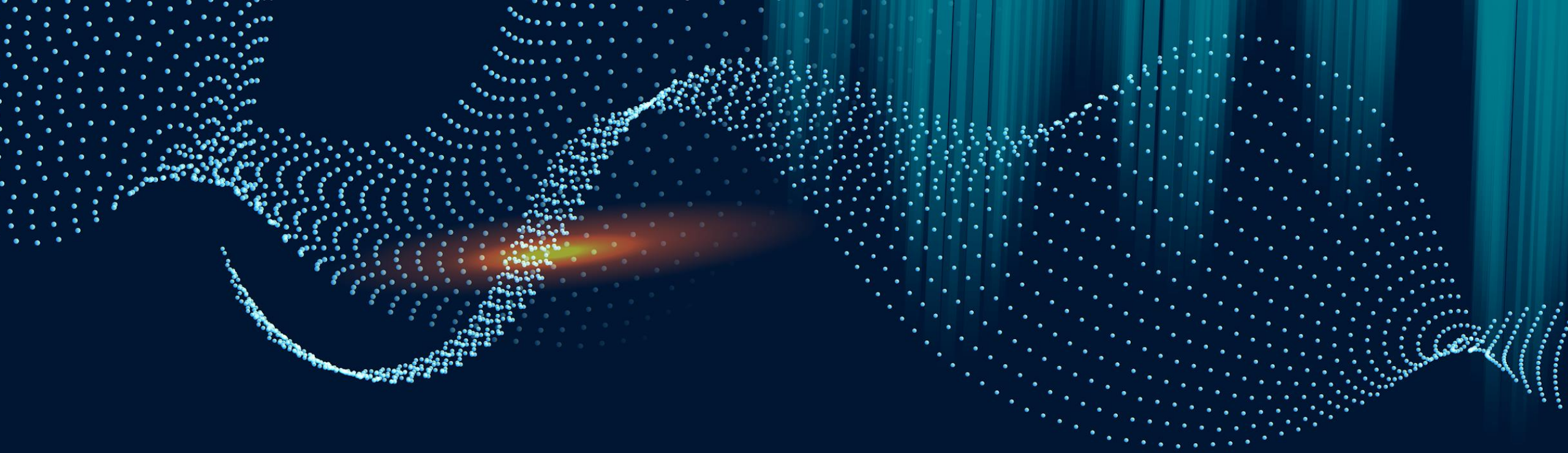
SHARP TEK
EMBRACE THE CLOUD



Artificial Intelligence in Azure

CHARPTEK

Overview

- Csharptek is an end-to-end IT and cloud solutions-driven company based out of Ranchi, Jharkhand, India, and helps organizations/individuals solve their technological problems.
- Csharptek is an ISO 9001:2008 certified web/mobile app development company. It has ten years of rich experience in the data cloud solutions field.
- As an outsourced software service provider, we have expanded our footprint not just pan-India but in the international arena, too.
- Csharptek is a full-fledged software development and consultancy company in India, with an affinity for leveraging cloud-based platforms.
- We carefully analyze the requirements of the business and develop systems to help optimize the business, digitally.
- From modern and responsive web-design to strategically developed mobile and web applications are done here.
- We specialize in Microsoft & Cloud based Web Applications, Open-Source Applications, Mobile Applications, Native Android/iOS Apps.

OUR MISSION

OUR VISION

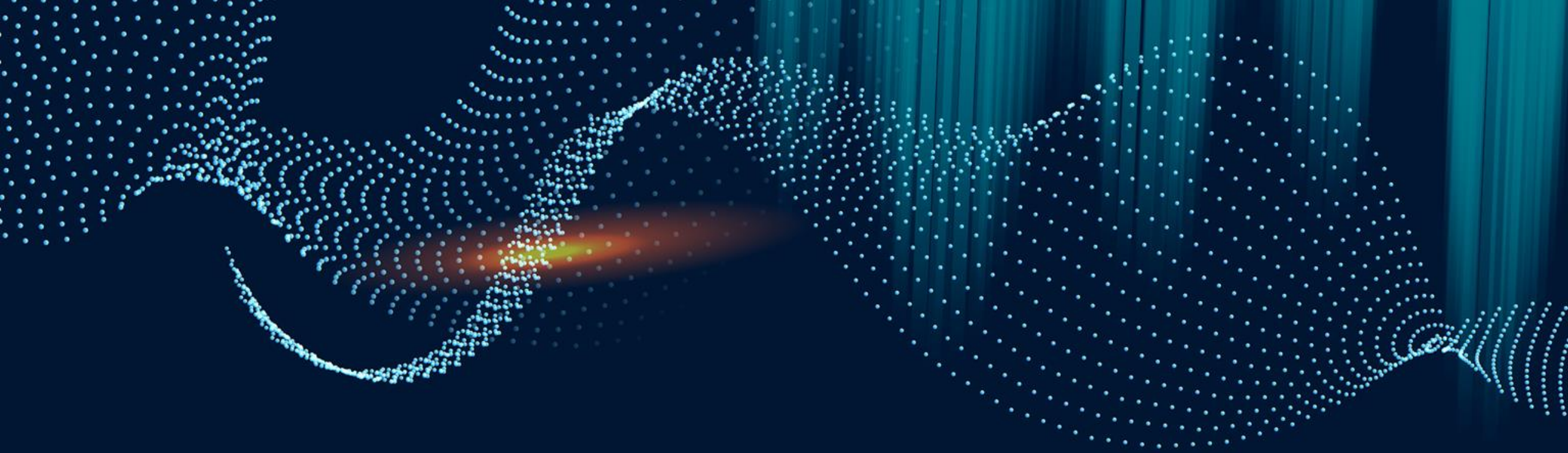
Our aim is to solve sector-specific problems across devices, apps, and infrastructure using proven expertise in AI, MI, IoT and cloud solutions-driven.

OUR MISSION

To build the technology or cloud operation which is most convenient, secure, cost-effective for the clients.

OBJECTIVES

To provide our client with best services and consultancy in given timeline. To dominate the world of digital transformation.



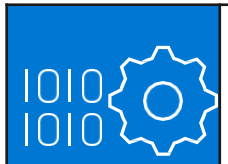
Introduction to AI

What is Artificial Intelligence?

Software that imitates human capabilities

- Making decisions based on data and past experience
- Recognizing abnormal events
- Interpreting visual input
- Understanding written and spoken language
- Engaging in dialogs and conversations

Common Artificial Intelligence Workloads

 Machine Learning	Predictive models based on data and statistics – the foundation for AI
Anomaly Detection	Systems that detect unusual patterns or events, enabling pre-emptive action
Computer Vision	Applications that interpret visual input from cameras, images, or videos
Natural Language Processing	Applications that can interpret written or spoken language
Conversational AI	AI agents, (or *bots*), that can engage in dialogs with human users

SHARPTEK

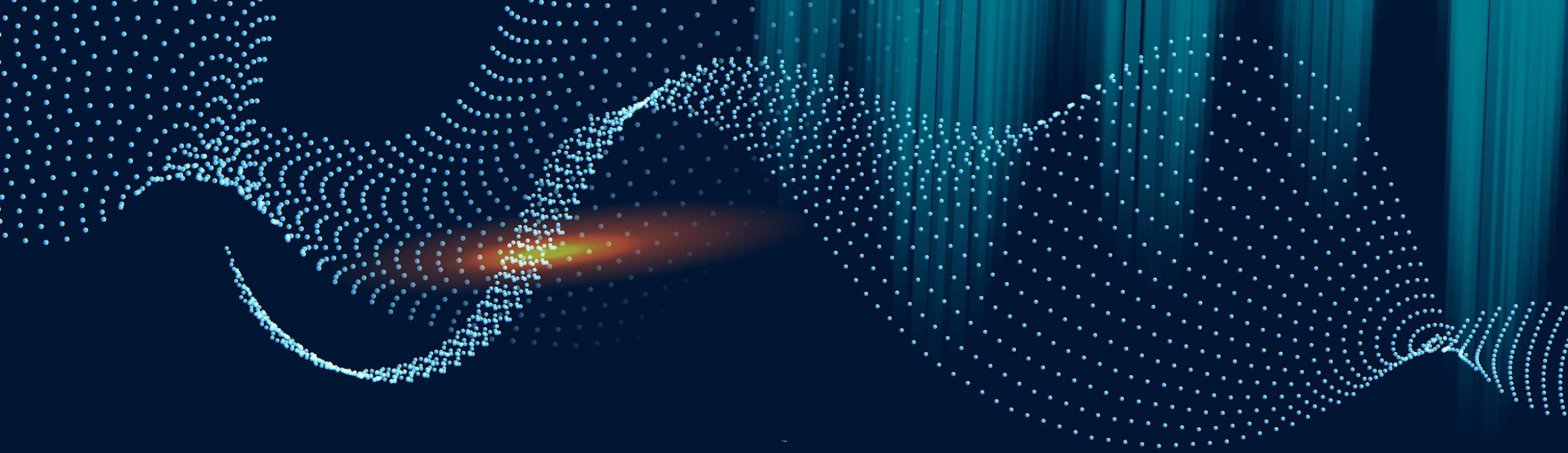
Artificial Intelligence in Microsoft Azure

Scalable, reliable cloud platform for AI

- Data storage
- Compute
- Services

Azure Machine Learning	A platform for training, deploying, and managing machine learning models
Cognitive Services	A suite of services developers can use to build AI solutions
Azure Bot Service	A cloud-based platform for developing and managing bots

SHARPTEK



Responsible AI

Challenges and Risks with AI

Challenge or Risk	Example
Bias can affect results	A loan-approval model discriminates by gender due to bias in the data with which it was trained
Errors may cause harm	An autonomous vehicle experiences a system failure and causes a collision
Data could be exposed	A medical diagnostic bot is trained using sensitive patient data, which is stored insecurely
Solutions may not work for everyone	A predictive app provides no audio output for visually impaired users
Users must trust a complex system	An AI-based financial tool makes investment recommendations - what are they based on?
Who's liable for AI-driven decisions?	An innocent person is convicted of a crime based on evidence from facial recognition – who's responsible?

