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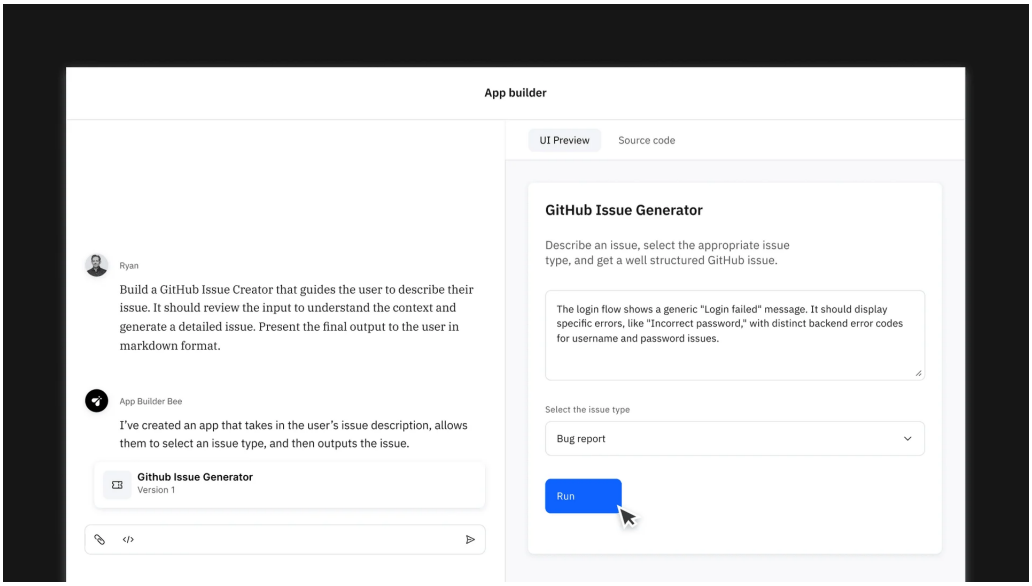
Can a personalized AI be more useful?

IBM researchers are testing a new IBM-designed application and open-source platform to learn if more customized AI agents and applications can help business users extract more value from generative AI.



Large language models are good with words, and even code, but their capabilities don't always match up with the kinds of monotonous, specialized tasks that can eat up the workday.

IBM's new experimental application, BeeAI, built on its open-source Bee Agent platform, is aimed at exploring how professionals can get some of that time back. It's part of a larger research project to determine how generative AI can help to accelerate and automate repetitive tasks, regardless of your technical expertise.

The prototype application features an intuitive chat interface that lets you follow along step-by-step as it carries out a task. BeeAI is designed to be used in three different ways:

You can use its built-in agent, "Bee," for typical chatbot tasks like searching the web and generating content. You can also assign Bee new roles, like accountant or project manager, and give your bespoke agent customized tools so it can connect to collaborative applications like GitHub and Airtable.

Get on the waitlist to try BeeAI

Read Maya Murad's tutorial in Medium: How to Build a General-Purpose LLM Agent

BeeAI's chat interface lets you interact with your AI agent while providing step-by-step visibility into the agent's reasoning process and tool use.

A third way of using BeeAI is to create reusable, AI-powered apps to automate recurring tasks like processing invoices or summarizing meeting transcripts. You can share these personalized, time-saving widgets with colleagues by simply copying and pasting a web link.

“With a few words, you can build a dashboard or an interactive application,” said Maya Murad, a product incubation manager at IBM Research who is helping to lead BeeAI. “For someone who doesn't code, the ability to create a dynamic user interface feels pretty magical.”

In the two years since ChatGPT upended the tech industry, LLMs have transitioned from stand-alone assistants to agentic systems designed to act on a user’s behalf by emulating how humans reason through a problem and act. Thanks to

this additional layer of software, these new LLM agents can summon external tools and sources of knowledge, and check and correct their work.

BeeAI emerged amid this shift, as IBM and others in tech have sought to make LLMs more relevant for the kinds of everyday tasks people face at work. There's a growing consensus that language models won't be made more relevant by shoveling in more data, or adding more weights, but rather by connecting them to the outside world and other LLMs for improved accuracy and versatility.

Consistent with IBM's commitment to open-source software, BeeAI is built on components that can be inspected and improved upon by the community. They include IBM and Meta's state-of-the-art Granite and Llama family of language models; IBM's Bee Agent Platform, which features a ReAct-style architecture giving agents the ability to plan, call tools, and reflect in a step-by-step format; and Docling, an IBM Research toolkit for converting unstructured business documents into a format LLMs can digest.

