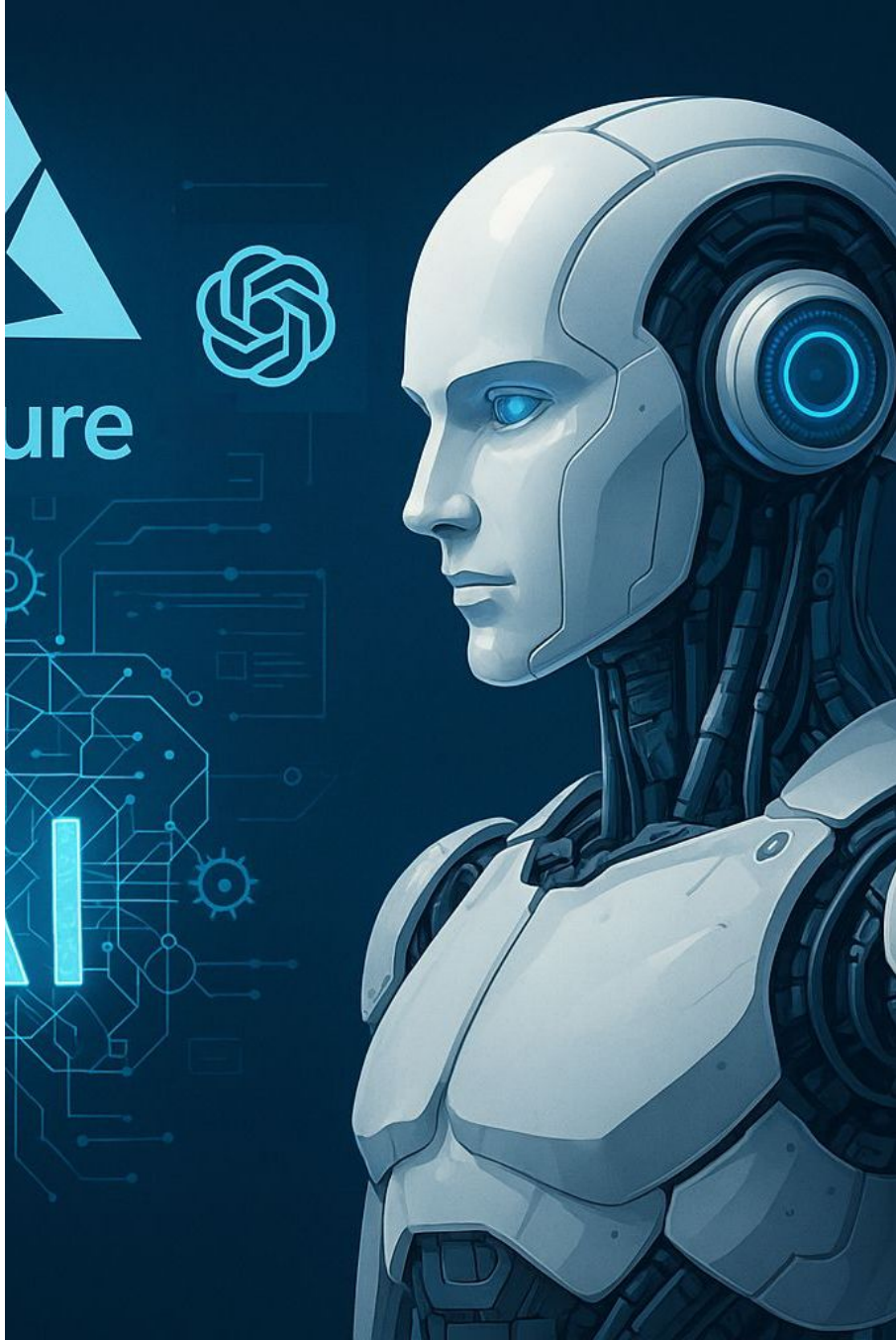
Giving AI a Voice: Building Real-Time Voice Agents with Azure AI Foundry

A Beginner-Friendly Session for Non-Developers

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ABOUT ME



Uvika Sharma

Founder & Managing Partner, INTLDA

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- 23+ years working in Data, AI & Emerging Tech with F500 & Startups
- Focus on AI Literacy, Responsible AI, Strategy & GRC
- Mentoring Startups at Cornell Tech & HBS Startup Partners, Adjunct Instructor, Bryant
- Co-founder of Asian Women Advancing AI (AWAAI)
- Author, Building CustomGPTs using Open AI's builder tool

Agenda



Introduction to AI

Brief overview of AI and its fundamental concepts.