CHARPTEK

Principles of Responsible AI

Fairness

Reliability & Safety

Privacy & Security

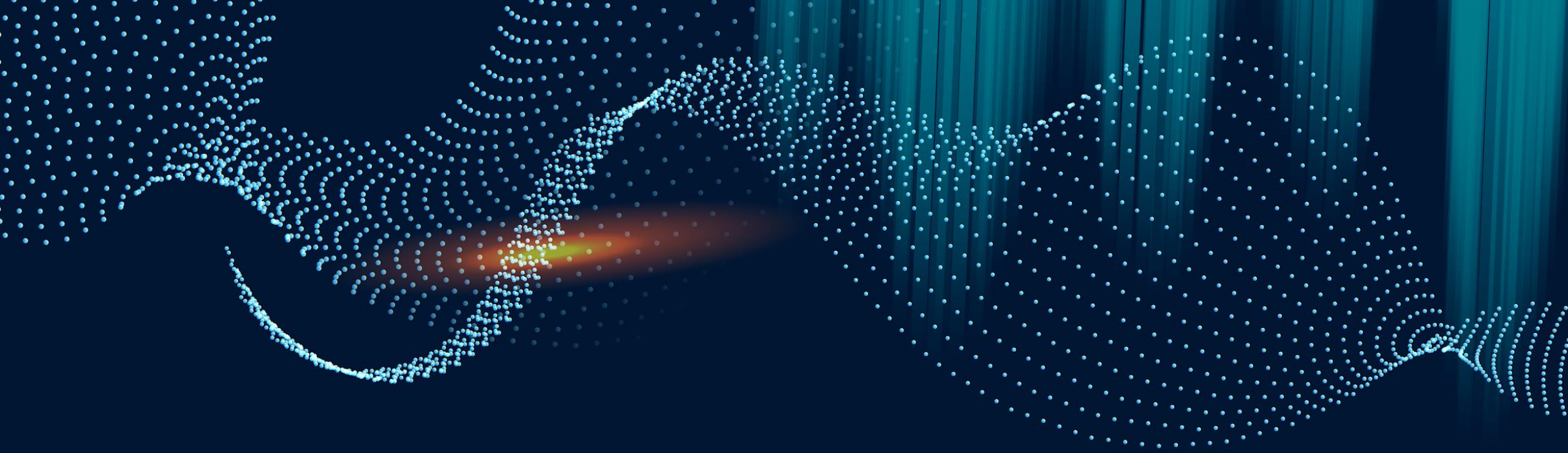
Inclusiveness

Transparency

Accountability

SHARPTEK

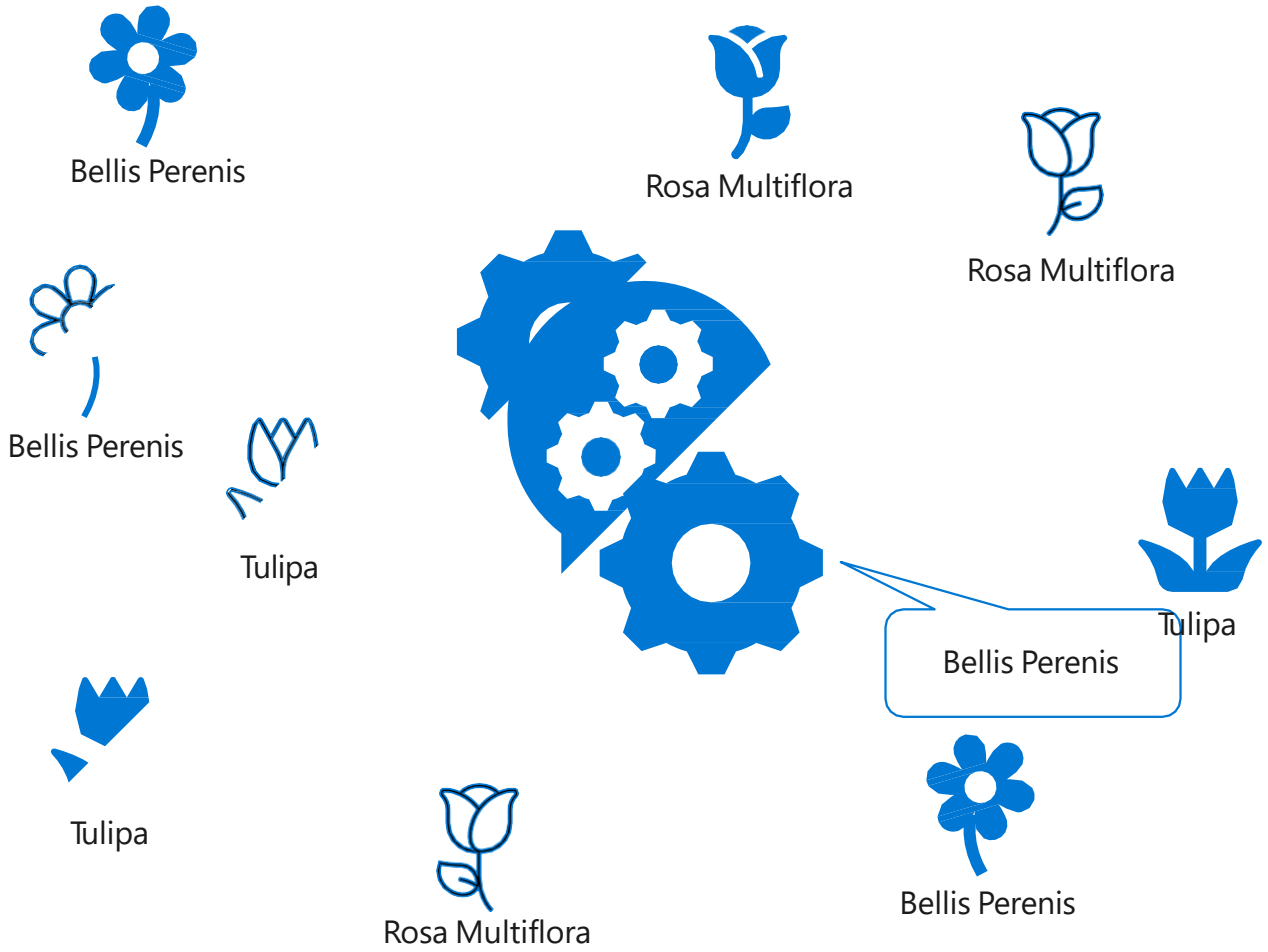
https://www.microsoft.com/ai/responsible-ai



Azure Machine Learning

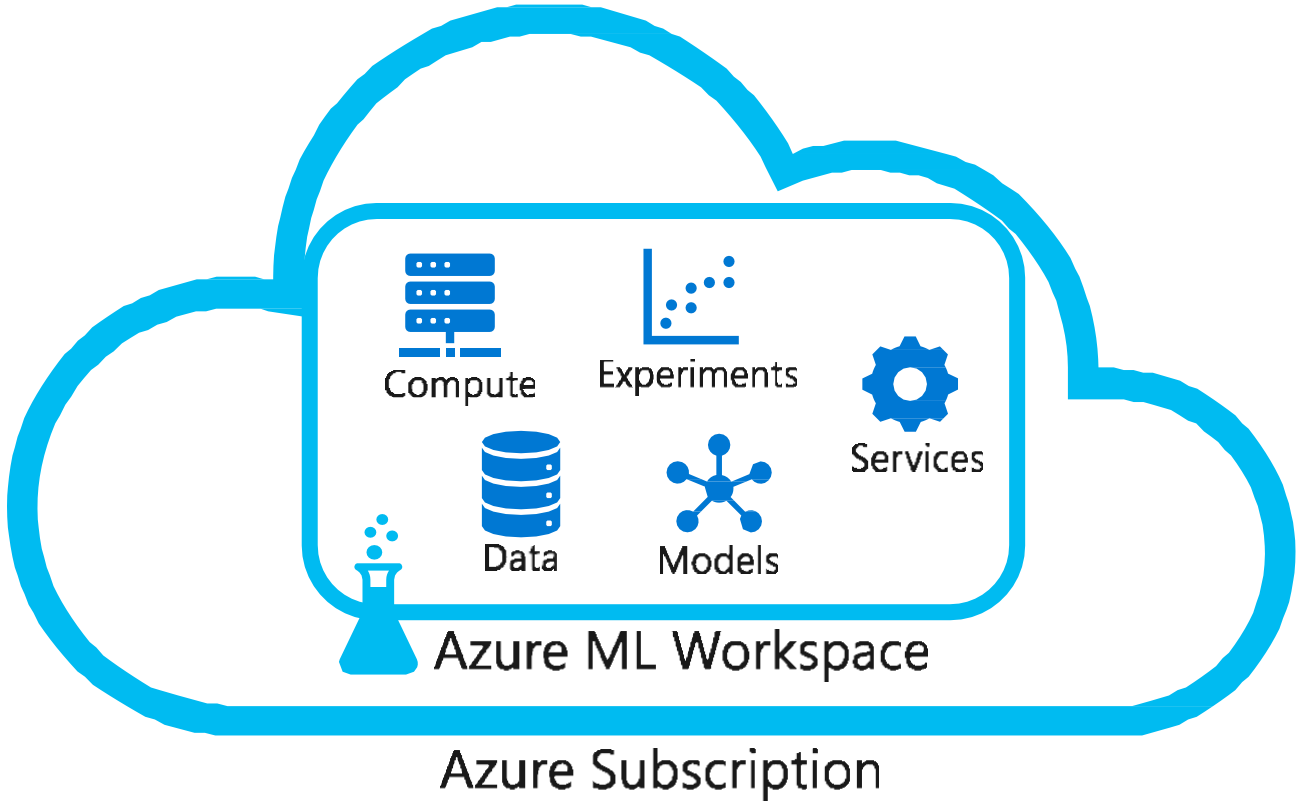
What is Machine Learning?

