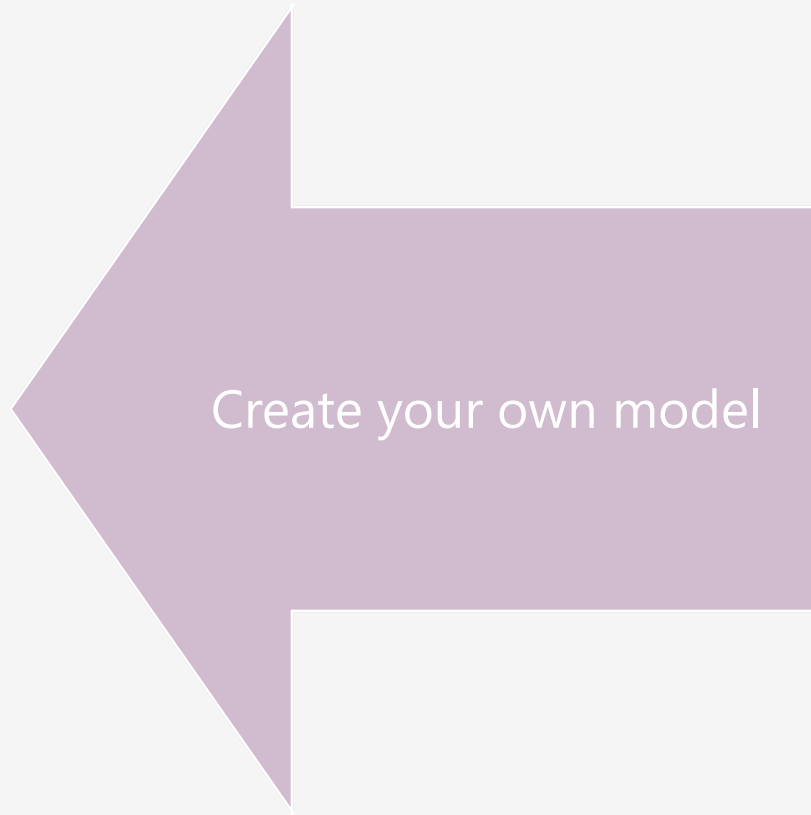
- Python (*10 years*)
- R (*4 years*)
- Spark, Kafka, Hive, HBase (*2 years*)

