AutoGen

Introduction

AutoGen is an open-source framework for building agentic AI systems. These systems are composed of agents that extend generative AI models with tools. Agents observe, reason, plan, act and use tools, for example memory for storing learnings or software like web browsers. They autonomously accomplish tasks on behalf of humans, collaborate in agent teams with and without human oversight and interact with humans through natural language. Agents built with AutoGen have demonstrated state-of-the-art performance on multiple agentic benchmarks which include tasks requiring the creation of a multi-step plan and the solution of multiple sub-tasks. Enterprises, academic groups, and other communities have been using the framework to create multi-agent solutions for a wide range of scenarios including to perform business processes and drive novel AI-based systems.
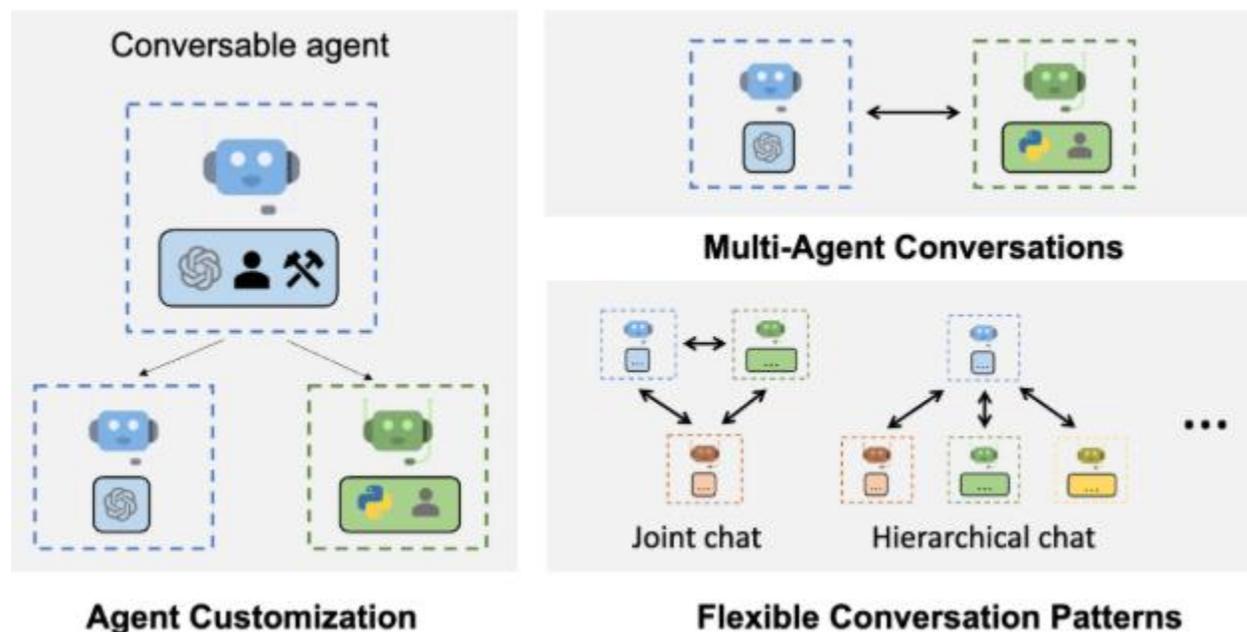

Figure 1: Agentic design patterns

New Release Highlights

AutoGen 0.4 was released in January 2025. The version features a re-designed architecture that unlocks the full potential of scalable agentic systems, which can easily be customized through modular components like memory or custom agents. AutoGen 0.4 supports a greater diversity of workflows and offers a first-class user experience for agentic application development. It includes built-in support for debugging and monitoring agent workflows. The AutoGen library is complemented by AutoGen Studio, a graphical development tool that allows creating agentic workflows without writing code.
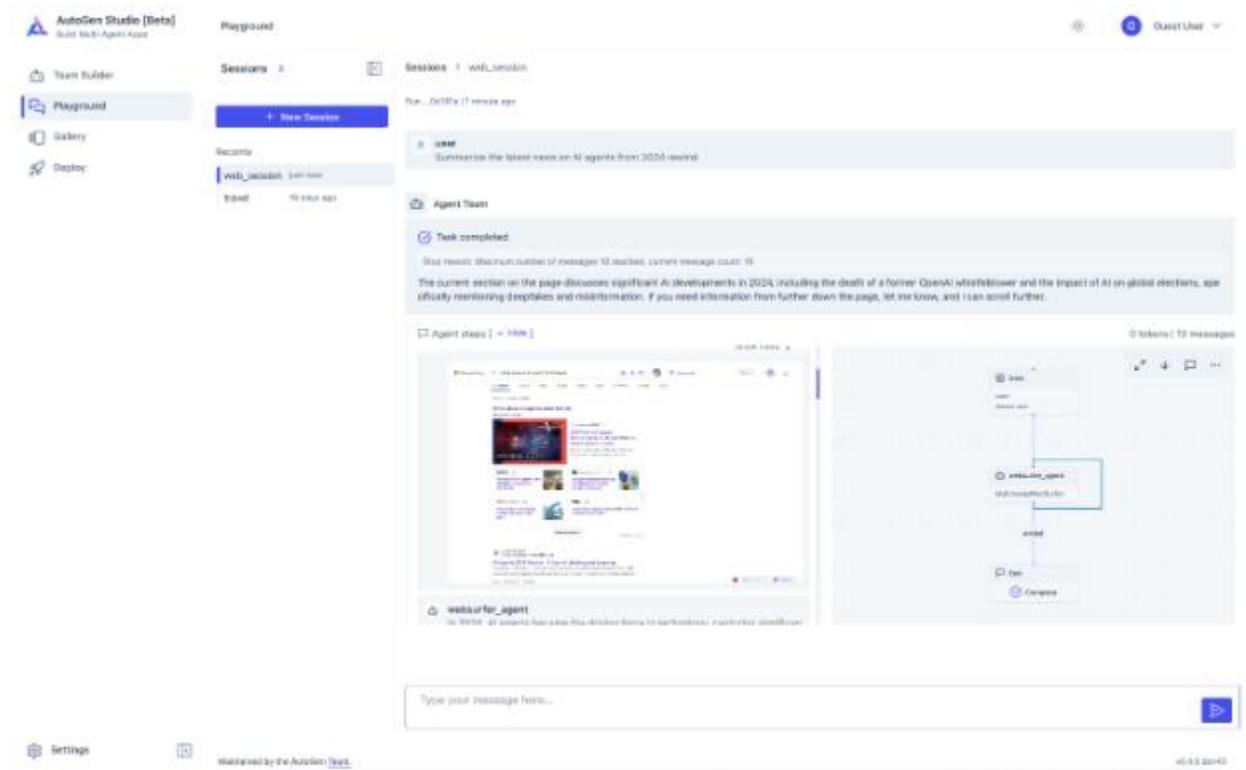