Creating predictive models by finding relationships in data



What is Azure Machine Learning?

A cloud based platform for machine learning



Automated Machine Learning

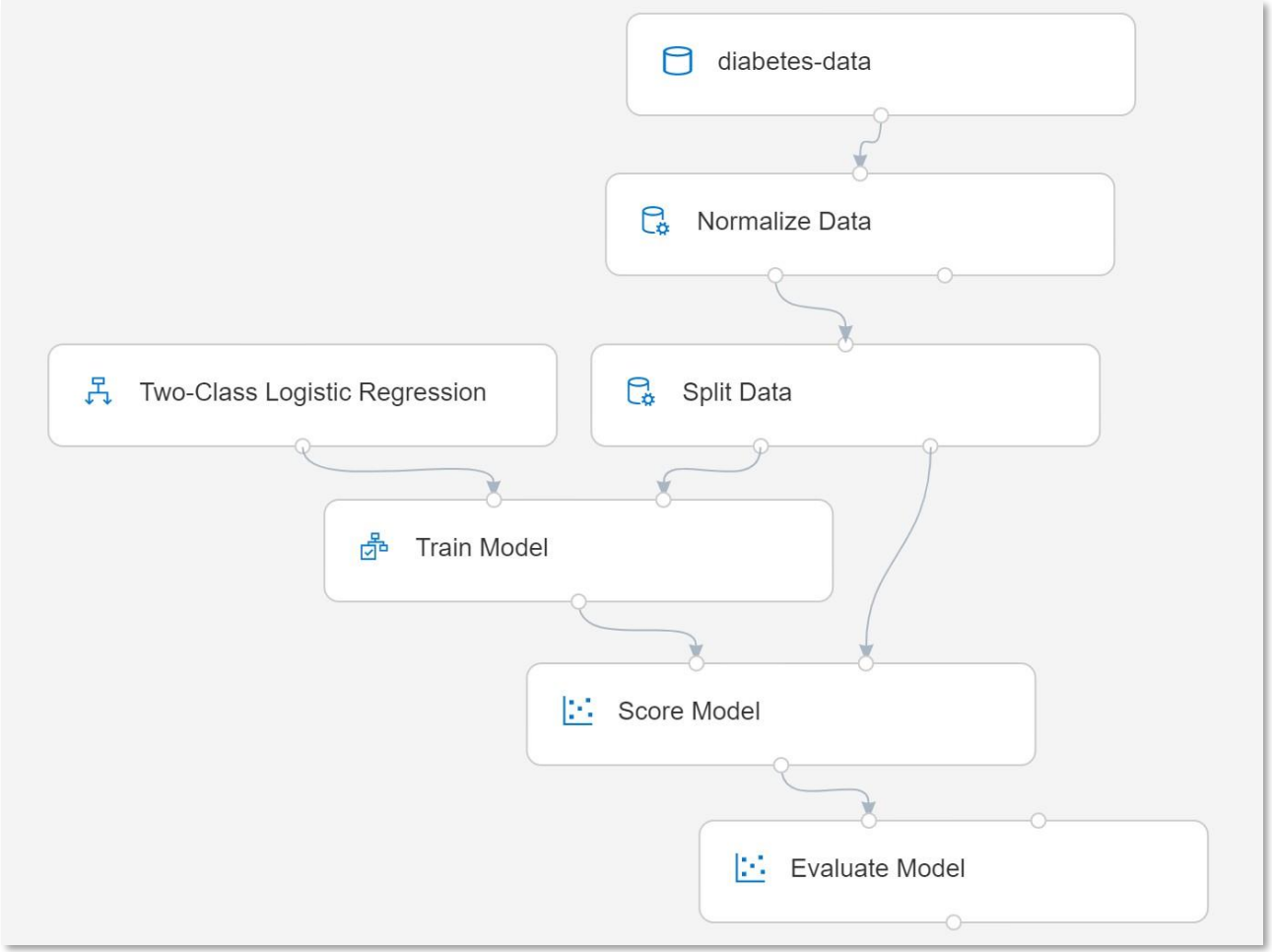
- Takes the hard work out of machine learning
  - Supply the data and desired model type, and let Azure Machine Learning find the best model

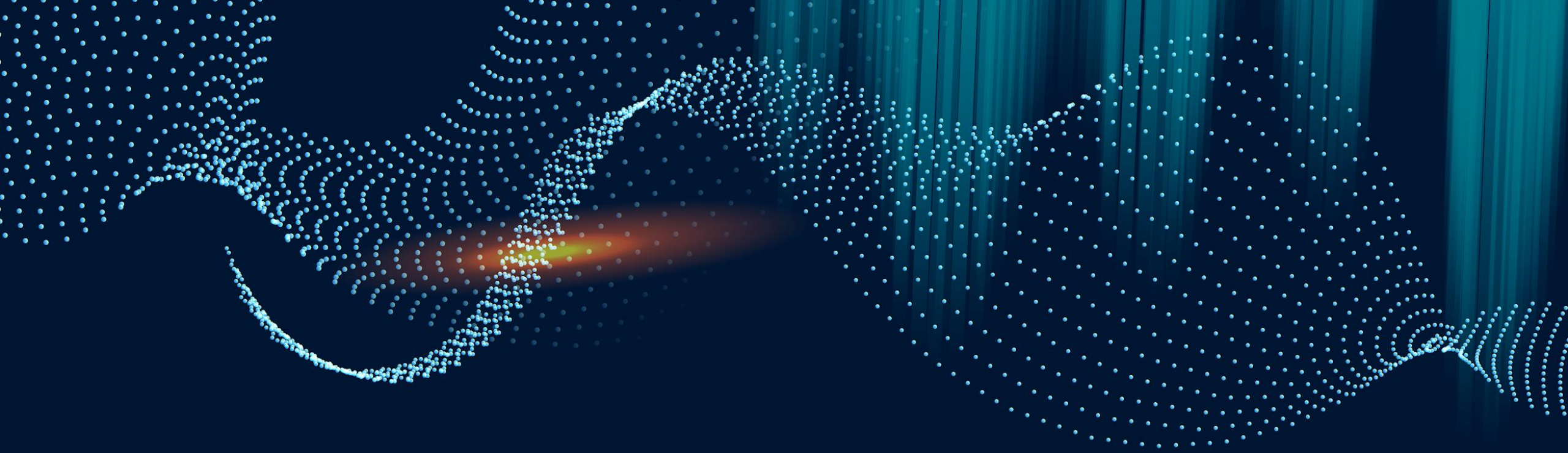
SHARPTEK

Azure Machine Learning *designer*

- Visual tool for creating a machine learning *pipeline*

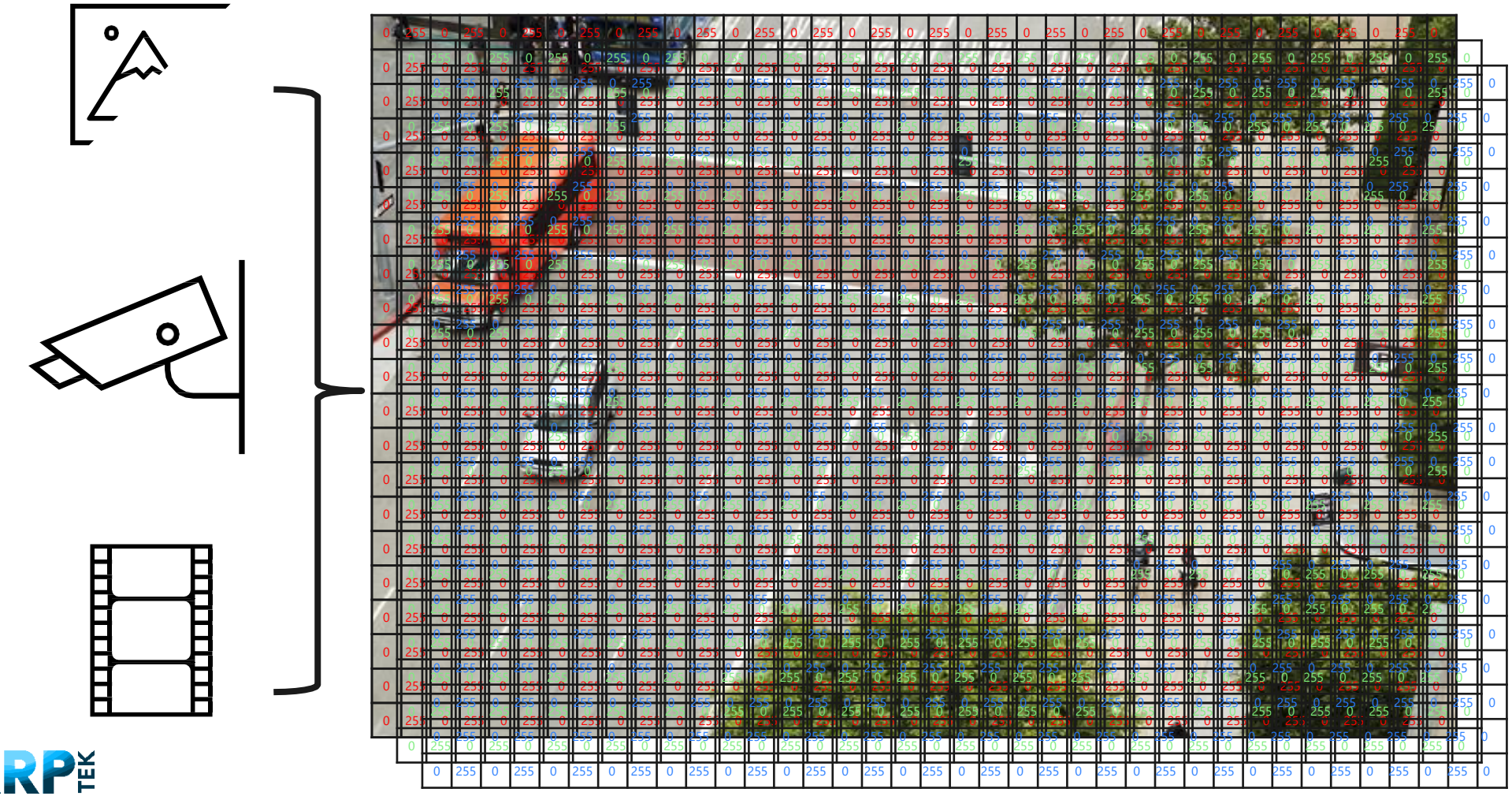
1. Use a *training pipeline* to train and evaluate a model
2. Create an *inference pipeline* to predict labels from new data
3. Deploy the inference pipeline as a *service* for apps to use