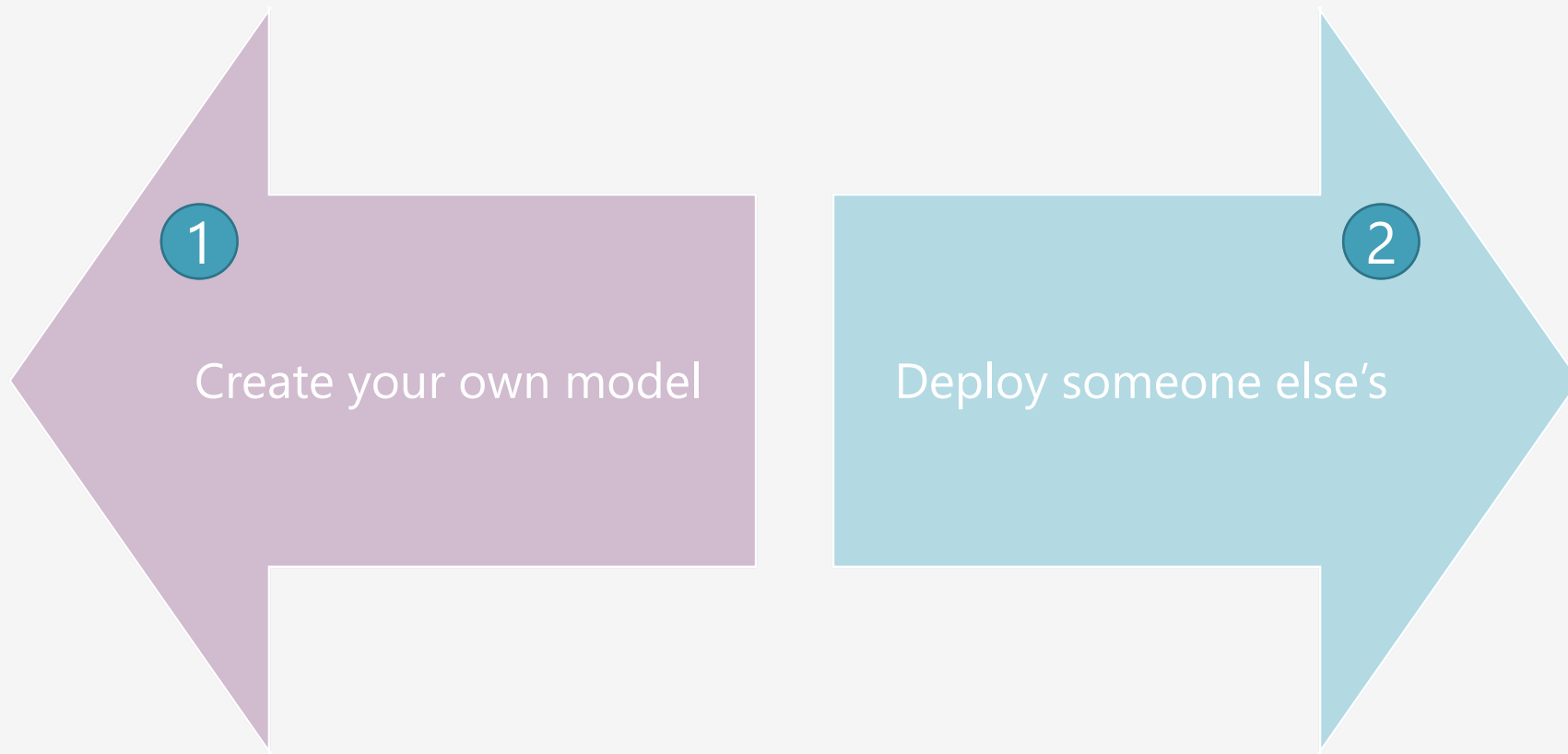
**Location:** *Austin, TX*

**Twitter:** [@DynamicWebPaige](https://twitter.com/DynamicWebPaige)



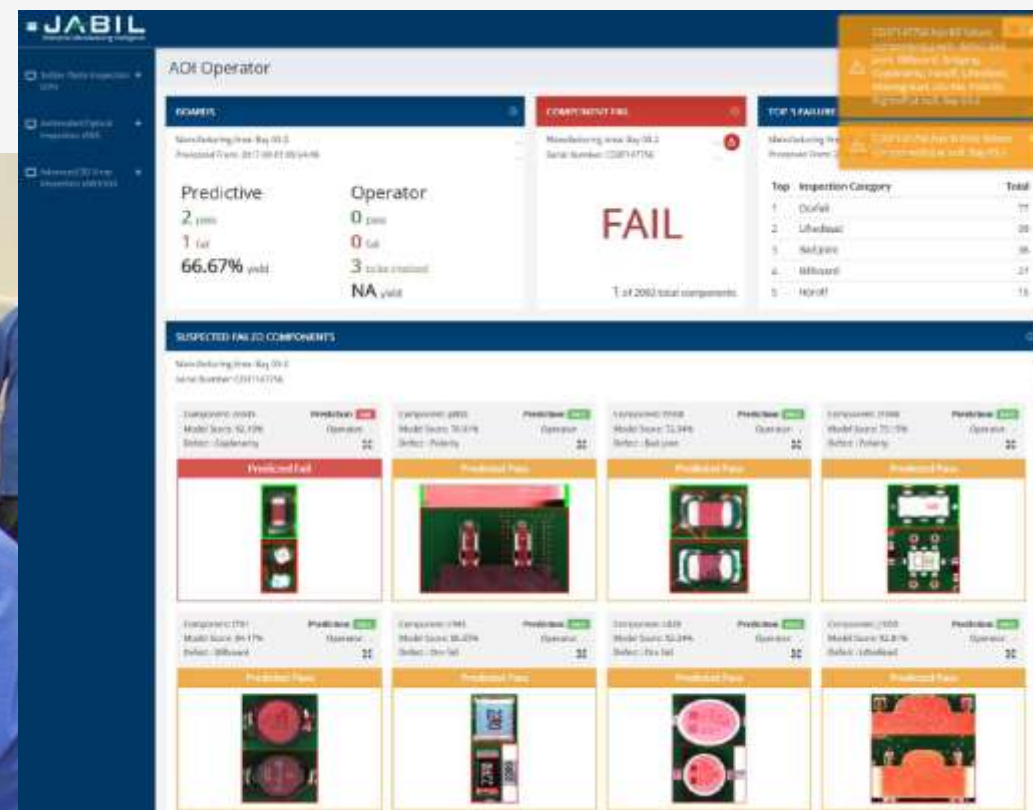






# Creating Your Own Model





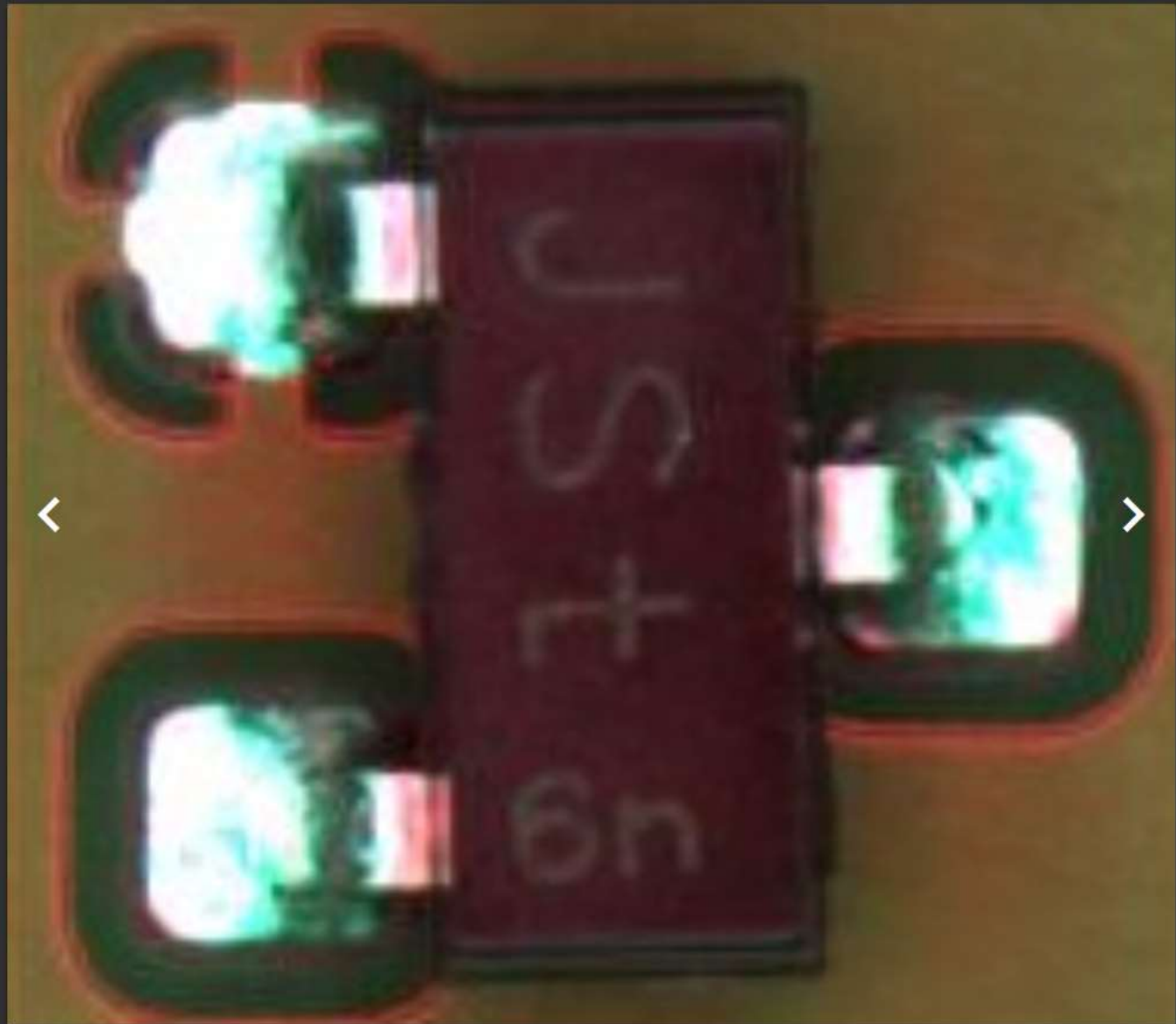
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RKZ323220-1-2017-02-22