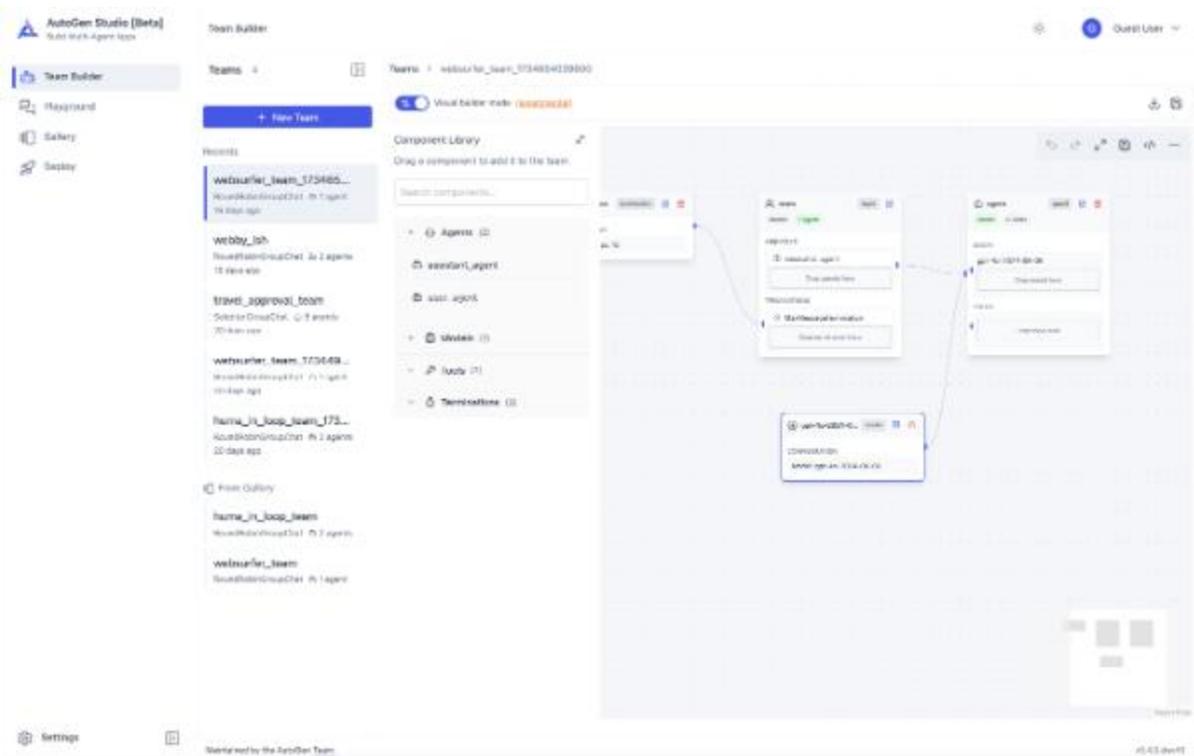*Figure 2: No-code prototyping with AutoGen Studio*

Figure 3: AutoGen Studio: Drag & drop agents into the workflow

Key Features

The advent of generative AI allowed building conversational agents that interact through natural language, a kind of augmented chatbot. AutoGen 0.4 adds the ability to build event-driven workflows of distributed, long-running agents that collaborate across information boundaries. For example, imagine a mailbox agent running in the background screening incoming emails and performing actions based on personal preferences. AutoGen agents communicate via asynchronous messages, forming scalable networks of different types of agents, such as personal agents, agents representing organizations, agentic experts. Teams of agents with different abilities and roles decompose and collaboratively solve complex tasks. Magentic-One is an example of a universal agent team built with AutoGen.

Scenarios Where This Tech Shines

AutoGen is a versatile framework that is useful in a variety of scenarios. A key use case for agent teams is automation of business processes. Teams are composed of different agents with specialized capabilities and distinct roles, such as an agent doing research, another

creating an artefact, a third performing a review. Teams are managed by orchestration agents. An established approach for agentic workflows is to mimic organizational workflows.

Learn More

Since its release in October 2023, AutoGen has gained remarkable popularity with over 2.7M downloads on GitHub, 37k stars and 5.4 forks.

- Repo : https://github.com/microsoft/autogen
- Website: https://microsoft.github.io/autogen/
- Blog Post: https://aka.ms/AutoGenReimagined
- Studio: AutoGen Studio v0.4x - Drag and Drop Interface on Vimeo
- AutoGen Solutioin Accelerator: Multi-Agent-Custom-Automation-Engine-Solution-Accelerator
- Contact Us: autogen@microsoft.com