



BY THE COMMUNITY | FOR THE COMMUNITY

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Develop a speech-to-text app using Python & Azure OpenAI



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Aroh Shukla

Regional Microsoft Cloud Architect Lead

MVP Alumni, MCT

- Passionate to **learn**.
- Passionate to **share knowledge**.
- Passionate to work on **Microsoft Technologies**



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Agenda

- Exploring Python Basics (Python 101)
- Python's Role in ML and AI
- Azure OpenAI's Speech-to-Text Models
- Building an App with VS Code, Python, & Azure OpenAI
- Demos



Python 101

High level overview



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Python 101



- Will learn **crash course** in a Demo 1



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Why Python for Data Science, AI & ML



- **User Friendly** – User in mind
- **Widely Popular:** 1st Programming Language
- **Versatile** - Jack-of-all-trades in the programming world,
 - a) Web Development
 - b) Data Science
 - c) AI
 - d) ML



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How Python is Revolutionizing Tech Industry



Data Science

- [Pandas](#)
- [NumPy](#)
- [Matplotlib](#)
- [Jupyter Notebooks](#)

AI

- [TensorFlow](#) & [Keras](#)
- [PyTorch](#)
- [OpenAI](#)
- [Azure OpenAI](#)

Machine Learning

- [Scikit-learn](#)
- [TensorFlow](#) & [Keras](#)



Learning Python



Free

1. "Python Tutorial" by Corey Schafe (146 videos)

[\(2156\) Python Tutorials – YouTube](#)

2. "Python Programming for Beginners" by Programming with Mosh (6 hours)

[Python Tutorial - Python Full Course for Beginners \(youtube.com\)](#)

Paid (Udemy)

1. "Python for Beginners: Learn Python Programming (Python 3)

<https://www.udemy.com/course/python-programming-projects/>

2. "Machine Learning, Data Science and Generative AI with Python

<https://www.udemy.com/course/data-science-and-machine-learning-with-python-hands-on/>



Python

Demo 1



Azure AI & Speech to text

Basics of Azure AI



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We are living in the era of AI



AI private investments **doubled**



50% of organizations have **adopted** AI in at least one business area



70% of employees are ready to **embrace** AI



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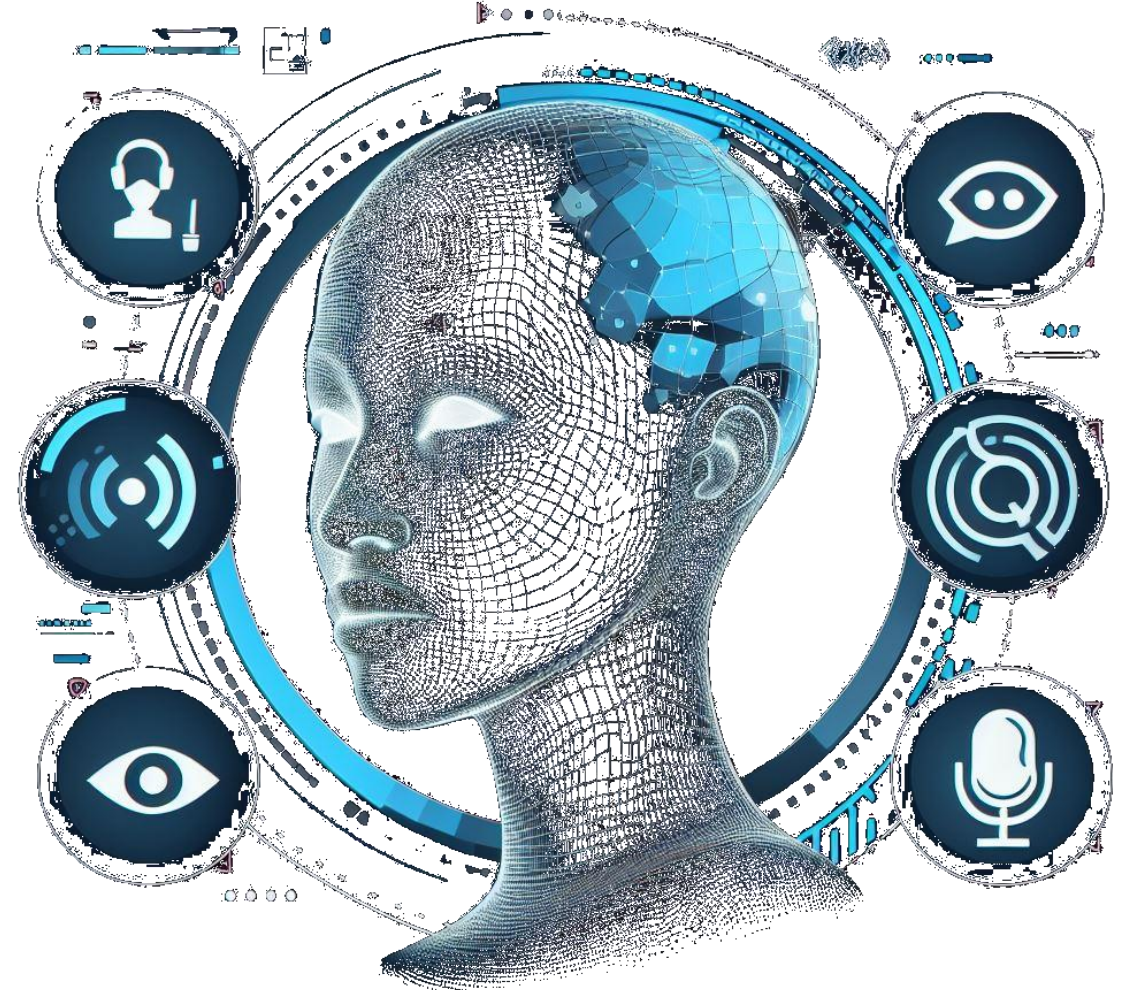
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Multimodality is here

Language

Speech

Vision



Azure OpenAI Service

custom-tunable

GPT-4

Whisper

DALL·E

GPT-4 Turbo with
Vision

Azure OpenAI Service

custom-tunable

GPT-4

Whisper

DALL·E

GPT-4 Turbo with
Vision

What is Whisper model?

- Speech-to-text model
- OpenAI
- LLM of **English** audio & Text
- Input in other Language (Hindi, French etc)
- Output will be always in **English**

URL:

[The Whisper model from OpenAI - Azure AI services](#) | [Microsoft Learn](#)



Deployment options

1. Via **Azure OpenAI**

1. Quickly transcribing audio files one at a time
2. Translate audio from other languages into English
3. Provide a prompt to the model to guide the output

2. Via **Azure AI Speech**

1. Transcribing files **larger** than **25MB**
2. Transcribing **large batches** of audio files
3. Diarization to distinguish **between the different speakers** participating in the conversation



Use Cases

1. Quickly **Transcribe audio files**
2. Translate **audio from other languages into English text**
3. Provide a **prompt to model to get desired output**



Regional Support

1. Azure OpenAI:

EastUS 2, India South, North Central US, Norway East, Sweden Central, West Europe

2. Azure AI speech:

Australia East, East US, North Central US, South Central US, Southeast Asia, UK South, and West Europe.



Use and Deploy Whisper model

Azure Portal

VS Code, Python & Azure OpenAI

Build the app

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Thank You!



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