RYN901641-2-2017-04-01

RKZ123210-1-2017-05-10

## Optical Image Analysis





RKZ123610-1-2017-02-22



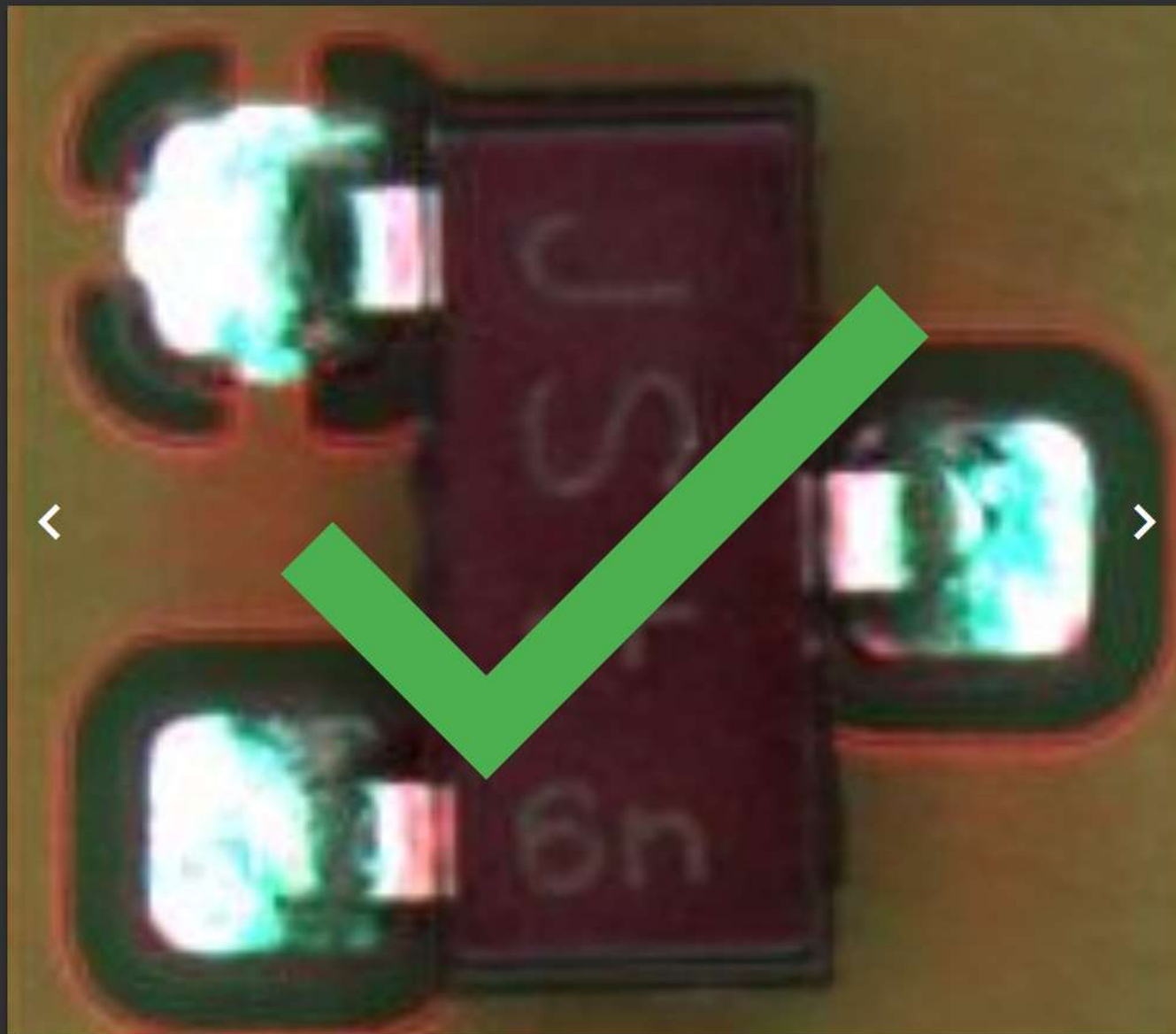
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## Optical Image Analysis



RKZ123610-1-2017-02-22



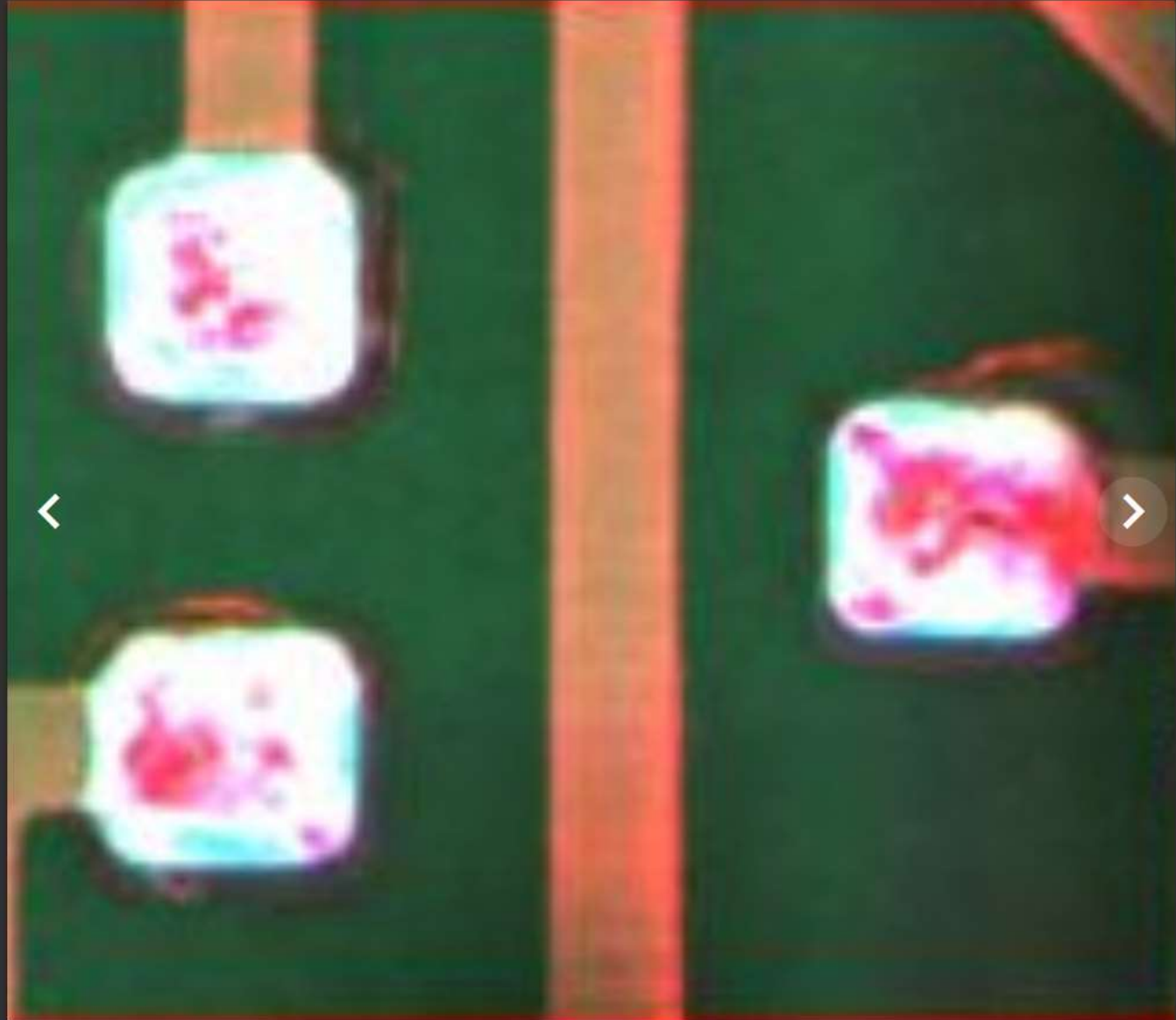
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RYN901641-2-2017-04-01

