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aspitalia.com

UGIdotNET

A lap around Azure AI

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Kudos

Microsoft

Guess what (I’m not)?

- CTO @ Managed Designs
- Been coding since I was 9 and still (quite) happily doing it
- Data Scientist
- Author of «Architecting Applications for the Enterprise» by Microsoft Press
- Microsoft Regional Director
- Microsoft MVP

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Azure <3 AI

Azure Cognitive Services

Azure Machine Learning Service

Azure Machine Learning

A cloud-based machine learning service capable of building models or executing existing ones

- both tasks can be performed via an SDK or **Azure ML Studio**
- Existing models can be based on a variety of frameworks (e.g.: ONNX, PyTorch, Tensorflow, …)

The service itself is free, only consumed Azure resources are billed. Following GA, training and predictions occurring in **Enterprise** workspaces will be billed on a *per compute* basis

Demo

Azure Machine Learning

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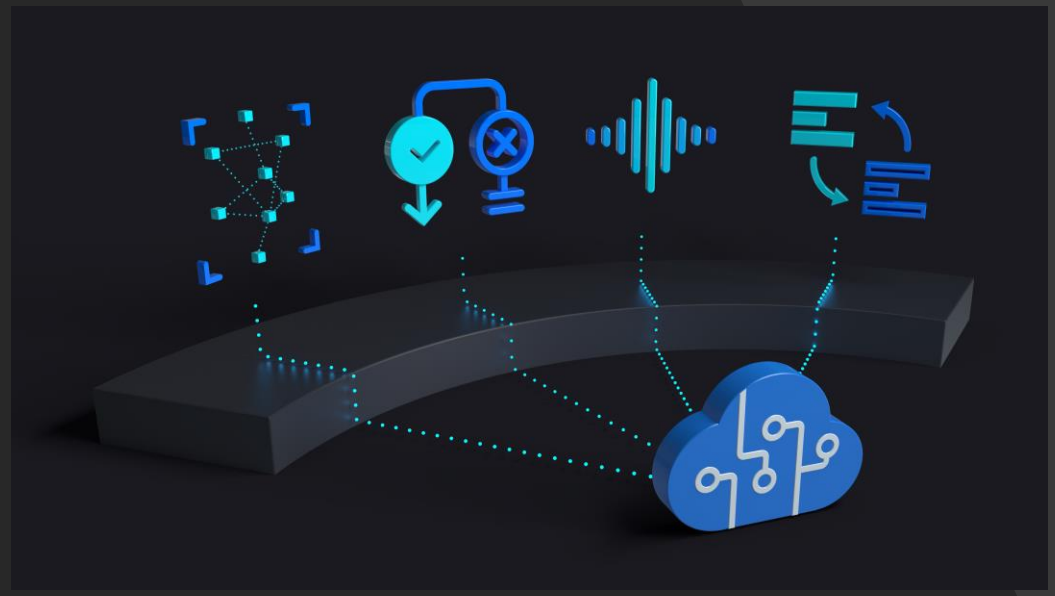
Azure Cognitive Services

Domain specific machine learning models that we can deploy and run as a *cloud service* or anywhere as a *container*.

Domains:

- Decision
- Language
- Speech
- Vision



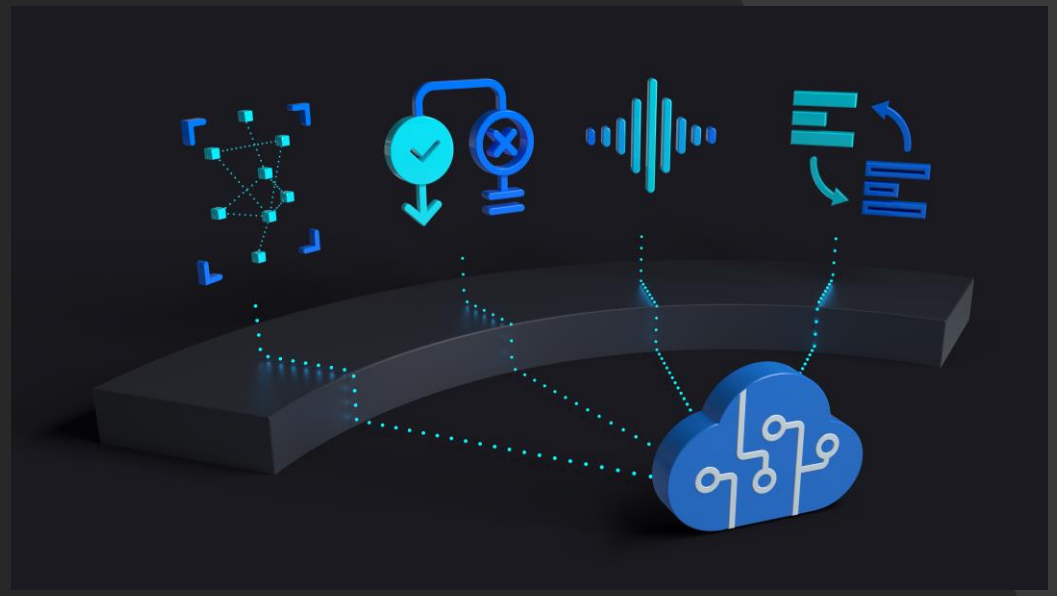
Azure Cognitive Services

Simple REST APIs or SDKs

- .NET
- Go
- Java
- Node.js
- Python

Price-based Service Level Agreement

- Uptime %
- Allowed calls per month/second



Azure Cognitive Services 1-2-3

1. Provisioning
2. [Training]
3. Consumption

To consume a cognitive service instance, we need its url (a.k.a. **endpoint**) and password (a.k.a. **key**): both can be found in their dashboard

Language

QnA Maker

Create a conversational question and answer layer over your data.

Immersive Reader API

Enhance reading comprehension and achievement with AI

Language Understanding Intelligent Service

Teach your apps to understand commands from your users

Text Analytics API

Detect sentiment, key phrases, topics, and language from your text

Text Analytics

An unsupervised Cognitive Service that provides an easy way to parse natural language to:

- Detect language
- Perform sentiment analysis
- Extract key phrases
- Detect entities

Demo

Text Analytics

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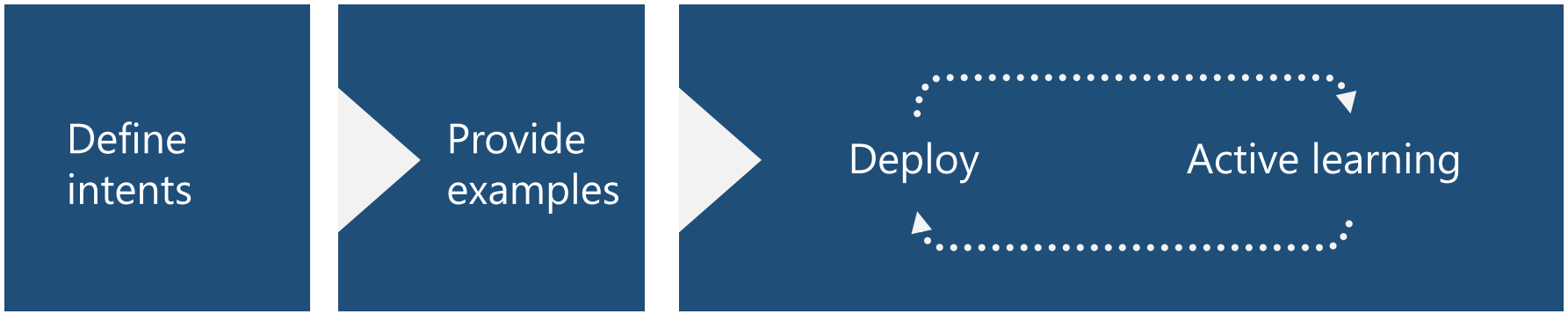
Language Understanding Intelligent Service

A supervised Cognitive Service that provides an easy way to create language models to allow applications to understand user commands.