What is an Agent

Understanding agents & the spectrum of the LLM landscape



Voice Agents

Introduction to Voice Agents and how they differ from text based chat



Azure AI Foundry

Introduction to Azure AI Foundry followed by hands on lab



What is AI?

An umbrella term

Covers many different technologies

Machines acting intelligently

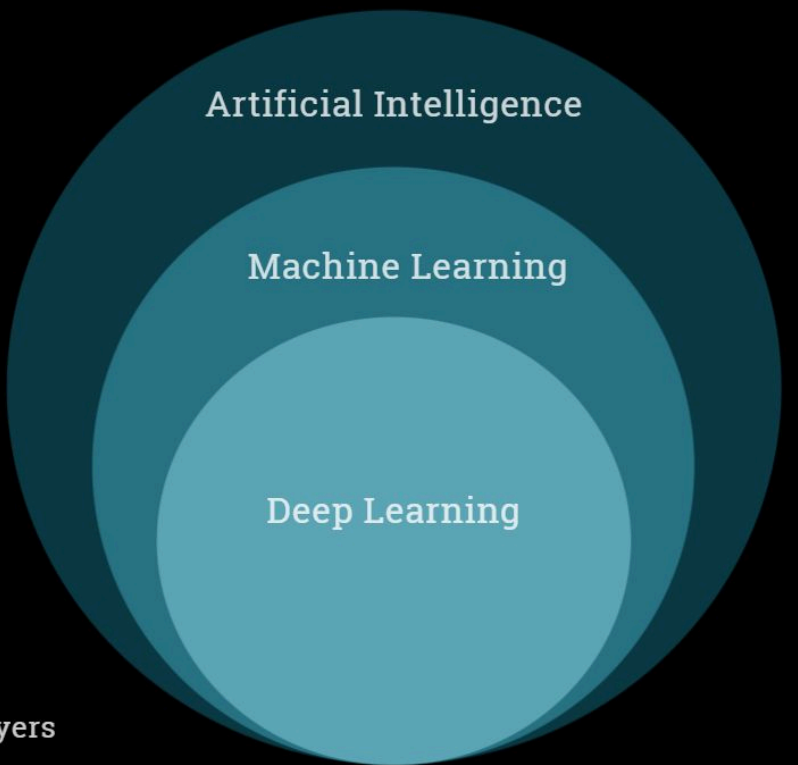
Like humans solving problems

Many applications

Math, image recognition, recommendations, conversation

AI vs. ML. vs DL

Artificial Intelligence is machines simulating human intelligence



Machine Learning is when computers learn from data to make decisions or predictions without being explicitly programmed to do so.

Deep Learning is a type of machine learning where computers use many layers of processing to understand complex patterns.