RKZ123210-1-2017-05-10



## Optical Image Analysis



RKZ123610-1-2017-02-22 ✓

RKZ323220-1-2017-02-22 ✗

RYN901641-2-2017-04-01

RKZ123210-1-2017-05-10

## Optical Image Analysis



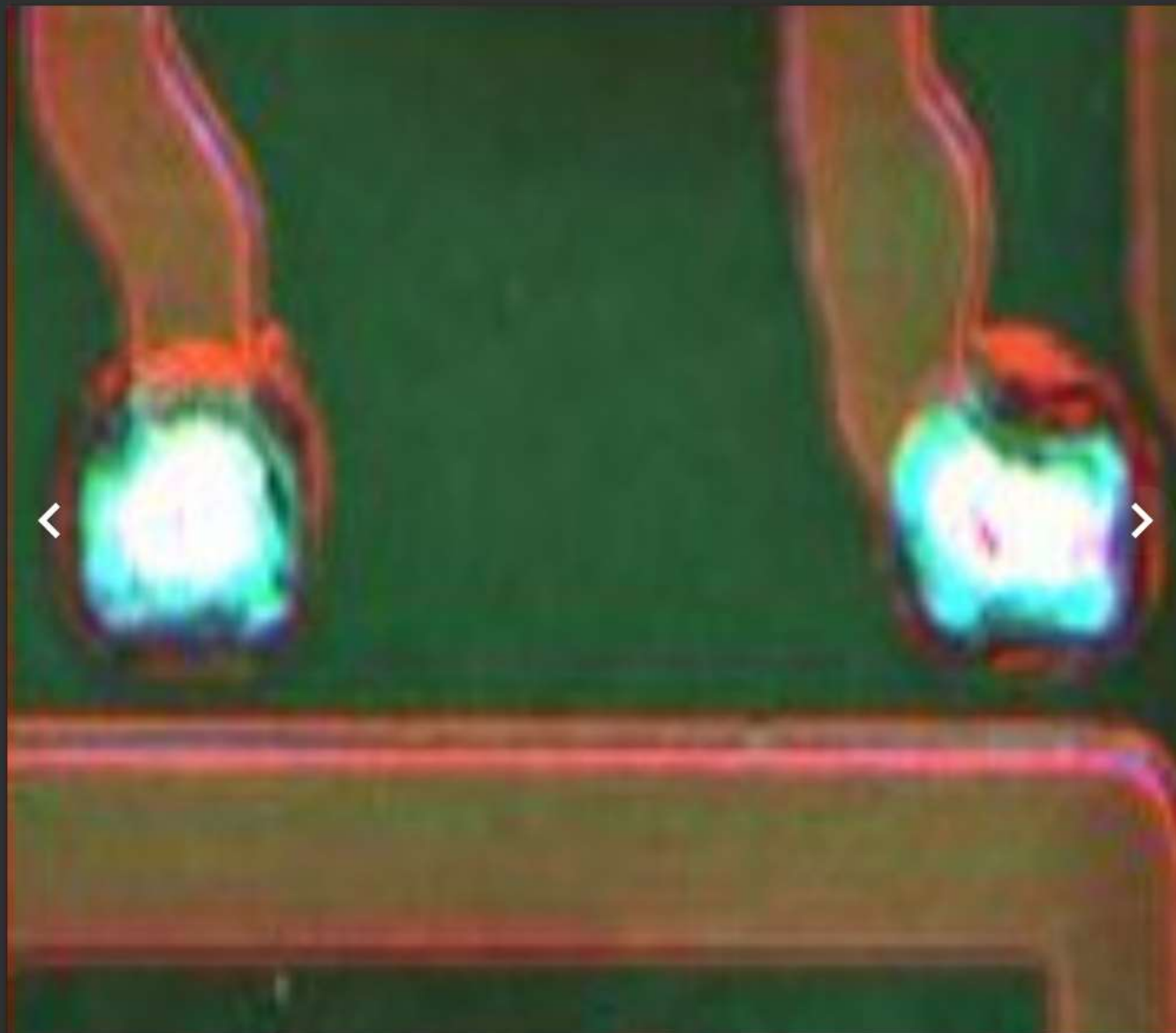
RKZ123610-1-2017-02-22 ✓

RKZ323220-1-2017-02-22 ✗

RYN901641-2-2017-04-01 ✓

RKZ123210-1-2017-05-10

## Optical Image Analysis





RKZ123610-1-2017-02-22 ✓

RKZ323220-1-2017-02-22 ✗

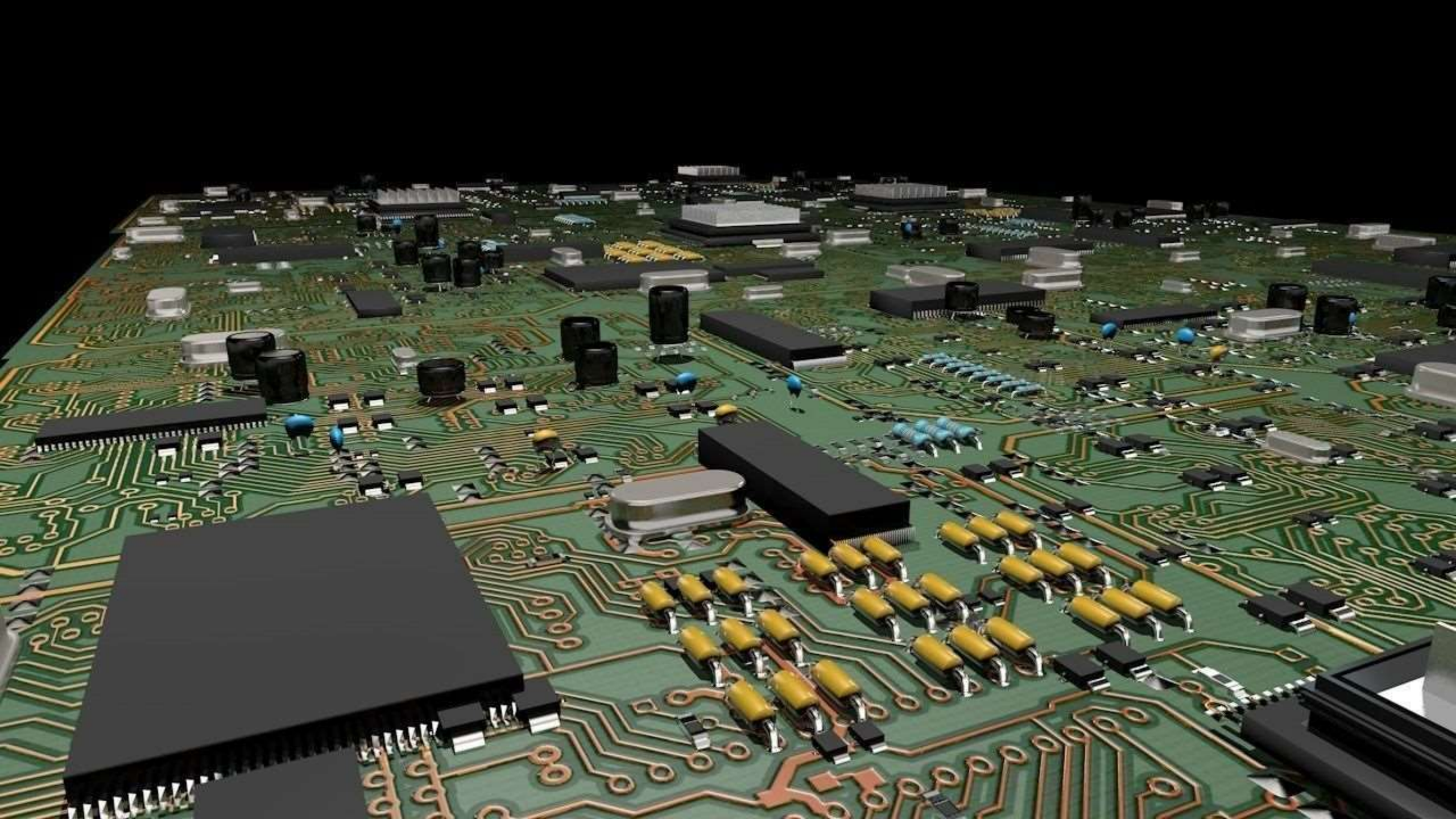
RYN901641-2-2017-04-01 ✓

RKZ123210-1-2017-05-10 ✗

## Optical Image Analysis







*Creating a Machine Learning Model*

# Data Science Virtual Machines

## Azure Machine Learning Workbench

### Azure Notebooks

*Azure Machine Learning Case Study:*

# Jabil Circuitboards

*Creating a Machine Learning Model*

# Data Science Virtual Machines

## Azure Machine Learning Workbench

### Azure Notebooks



*Data Science Virtual Machines*