Demo

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Vision

Computer Vision API

Distill actionable information from images

Face API

Detect and identify people and emotions in images.

Ink Recognizer

Recognize digital ink and handwriting, and pinpoint common shapes.

Video API

Analyze, edit, and process videos within your app

Form Recognizer

Extract text, key-value pairs, and tables from documents.

Computer Vision

An unsupervised Cognitive Service that provides a way to analyze images looking for:

- A summary
- Brands
- Faces
- People
- Objects
- What’s going on

The service has 2 pricing tiers

Demo

Computer Vision

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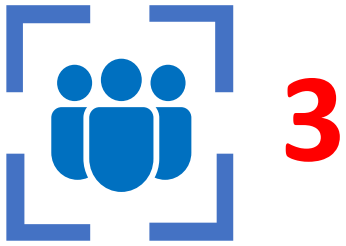
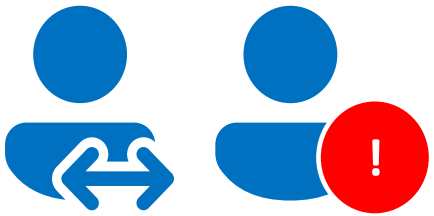
Computer Vision: Spatial Analysis PREVIEW

Enables building applications to analyze live video and understand people's movement in physical space. Support for both cloud and edge.

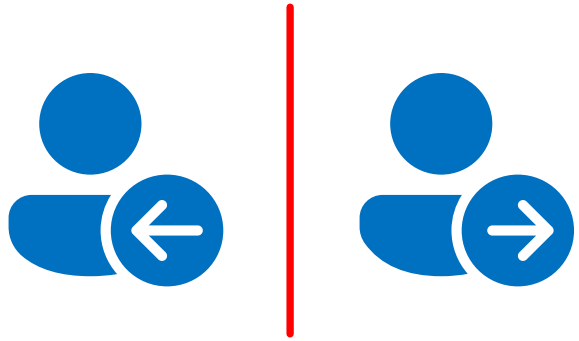
[!] Preview program announced yesterday at Ignite, requires MS approval on a *per use case* basis