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Together, BeeAI’s constituent parts allow a business user with limited technical expertise to customize and deploy their own AI agents and to build personalized AI-driven applications that can be shared with coworkers.

“I can say ‘I’m a product manager in charge of an open-source project, and I need a project dashboard to show my leadership team,” says Murad. “I can have it in seconds and apply this basic formula to any job.”

How to use BeeAI

BeeAI comes with a ready-to-use agent, Bee, that will look familiar to anyone who has played with an LLM

chatbot before. What makes IBM's agent different, however, is its observability and tool use.

Bee invites users to visualize its 'thought' process as it works, so users can have greater trust in its results. Ask Bee a question, and it will show you how it plans to find the answer, rather than immediately responding as most LLM chatbots do now. If Bee settles on a web search, it will show you the terms it used to scour the internet, the top results they returned, and the source it ultimately chose to summarize and deliver to you the user.

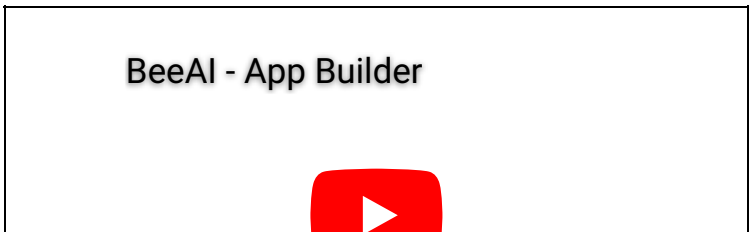
Behind this window is a reason-and-act protocol that allows Bee's underlying LLM to evaluate each step in the process. In the web search example, if the first batch of results doesn't surface content aligned with its objective, it will try a new search term. Bee can also access Python libraries that allow it to turn uploaded CSV files into charts, among other advanced capabilities.

Bee works well for general-purpose tasks, but sometimes a job calls for knowledge and skills only an expert can provide. In these situations, a customized agent with a narrower scope can often do better. For these

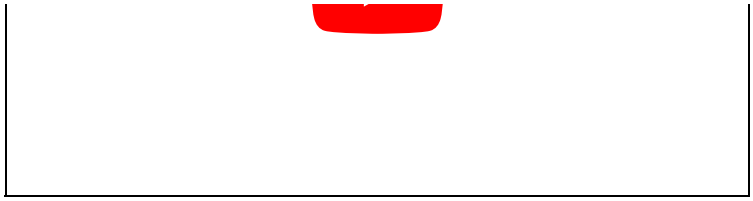
cases, BeeAI lets you create agents with their own personas, whether it's an accountant that can process invoices or a project manager that can translate customer complaints into GitHub issues.

In seconds, Bee can be redeployed for these new assignments. More technically inclined users can write Python code to create a custom tool that can connect to any system with an API, including popular collaborative applications like GitHub, Airtable, or Figma, so that others in the office can pick up where your agent left off.

BeeAI can also be used to build AI-driven apps, without any coding. An LLM powers both the app-building experience itself as well the apps that users create. IBM researchers added the app builder after watching people repeatedly ask agents to complete a task that could be handled far more efficiently without back-and-forth negotiations with a chatbot.



BeeAI's app-building capability allows you to build reusable, AI-powered apps for everyday business



tasks through an easy-to-use chat interface.

“Imagine a meeting summarization tool that lets you upload a file, select a meeting format, and press go,” says Kate Blair, the director of product incubation at IBM Research overseeing BeeAI. “If this is something you do every other day, it’s faster to drag and drop a file than having to describe in a prompt for the chatbot, after every meeting, what the summary you want should look like.”

A lawyer whose job includes reviewing business contracts could design an app that takes the uploaded contract and analyzes it for common red flags. A sales analyst in charge of verifying invoices could design an app that takes uploaded invoices and makes sure each one matches what was ordered and received, to prevent mistakes or fraudulent charges.

“We’re asking the business user to explore making their own interfaces for their everyday work as an alternative to trying to delegate

everything to a chatbot," says Blair.

What's next

Two years into the LLM boom, many people have yet to incorporate language models into their work lives in any meaningful way. BeeAI was created and launched with the idea of asking business users themselves how the technology could be reconfigured to provide more value.

IBM researchers will use the feedback they get from BeeAI to shape its future. "A chat interface is flexible by nature and can be great way to leverage AI," says Blair. "But it's not always the best way. Through BeeAI we want to learn more about the user interaction and how business users can get more benefits from generative AI."