[https://aka.ms/](https://aka.ms/DSVMs)  
DSVMs

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Experience Level: *Intermediate* -- // -- *Developers, Data Analysts*



*Data Science Virtual Machines*

<https://aka.ms/>

AMLWorkbench

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Experience Level: *Intermediate* -- // -- *Developers, Data Analysts*

*Azure Notebooks*

<https://aka.ms/>

# AzureNotebooks

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Experience Level: *Advanced* -- // -- *Data Scientists, Data Analysts*

# Deploying Someone Else's

*Deploying Machine Learning Models on Azure*

# Microsoft Excel

# Azure Machine Learning Studio

# Cognitive Services





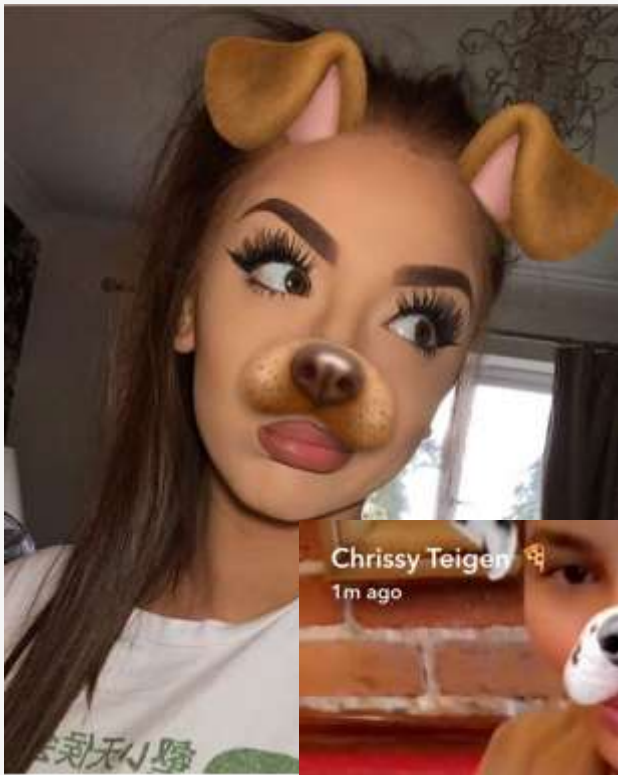




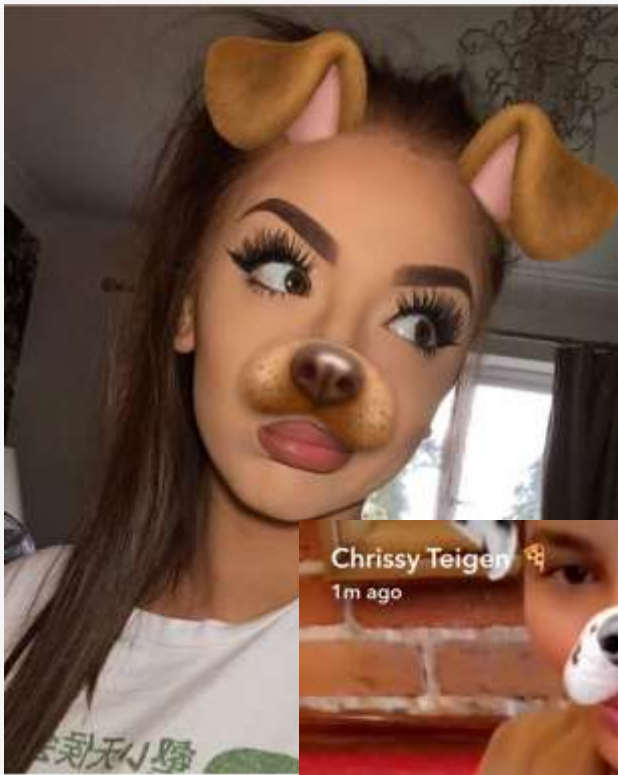
*Why, you stuck-up, half-witted, scruffy-looking nerf herder!*