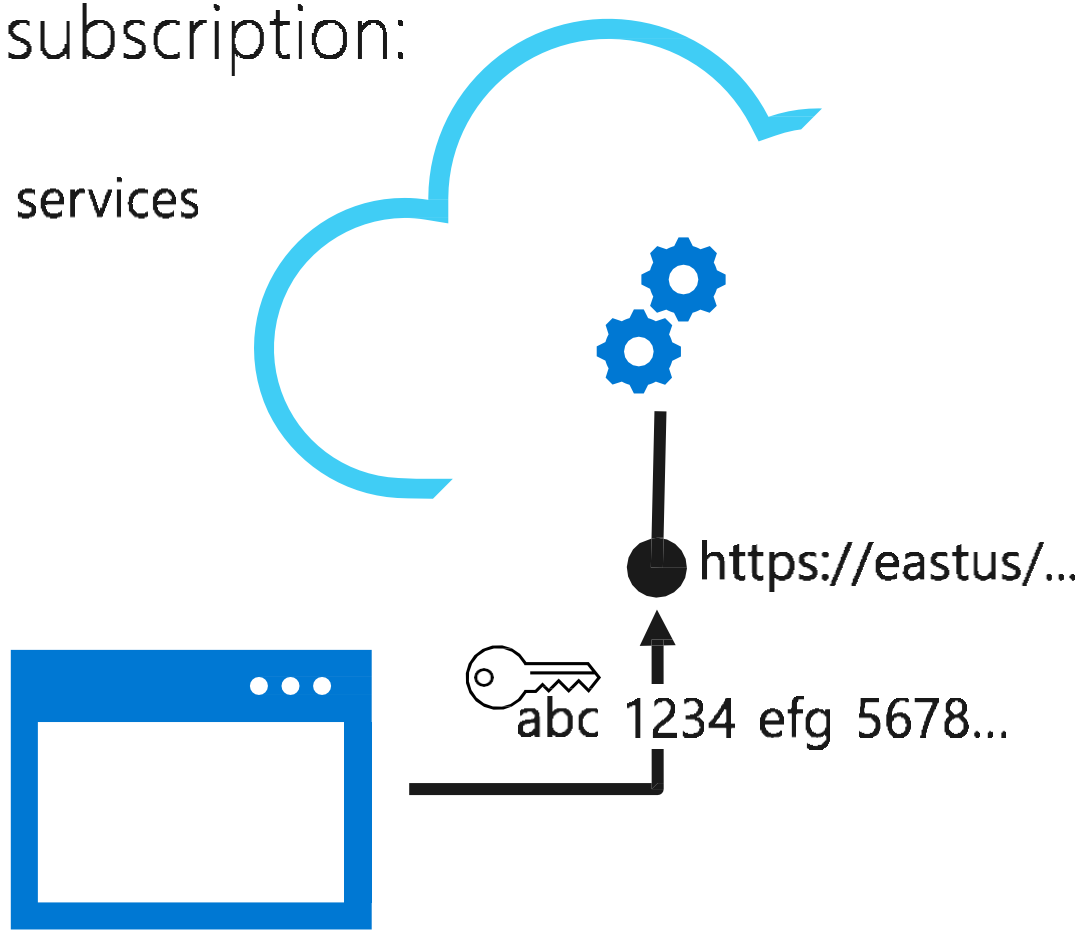
Computer Vision

What is Computer Vision?



Cognitive Services

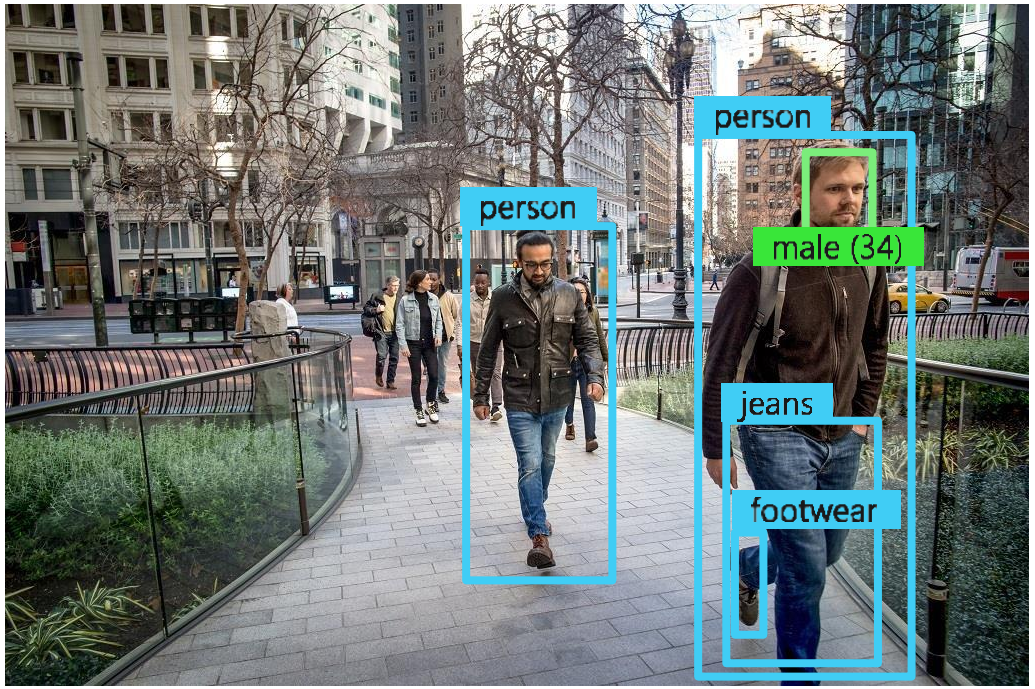
- AI application resources in an Azure subscription:
  - Standalone resources for specific services
  - General *Cognitive Services* resource for multiple services
- Consumed by applications via:
  - A REST endpoint (https:// address)
  - An authentication key
- You will explore cognitive services using an online environment named Visual Studio Codespaces



SHARP TEK

Image Analysis with the *Computer Vision* Service

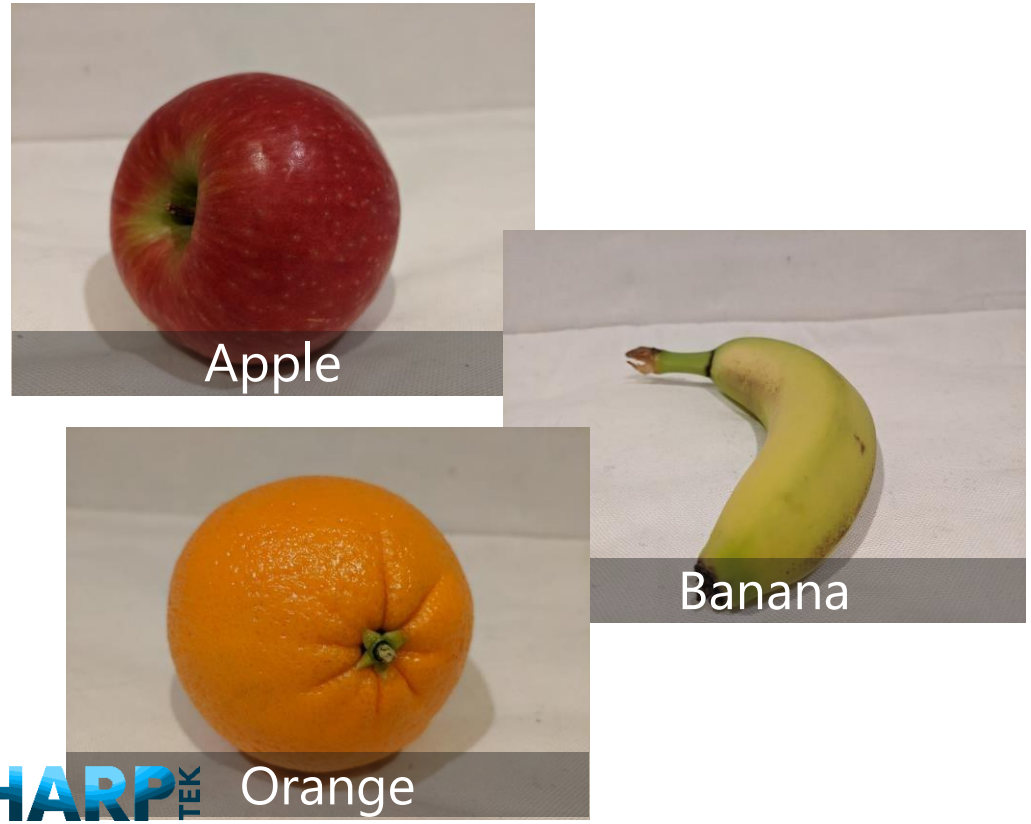
- Pre trained computer vision model
- Object detection for over 10,000 predefined classes
- Image description and tag generation
- Face detection and analysis
- Content moderation
- Text detection and OCR