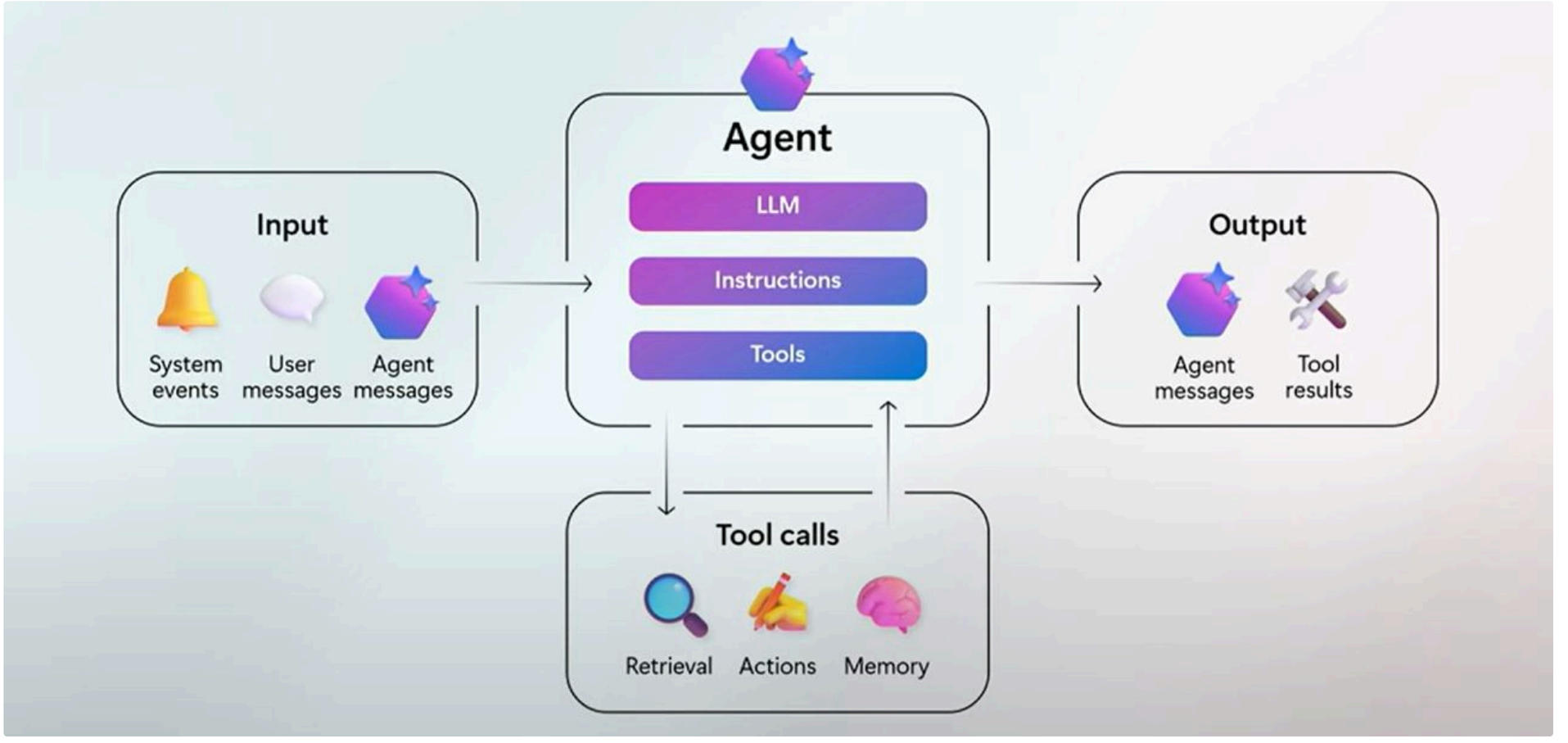
Understanding LLMs and ChatGPT

- **LLM stands for Large Language Model** – it's trained on vast text data to understand and generate human-like language.
- **ChatGPT is an application of an LLM**, built by OpenAI to chat, answer questions, and assist with tasks.
- **It works by predicting the next word** in a sentence based on the context you provide.
- **It can summarize, translate, and explain topics**, acting like a smart assistant.
- **ChatGPT doesn't think or know facts like a human**—it generates responses based on patterns it learned during training.



What is an agent?

An autonomous system that interacts with its environment to achieve specific goals



Now imagine this agent can **speak and listen in real time**

Why Voice is the Next Interface for AI

Most Natural Interface

Most natural way humans communicate

Faster Than Typing

Voice is 3x faster than typing

More Accessible

Inclusive for kids, elderly, and non-technical users

Already Everywhere

Alexa, Siri, call centers, smart devices

Commands → Conversations

Moving beyond simple commands to natural dialogue



Chat Agents vs 🎙️ Voice Agents

Chat Agent	Voice Agent
Text input/output	Speech input/output
Turn-based	Real-time interaction
Visual interface	Conversational experience
Slower	Faster, more natural
Requires typing	Hands-free

What Changes When We Add Voice?



Speech-to-Text

Listens & transcribes user speech



LLM Reasoning

Same as before — understands & thinks



Text-to-Speech

Converts response back to voice



Real-Time Loop

Continuous conversation, not turns

We're not building something new — we're layering voice on top of agents.

How a Voice Agent Works (Simplified)