*Why, you stuck-up, half-witted, scruffy-looking nerf herder!*





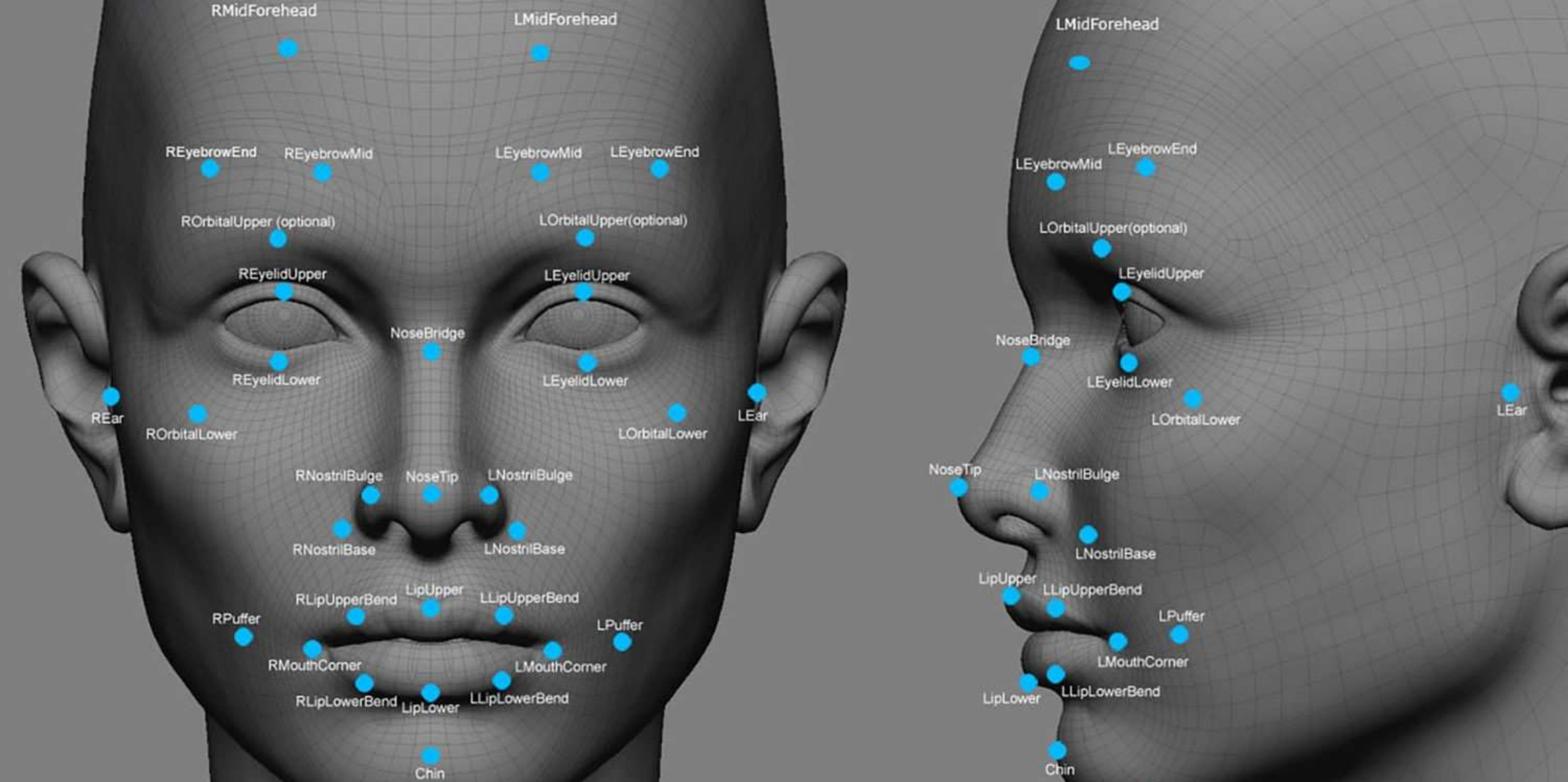












*Cognitive Services Case Study:*

# Face API



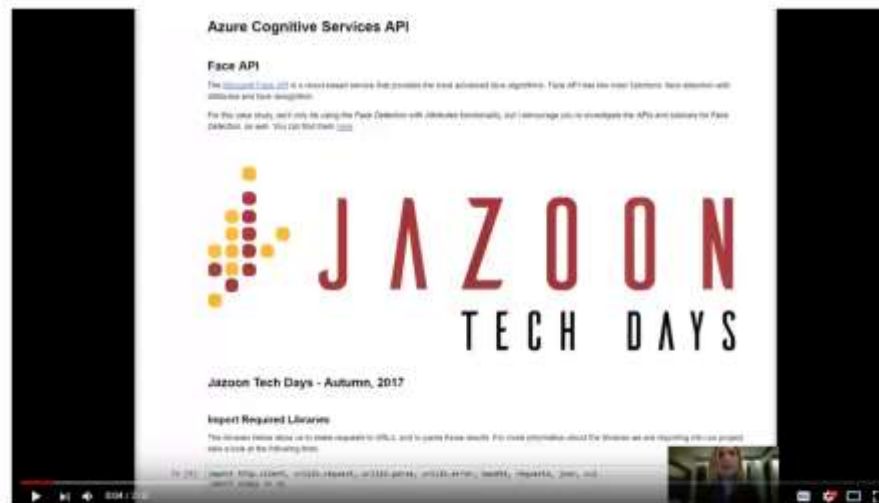


## Computer Vision API

Distill actionable information from images



## Microsoft Translator Text API



Day 2: Face API - Emotions  
25 mins



## Emotion API PREVIEW

Personalize user experiences with emotion recognition



## Language Understanding Intelligent Service PREVIEW

Teach your apps to understand commands from your users



**Paige Bailey**

@DynamicWebPaige

Meet D4N, the ever-charming artificial intelligence FAQ chat bot I'm building for @DayForNightFest. [dayfornight.io](http://dayfornight.io) @Azure

## Chat



Hi! I'm D4N (Day for Night 2017 FAQ Bot). Say "hi" if you'd like to chat.