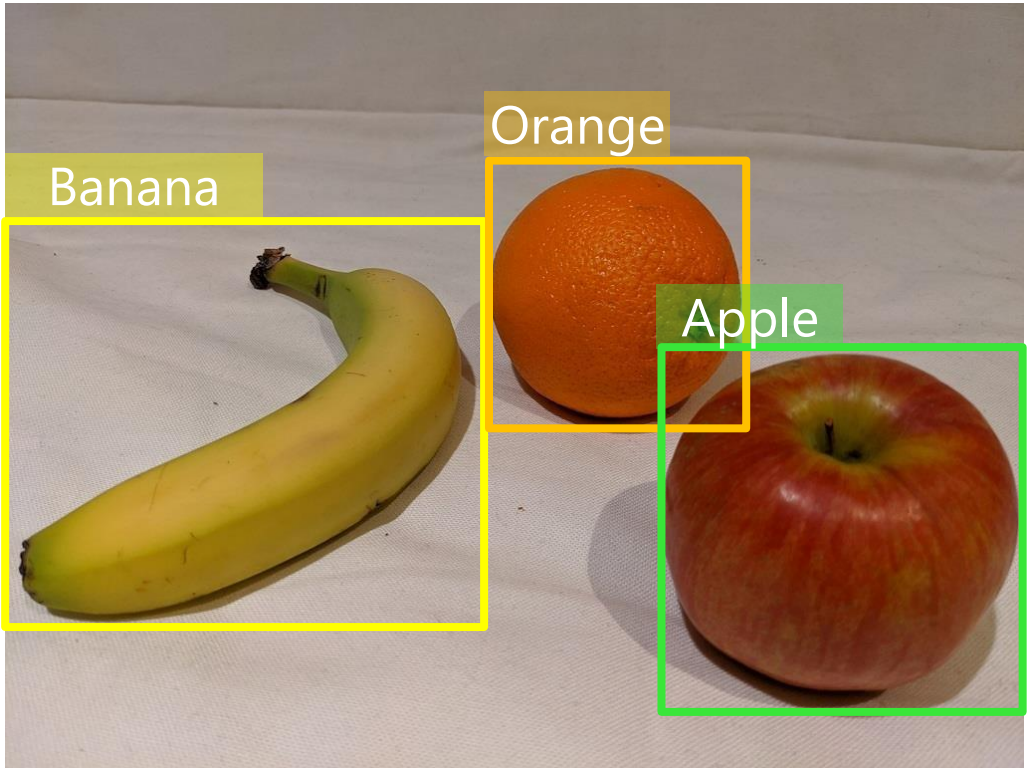
Caption: a group of people walking on a sidewalk
Tags: building, jeans, street, outdoor, jacket, city, person
Ratings: Adult: False, Racy: False, Gore: False

Training Models with the *Custom Vision* Service

Image Classification



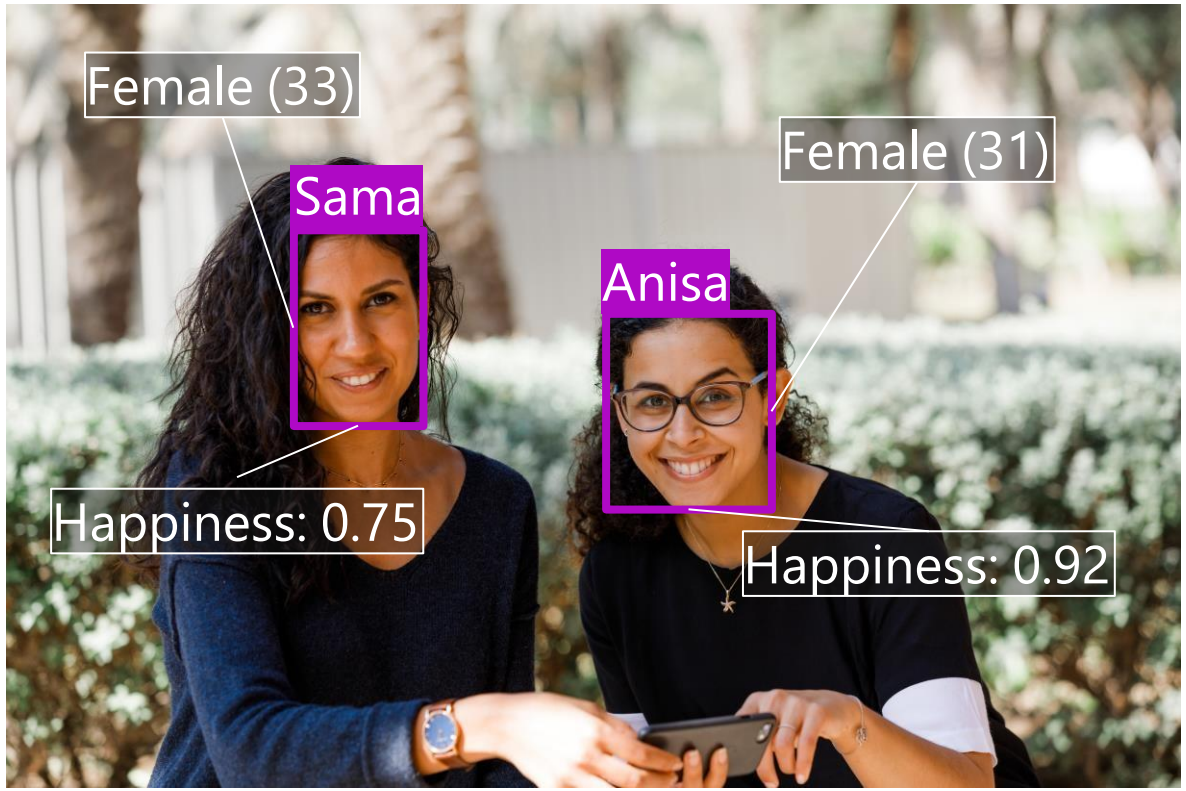
Object Detection



CHARPTEK

Analyzing Faces with the *Face* Service

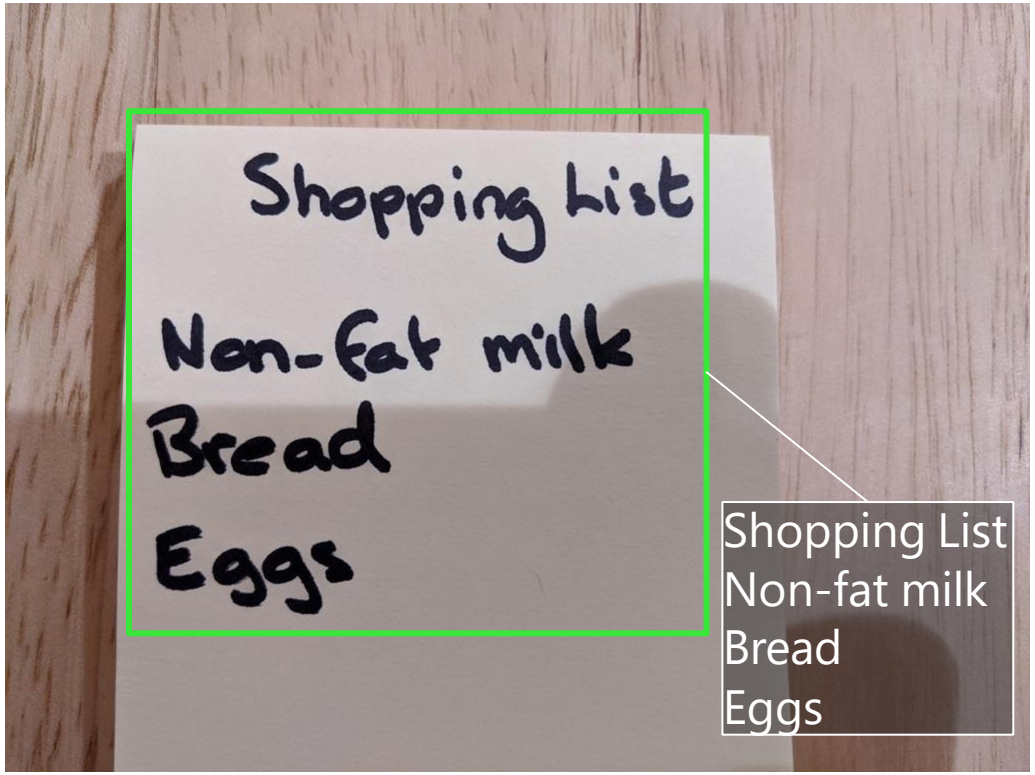
- More facial analysis functionality than the *Computer Vision* service, including:
  - Facial attributes:
    - Gender
    - Age
    - Emotions
  - Facial recognition:
    - Similarity matching
    - Identity verification



SHARPTEK

Reading Text with the *Computer Vision* Service

- Detect the location of text:
  - Printed
  - Handwritten
- Options for quick text extraction from images, or asynchronous analysis of larger scanned documents