User Speaks

User asks a question or gives a command

Voice → Text

Speech-to-Text converts audio to words

Agent Processes

LLM reasons, plans, and decides a response

Response Generated

Agent crafts a natural language reply

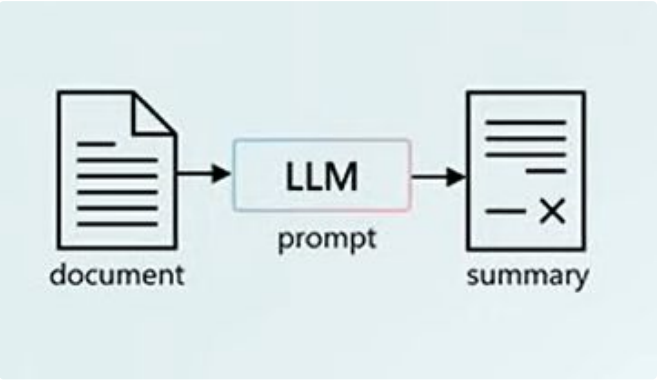
Text → Voice

Text-to-Speech delivers the answer out loud

We're not building something new — we're layering voice on top of agents

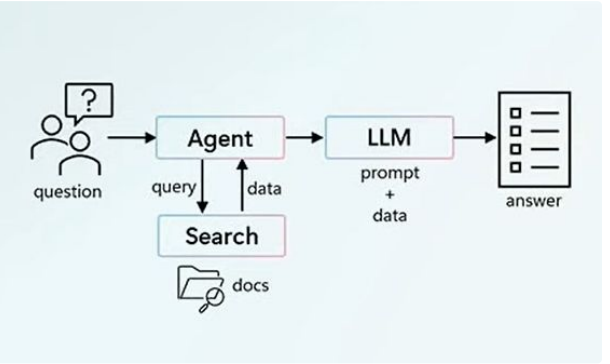


Spectrum of LLM-based Solutions



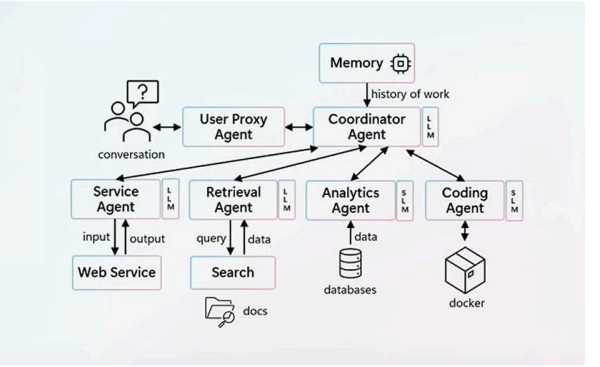
No Agent

Ex: Summarize text



Single Agent

Ex: Provide an answer with supporting evidence to a complex question



Multi-agent Systems

Ex: Search recent research on diabetes prediction, summarize key findings, and generate Python code to apply one of the models using sample patient data

Source: Microsoft Developer YouTube channel**h**

What is Azure AI Foundry

- **AI Foundry is a Microsoft platform** designed to help users build, deploy, and manage AI agents using Azure OpenAI and other Microsoft AI services.
- **No-code and low-code friendly**, it allows beginners and business users to create custom AI solutions without deep technical expertise.
- **Supports agent orchestration**, enabling multiple agents to work together to complete tasks, access knowledge, or automate workflows.
- **Integrated with Microsoft ecosystem**, including tools like Power Automate, Teams, and Microsoft 365, for seamless real-world use.
- **Built-in responsible AI principles**, encouraging fairness, transparency, and accountability when deploying AI solutions.
- **Supports building voice-enabled agents**
- **Enables real-time conversational experiences**

Creating & Configuring your agentic system



1. Provision Environment

Identify & provision environment in which you are going to build the agent. Create the Azure AI Hub & the project for developing your agent

2. Select Model

Choose the model that best fits your requirements such as language understanding, text generation or task specific abilities

3. Create & Configure Agent

Define what your agent should do, its tone, behavior, and purpose using plain-language instructions. Configure its inputs & capabilities & add tools and actions.



4. Enable Voice Mode

Enable voice interaction (speech input/output)

5. Test Agent

Thoroughly test the agent using a variety of inputs and scenarios & evaluate responses. Collect feedback & iterate as needed

6. Deploy & Monitor

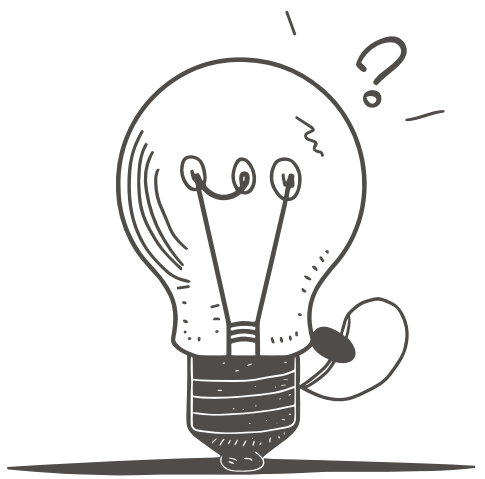
Deploy agent and monitor & log its performance.