D4N (Day for Night 2017 FAQ Bot) · Now

hi

You · Now



Hello

D4N (Day for Night 2017 FAQ Bot) · Now

[Download chat logs](#) | [Upload chat logs](#)

Type your message...







**Suz** 🐧 vim witch ❄️  
@noopkat

Following

Using some silly code I wrote to stress test the face api + hotel wifi. Surprisingly responsive!



**Asim Hussain**  
@jawache

Following

Just released my first web component! [smiletounlock.com](https://smiletounlock.com) built using [@stenciljs](#). Want to give away free content on your site? How about asking for a smile in return 😊



### Computer Vision API

Distill actionable information from images



### Content Moderator

Automated image, text, and video moderation



### Video API PREVIEW

Intelligent video processing



### Video Indexer PREVIEW

Unlock video insights



### Face API

Detect, identify, analyze, organize, and tag faces in photos



### Emotion API PREVIEW

Personalize user experiences with emotion recognition



### Custom Vision Service PREVIEW

Easily customize your own state-of-the-art computer vision models for your unique use case

Vision

Speech

Language

Knowledge

Search

Labs



## Translator Speech API

Easily conduct real-time speech translation with a simple REST API call



## Speaker Recognition API PREVIEW

Use speech to identify and authenticate individual speakers



## Bing Speech API

Convert speech to text and back again to understand user intent



## Custom Speech Service PREVIEW

Overcome speech recognition barriers like speaking style, background

Vision

Speech

Language

Knowledge

Search

Labs



## Language Understanding Intelligent Service PREVIEW

Teach your apps to understand commands from your users



## Text Analytics API

Easily evaluate sentiment and topics to understand what users want



## Bing Spell Check API

Detect and correct spelling mistakes in your app



## Translator Text API

Easily conduct machine translation with a simple REST API call



## Web Language Model API PREVIEW

Use the power of predictive language models trained on web-scale data



## Linguistic Analysis API PREVIEW

Simplify complex language concepts and parse text with the Linguistic Analysis API



### Recommendations API PREVIEW

Predict and recommend items your customers want



### Academic Knowledge API PREVIEW

Tap into the wealth of academic content in the Microsoft Academic Graph



### Knowledge Exploration Service PREVIEW

Enable interactive search experiences over structured data via natural language inputs



### QnA Maker API PREVIEW

Distill information into conversational, easy-to-navigate answers



### Entity Linking Intelligence Service API PREVIEW

Power your app's data links with named entity recognition and disambiguation



### Custom Decision Service PREVIEW

A cloud-based, contextual decision-making API that sharpens with experience





### Bing Autosuggest API

Give your app intelligent autosuggest options for searches



### Bing News Search API

Search for news and get comprehensive results



### Bing Web Search API

Get enhanced search details from billions of web documents



### Bing Entity Search API PREVIEW

Enrich your experiences by identifying and augmenting entity information from the web



### Bing Image Search API

Search for images and get comprehensive results



### Bing Video Search API

Search for videos and get comprehensive results



### Bing Custom Search API

An easy-to-use, ad-free, commercial-grade search tool that lets you deliver the results you want