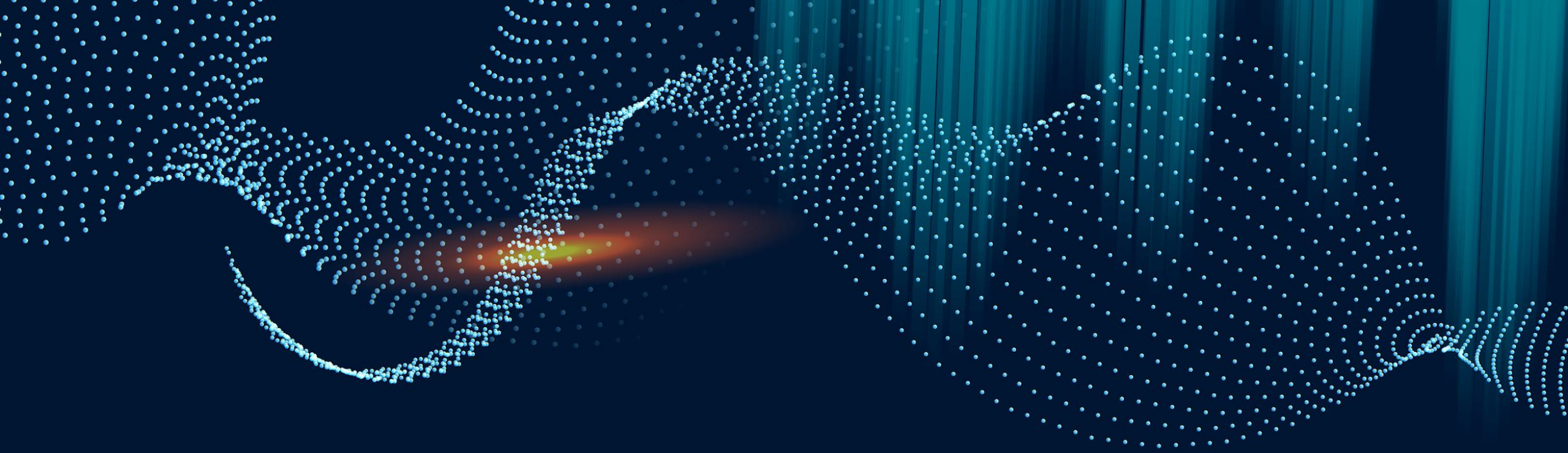


CHARPTEK

Analyzing Forms with the *Form Recognizer* Service

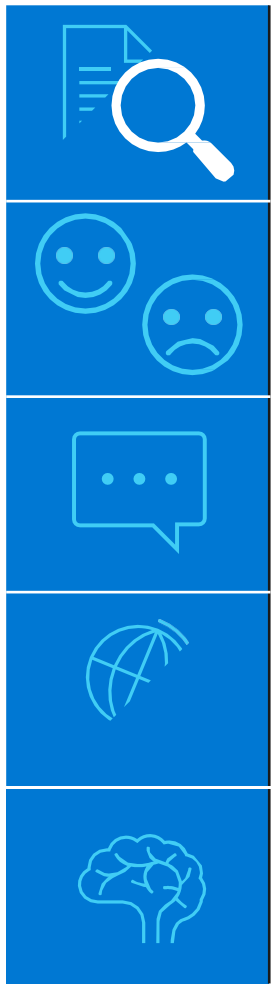
- Extract information from scanned forms in image or PDF format
  - Train a custom model using your own forms
  - Use the pre trained receipt model
- Models perform semantic recognition of form fields not just text extraction

SHARP TEK



Natural Language Processing

What is Natural Language Processing?



Text analysis and entity recognition

Sentiment analysis

Speech recognition and synthesis

Machine translation

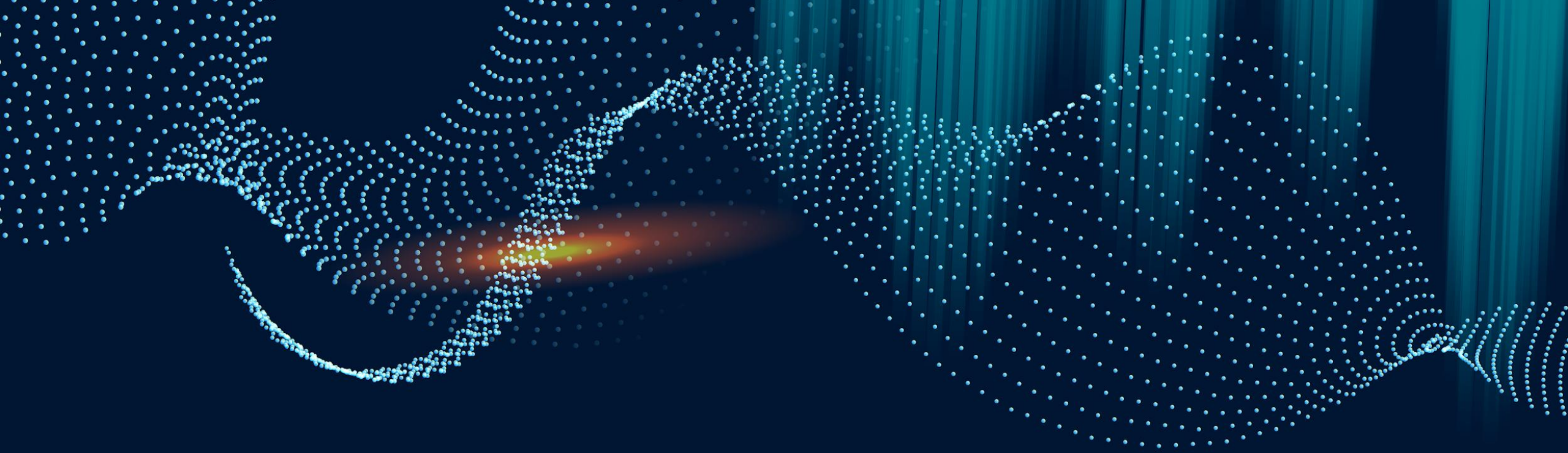
Semantic language modeling

Natural Language Processing in Azure

Cognitive Services

Text Analytics	• Language detection • Key phrase extraction • Entity detection • Sentiment analysis
Speech	• Text to speech • Speech to text • Speech translation
Translator Text	• Text translation
Language Understanding	• Custom language modeling

HARP TEK



Natural Language Processing Services

Text Analytics

I had a wonderful vacation in France.

- Predominant Language: English
- Sentiment: 88% (positive)
- Key Phrases: "wonderful vacation"
- Entities: France

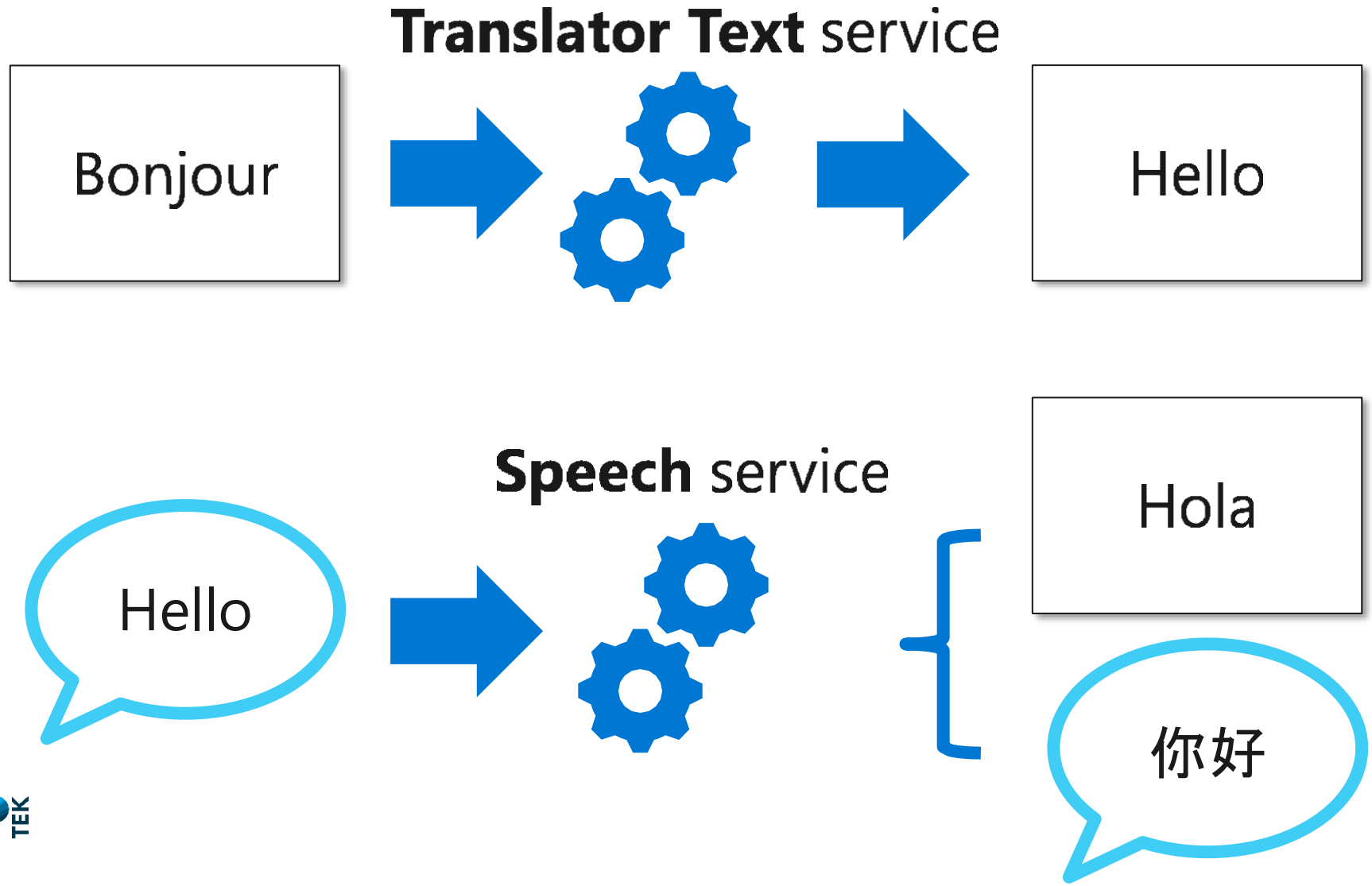
SHARPTEK

Speech Recognition and Synthesis

Use the *speech-to-text* capabilities of the **Speech** service to transcribe audible speech to text