People Counting

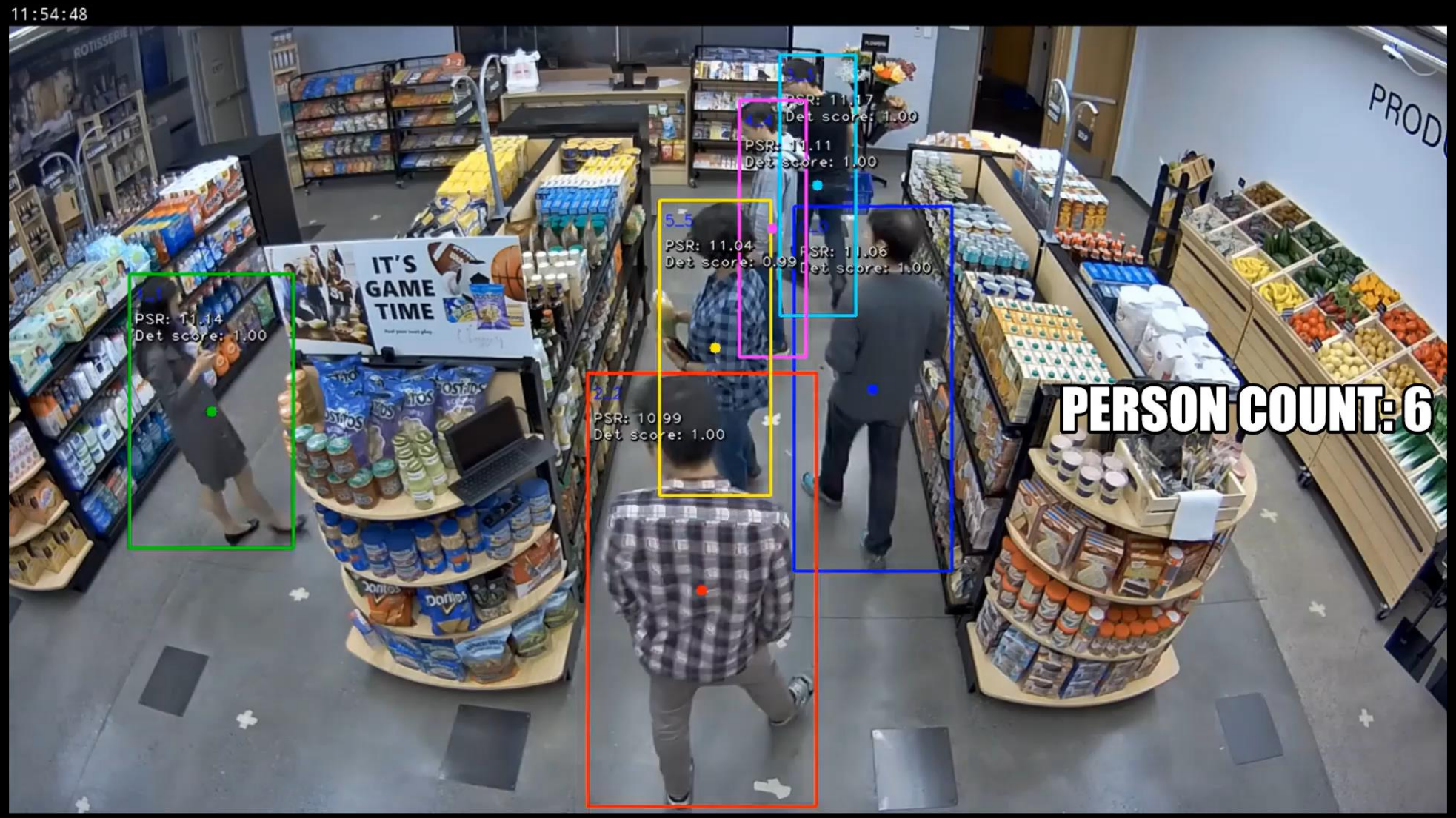


Social Distancing

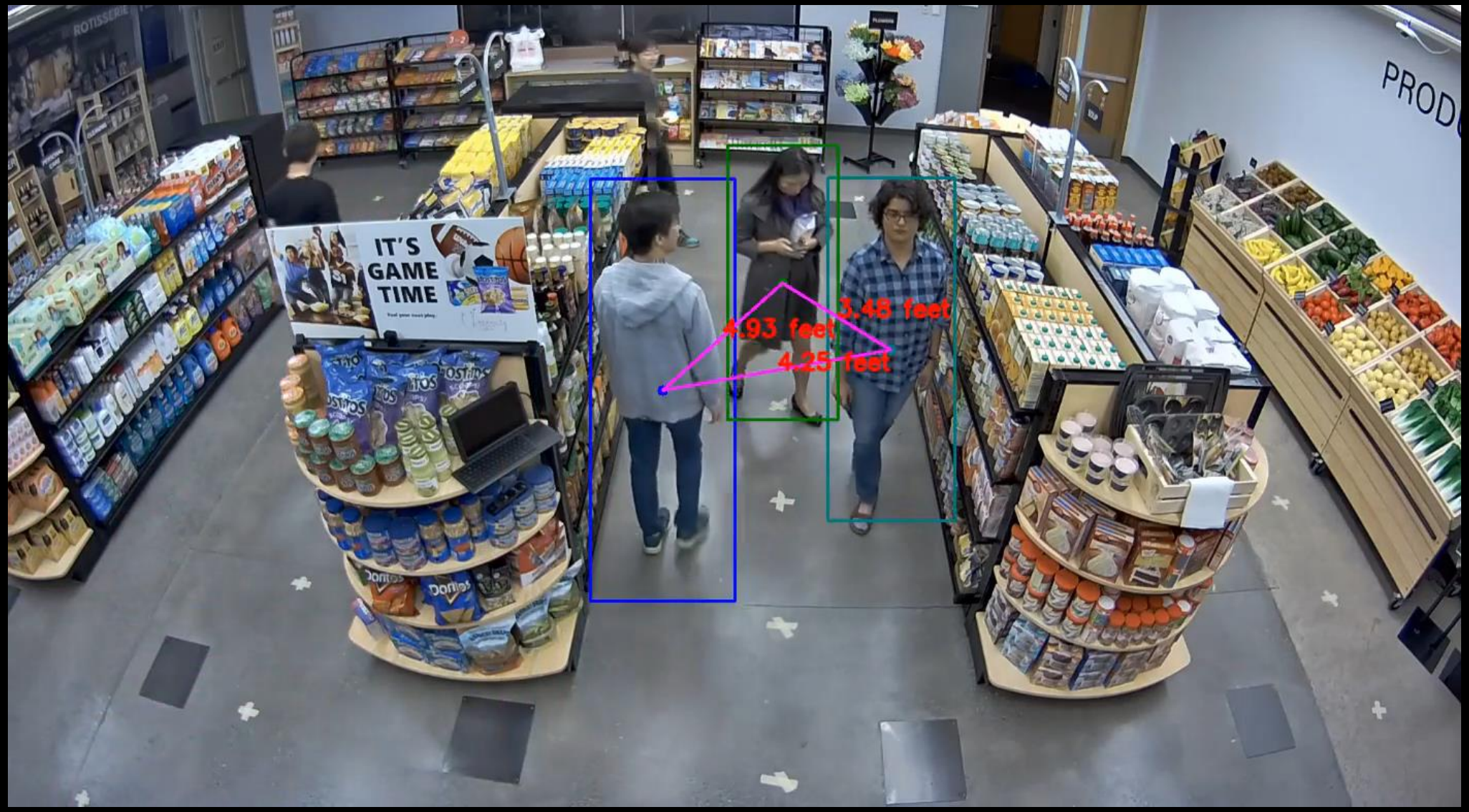


Entry/Exit

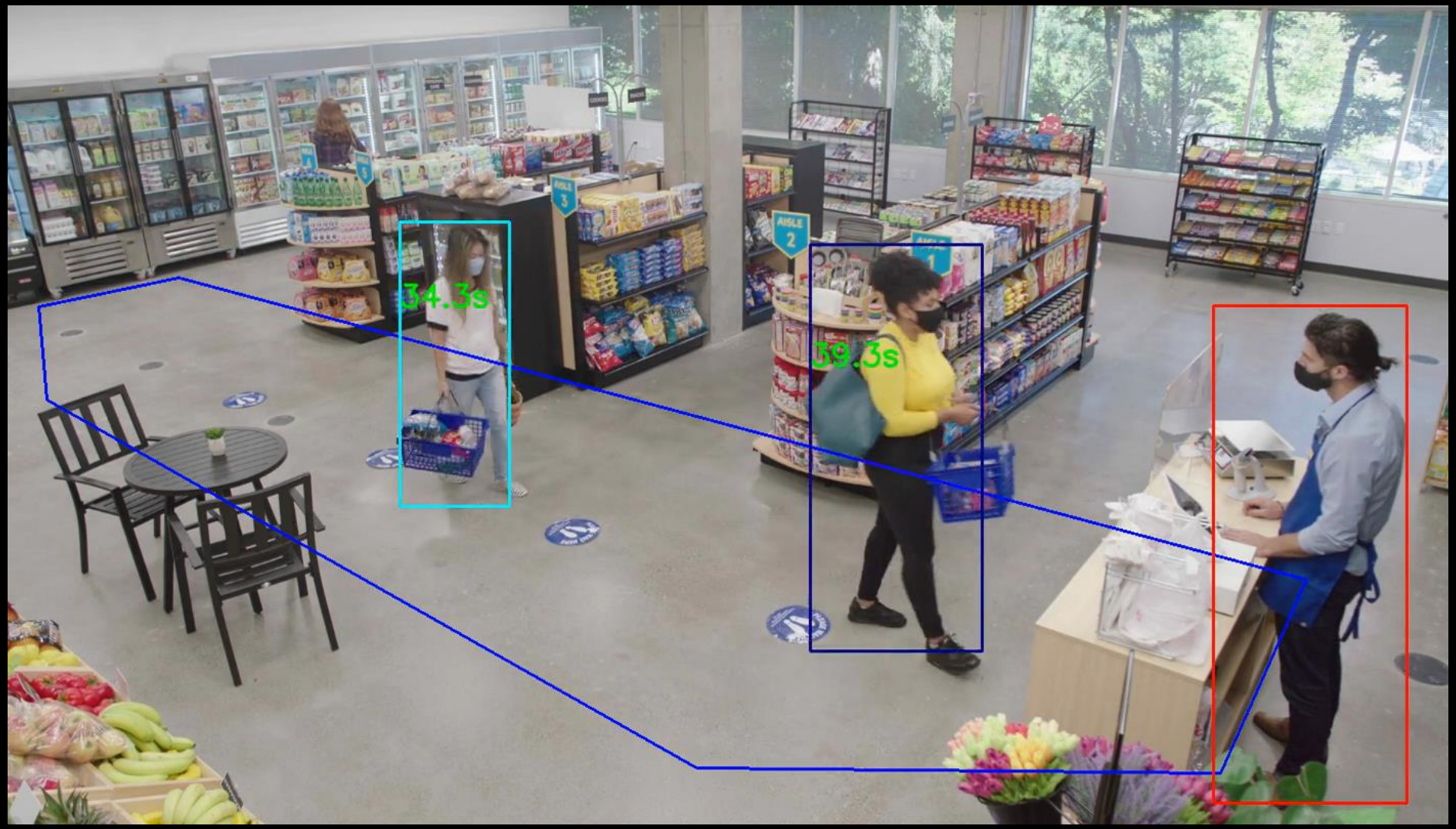
People Counting 3



Social Distancing



Entry/Exit



Speech

Speech to Text

Transcribe audible speech into readable, searchable text.

Text to Speech

Convert text to lifelike speech for more natural interfaces.

Speaker Recognition API

Identify and verify the people speaking based on audio.

Speech Translation

Integrate real-time speech translation into your apps.

Speech service

An unsupervised service capable of:

- Text-to-speech
- Detecting the spoken language
- Speech translation
- Speech-to-text

Speech synthesis

In short, a service which renders SSML to voice: producing the SSML is on us.

```
<speak version="1.0" xmlns="https://www.w3.org/2001/10/synthesis" xml:lang="en-US">