Enterprise Agentic Solutions

- Knowledge Agent
- Customer Support Agent
- Supply Chain Agent
- IT Helpdesk Agent
- HR Agent
- Sales Agent
- Finance Agent
- Medical Scribe Agent
- Training Agent
- Marketing Agent
- R&D Agent
- Manufacturing Agent

Let's Go and Build our Voice AI Agent

Questions ?



I'd love your feedback



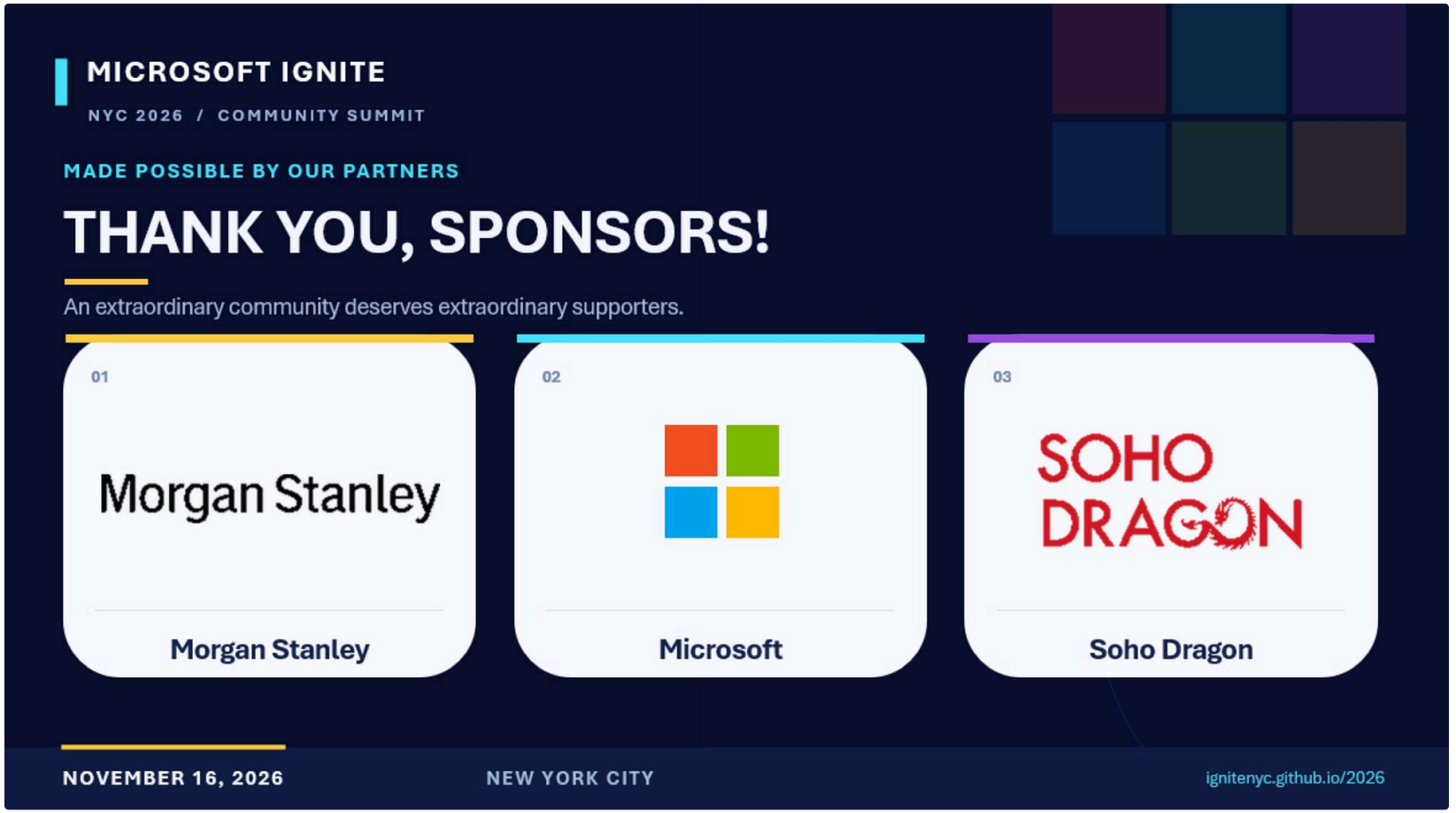
Let's Continue the Conversation

"We're not just building systems; we're building futures."

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