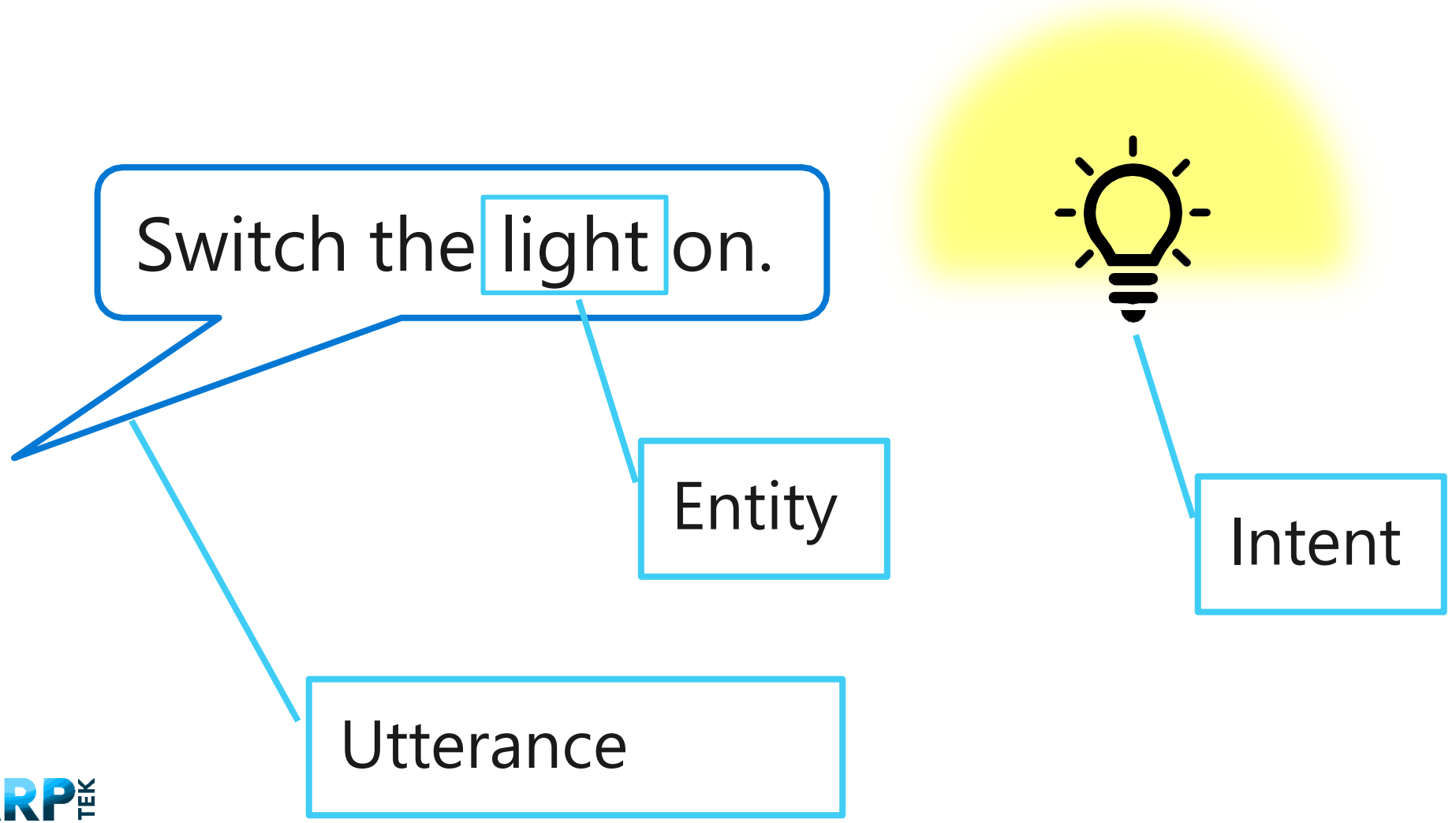
Use the *text-to-speech* capabilities of the **Speech** service to generate audible speech from text

Translation

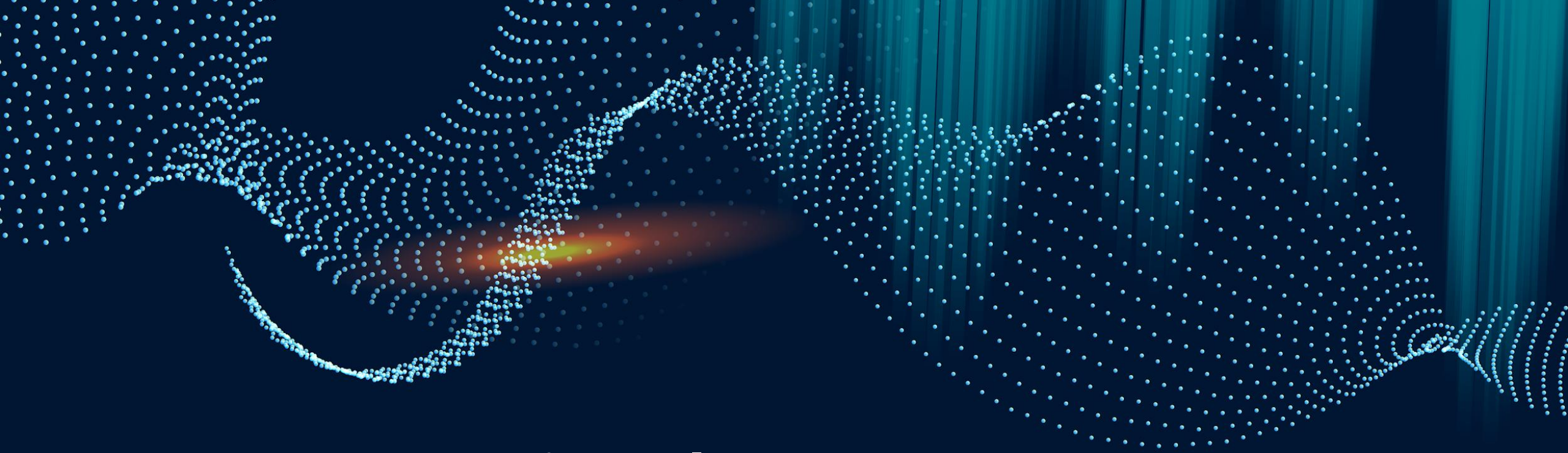


CHARPTEK

Language Understanding



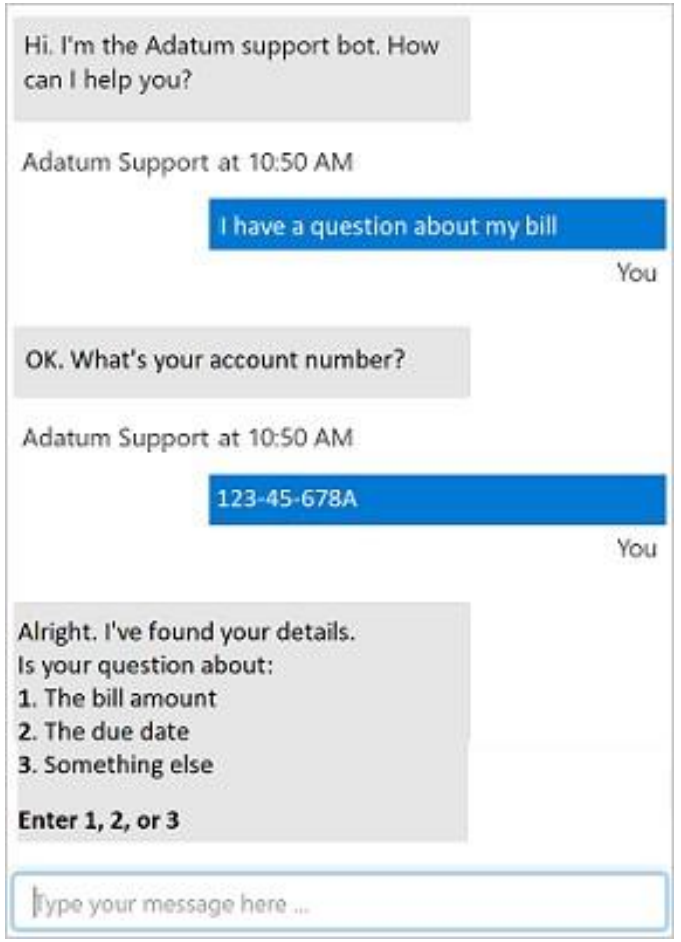
SHARPTEK



Conversational AI

What is Conversational AI?

- A solution that enables a dialog between an AI agent and a human
- Generically, conversational AI agents are known as *bots*
- Bots can engage over multiple *channels*:
  - Web chat interfaces
  - Email
  - Social media platforms
  - Voice

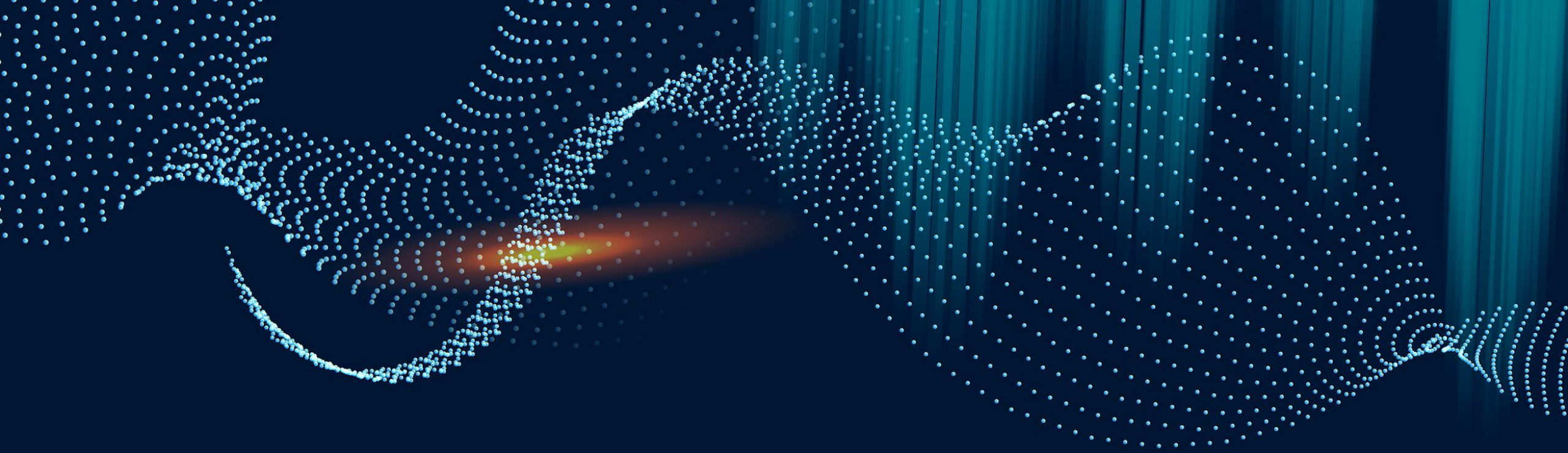


CHARPTEK

Responsible AI Guidelines for Bots

1. Be transparent about what the bot can (and can't) do
2. Make it clear that the user is communicating with a bot
3. Enable the bot to seamlessly hand off to a human if necessary
4. Ensure the bot respects cultural norms
5. Ensure the bot is reliable
6. Respect user privacy
7. Handle data securely
8. Ensure the bot meets accessibility standards
9. Assume accountability for the bot's actions