   <voice name="en-US-Guy24kRUS">
      Good morning Jessa
   </voice>
   <voice name="en-US-Jessa24kRUS">
      <mstts:express-as type="cheerful">
         Good morning to you Guy!
      </mstts:express-as>
   </voice>
</speak>
```

Demo

Speech synthesis

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Standard vs. neural voices

2 kinds of voices are available:

- Standard
- Neural: powered by deep neural networks, they’re generally closer to the real thing

More than 140 voices available, full list available here.

Speech-to-text

Also known as **speech recognition**, enables *real-time* and *batch* transcription of audio streams into text. Real time modes:

- **Recognize once**: detects a recognized utterance from the input starting at the beginning of detected speech until the next pause (max 20 seconds)
- **Continuous**: keeps processing all utterances until stopped, or until too much time in silence has passed.
- **Dictation**: will cause the speech config instance to interpret word descriptions of sentence structures such as punctuation. For example, the utterance "Do you live in town question mark" would be interpreted as the text "Do you live in town?“

Supported audio formats: **WAV**, **OPUS/OGG**, **FLAC**, **ALAW**, **MULAW**

Demo

Speech-to-text

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BREAKING NEWS!

A couple of announcements made yesterday during Ignite:

- Containers for Speech API went GA
  - Laguage detection still in preview
  - New voices/languages/locales didn't make the cut
- Support added for:
  - 18 neural languages/locales (68 voices supported)
  - 14 voices (70 voices supported)
  - A dozen speaking styles for en-US (1) and zh-CN voices (10)

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