



SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF CSE-IoT ENGINEERING



Artificial Intelligence & Natural Language Processing

Agent Communication in AI & NLP

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What is Agent Communication?

- **Agent Communication** refers to how multiple AI agents **exchange information, collaborate, and coordinate** to complete tasks.
- Used in **Multi-Agent Systems (MAS), Distributed AI, and NLP-based Conversational Agents**.



Types of Agent Communication

Communication Type	Description	Example
Direct Communication	Agents interact explicitly by sending structured messages.	Two chatbots talking to each other.
Indirect Communication	Agents infer information without direct messaging (observing changes in the environment).	Traffic AI adjusting signals based on vehicle density.
Synchronous Communication	Both agents communicate in real-time .	Voice assistants responding instantly.
Asynchronous Communication	Messages are sent, and responses are processed later .	Email AI auto-responders.



Agent Communication Languages (ACLs)

Agents use **specialized languages** for structured communication:

1.KQML (Knowledge Query and Manipulation Language) – Used for knowledge-based AI communication.

2.FIPA-ACL (Foundation for Intelligent Physical Agents – Agent Communication Language) – Standard language for multi-agent systems.



Multi-Agent Communication in AI & NLP

When multiple agents interact, they **coordinate** to achieve a common goal.

Multi-Agent Communication Scenarios

- **Self-Driving Cars** communicating to avoid collisions.
- **AI Trading Systems** sharing market data to optimize investments.
- **NLP Chatbots** collaborating to improve responses based on previous interactions.



Intelligent agents in AI follow structured architectures to process inputs, learn, and act.

- ◆ **NLP agents** handle **text/speech processing, understanding, and response generation.**

- ◆ **Agent communication** enables multiple AI systems to interact efficiently using **structured messages.**



Thank
you