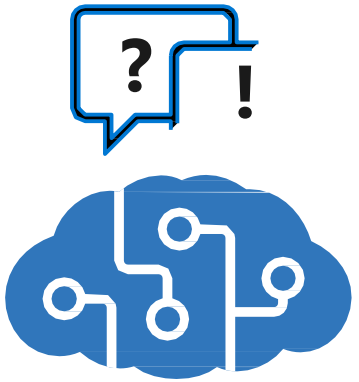
SHARPTEK



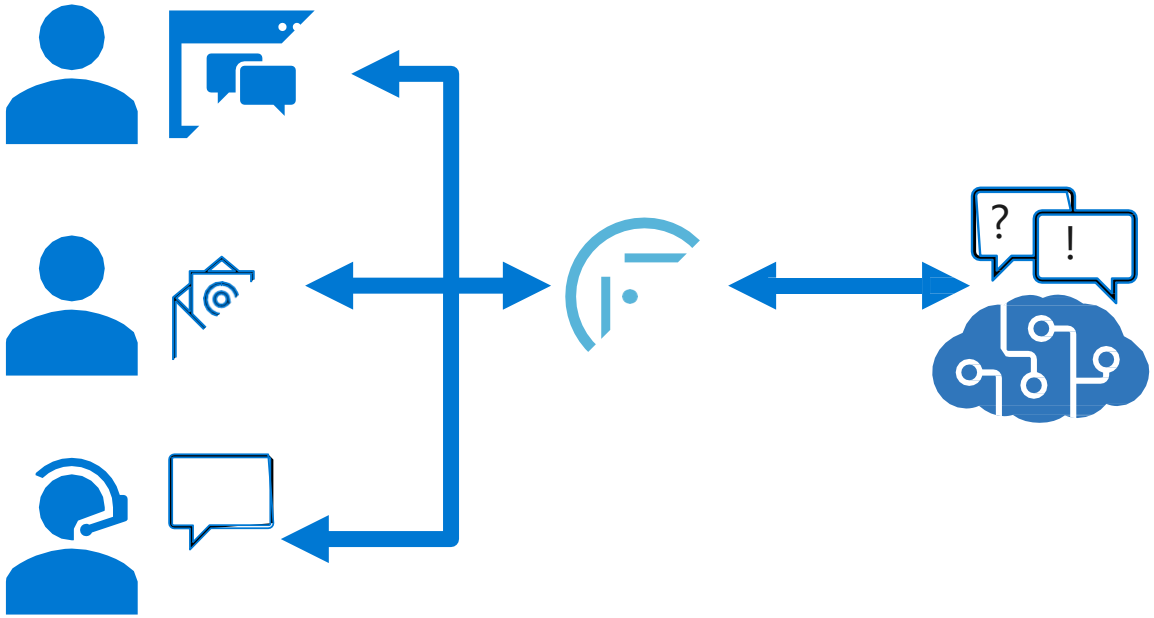
Conversational AI in Azure

The QnA Maker Service

- Define a *knowledge base* of question and answer pairs:
  - By entering questions and answers
  - From an existing FAQ document
  - By using built in *chit chat*
- Consume the knowledge base from client apps, including bots

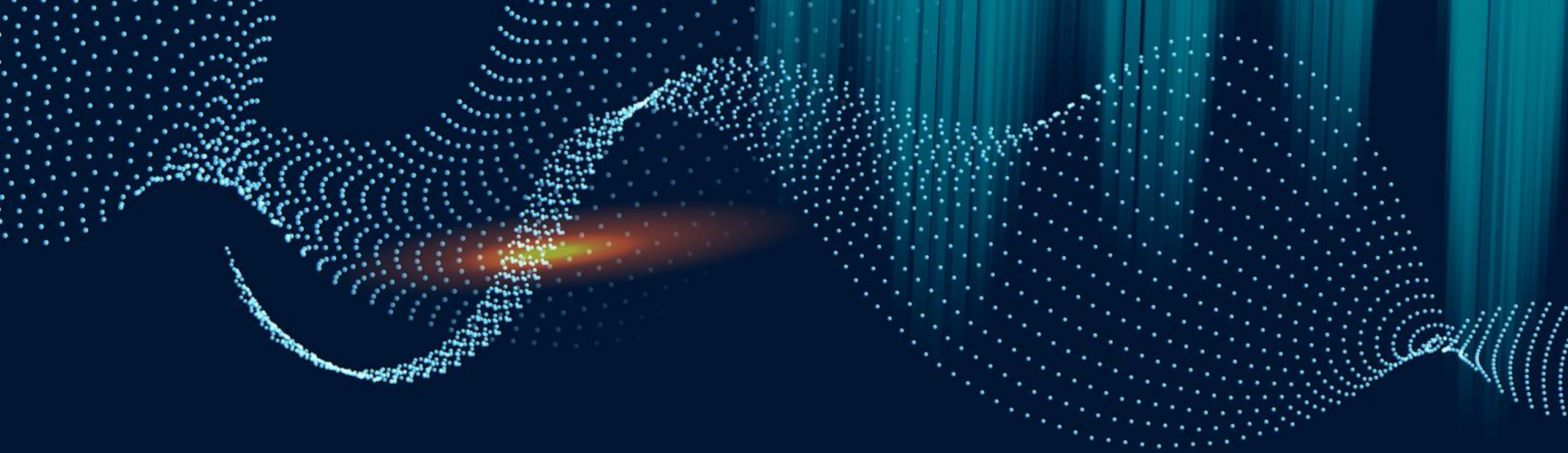


Azure Bot Service



- Cloud based platform for developing and managing bots
- Integration with LUIS, QnA Maker, and others
- Connectivity through multiple channels

SHARPTEK



Testimonials

Testimonials

Insurance Software Development for Insurance Company

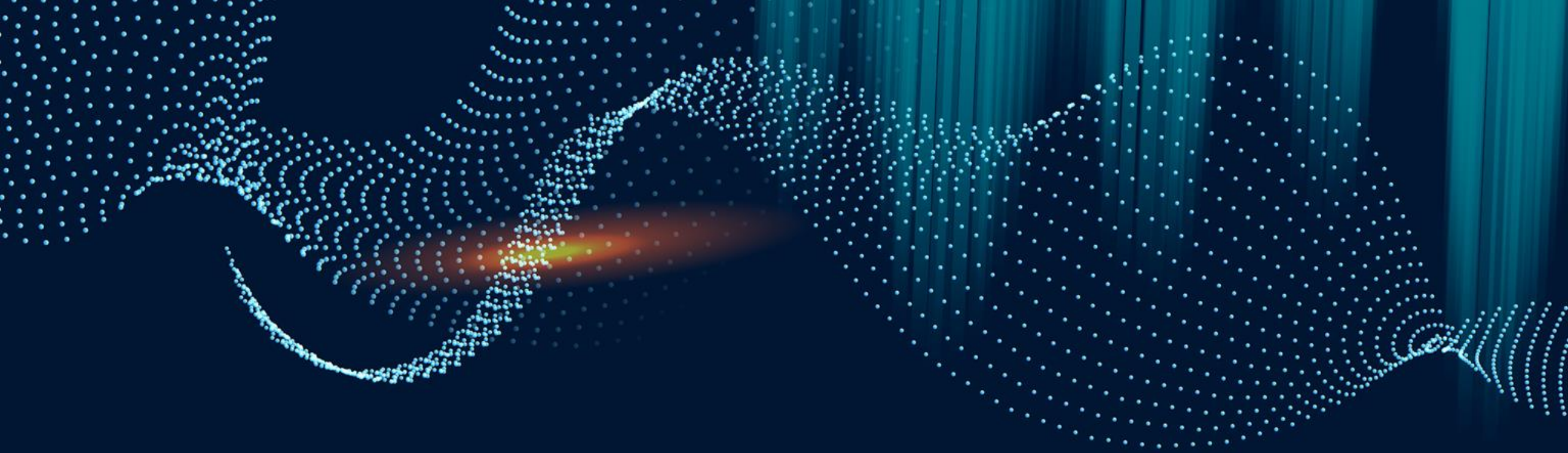
" They think hard about how to deliver what we want in the best manner possible"

Custom Software Dev for Business Consultancy Company

"They are talented, flexible in staffing and time management, and adapt easily to procedures and style of work."

Custom Software Dev for Intellectual Property Company

"The quality of the work was always very good, and errors are quickly corrected"



Why Choose Csharptek

Why Choose Csharptek?

Experienced Development Team: Skilled professionals with a proven track record.

Cutting-Edge Technologies: Embracing the latest tools and frameworks.

On-Time Delivery: Committed to meeting project deadlines.

Seamless Communication: Regular updates and transparent collaboration.

THANKS!

Do you have any questions?

info@csharptek.com
+91-9334646668
www.csharptek.com

Thank you for considering Csharptek for your Azure Ai needs. We are excited to partner with you and bring your ideas to life!

Contact us to discuss your Azure Ai needs and get a free consultation. Our team is eager to turn your ideas into reality!