Vision

Speech

Language

Knowledge

Search

Labs



### Project Prague

Gesture based controls



### Project Nanjing

Isochrones calculations



### Project Johannesburg

Route logistics



### Project Cuzco

Event associated with Wikipedia entries



### Project Abu Dhabi

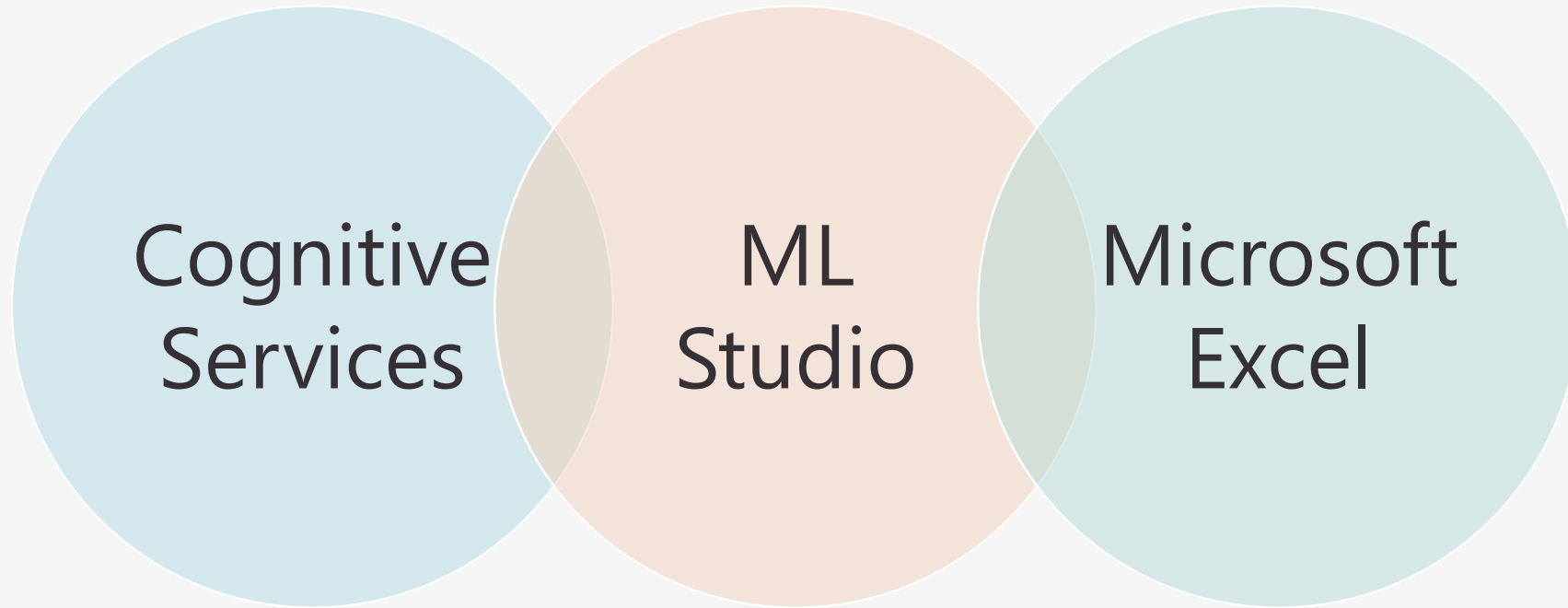
Distance matrix

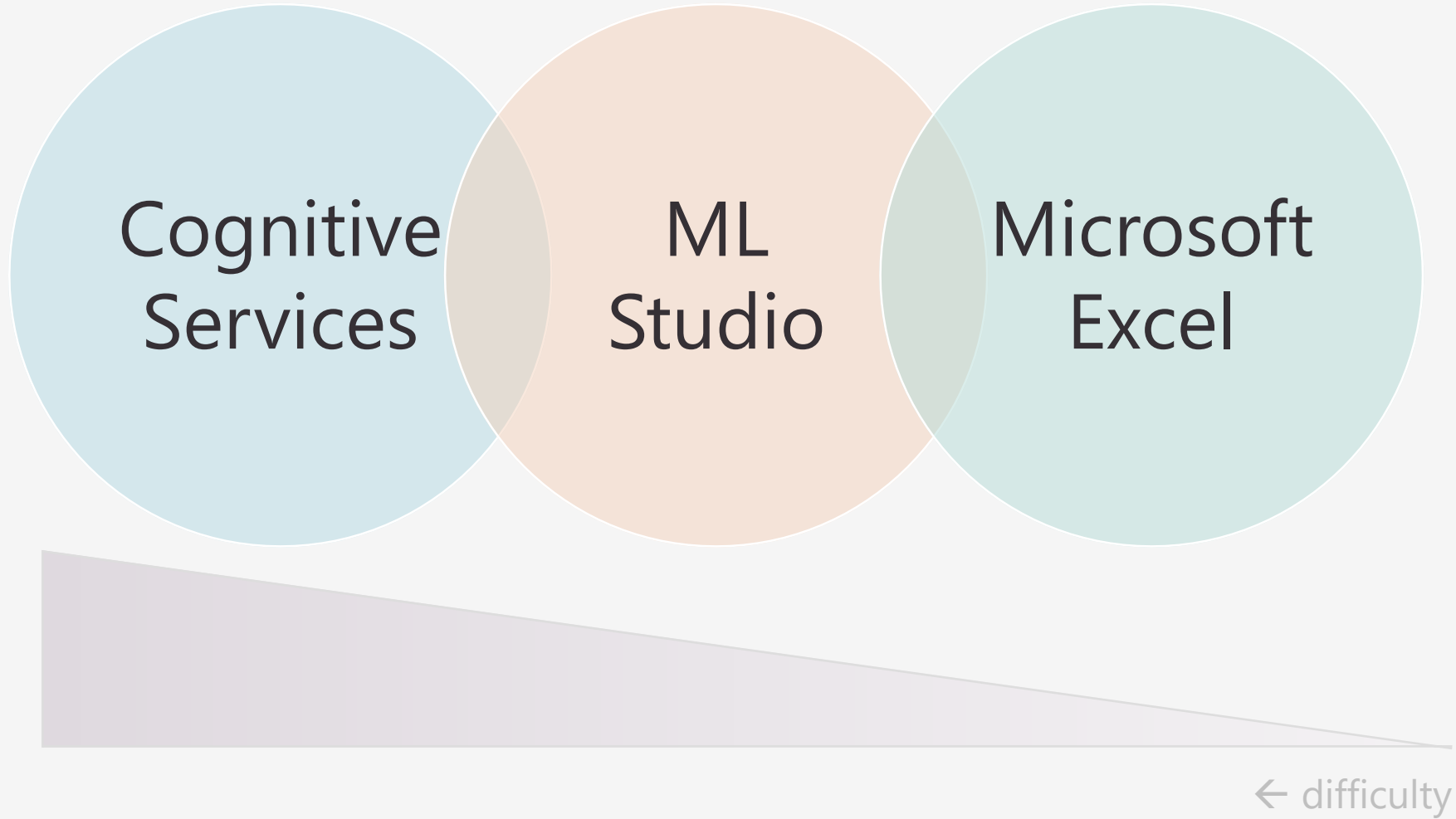


### Project Wollongong

Location insights







*Azure Notebooks*

<https://aka.ms/>

CognitiveServices

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Experience Level: *Intermediate* -- // -- *Developers, Data Analysts*

*Azure ML Studio*

<https://aka.ms/>

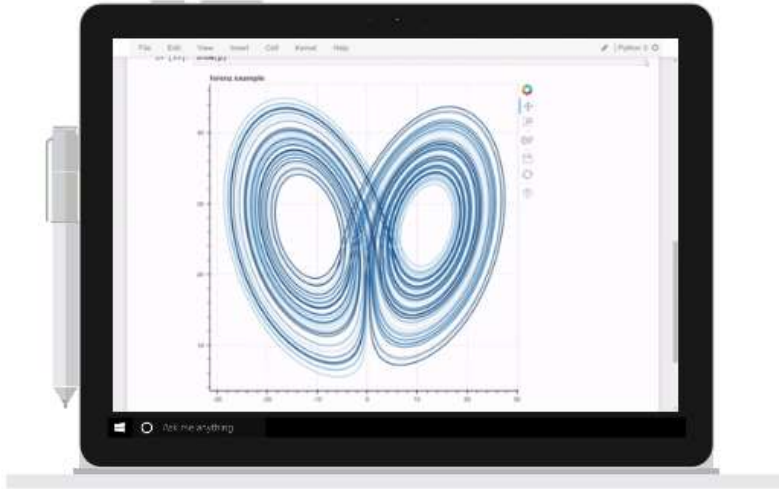
AzureMLStudio

*Microsoft Excel*

[https://aka.ms/](https://aka.ms/ExcelML)  
ExcelML

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Experience Level: *Beginner* -- // -- *Business Intelligence Analysts, ML Enthusiasts*



## Sharing Your Ideas Made Easy

With Azure Notebooks, unleash your ideas in the cloud with the [Jupyter Notebook](#)

[Get Started](#)[Featured Libraries](#)

For Data Science  
and Analysis



For Teaching  
and Learning



For Research  
and Development

# Getting Started

- [Azure Notebooks](#)
- [Jazoon Tech Days 2017 Library](#)
- [Jazoon Tech Days 2017 Presentation](#)

## AI on Azure

- [Azure ML Studio](#)
- [Cortana Intelligence Gallery](#)
- [Data Science Virtual Machines](#)
- [Microsoft Docs](#)



Thank you!