

The agents are coming!

The logo for DCU Business School is located in the bottom left corner. It features a white circle containing the text "DCU BUSINESS SCHOOL" in a dark blue, sans-serif font. The circle is set against a background of diagonal rainbow-colored stripes.

DCU
BUSINESS
SCHOOL

Michael Dowling
Dublin City University

What are AI agents?

05.

Organisations

04.

Innovators

03.

Agents

02.

Reasoners

01.

Chatbots

"A computer program that can sense its surroundings, gather information, and decide what actions to take to achieve a goal."

2025: The year 'invisible' AI agents will integrate into enterprise hierarchies



The construction of an agent

Component

Necessary skills

01.

Agentic framework

Fidelity

02.

AI manager models

Reasoning

Communication

03.

AI worker models

Knowledge

Tools

The agent frameworks

001



Plan-and-
execute

002



Multi-agent

003



Critique
Revise

004



ReAct

005



Self-ask

LangFlow

Microsoft AutoGen

OpenAI Swarm

Crew AI

Claude / Google

Replit / Devin

Reasoning approaches

Simple reflex agents



Model-based reflex agents

Goal based agents



Utility based agents

Memory learning agents

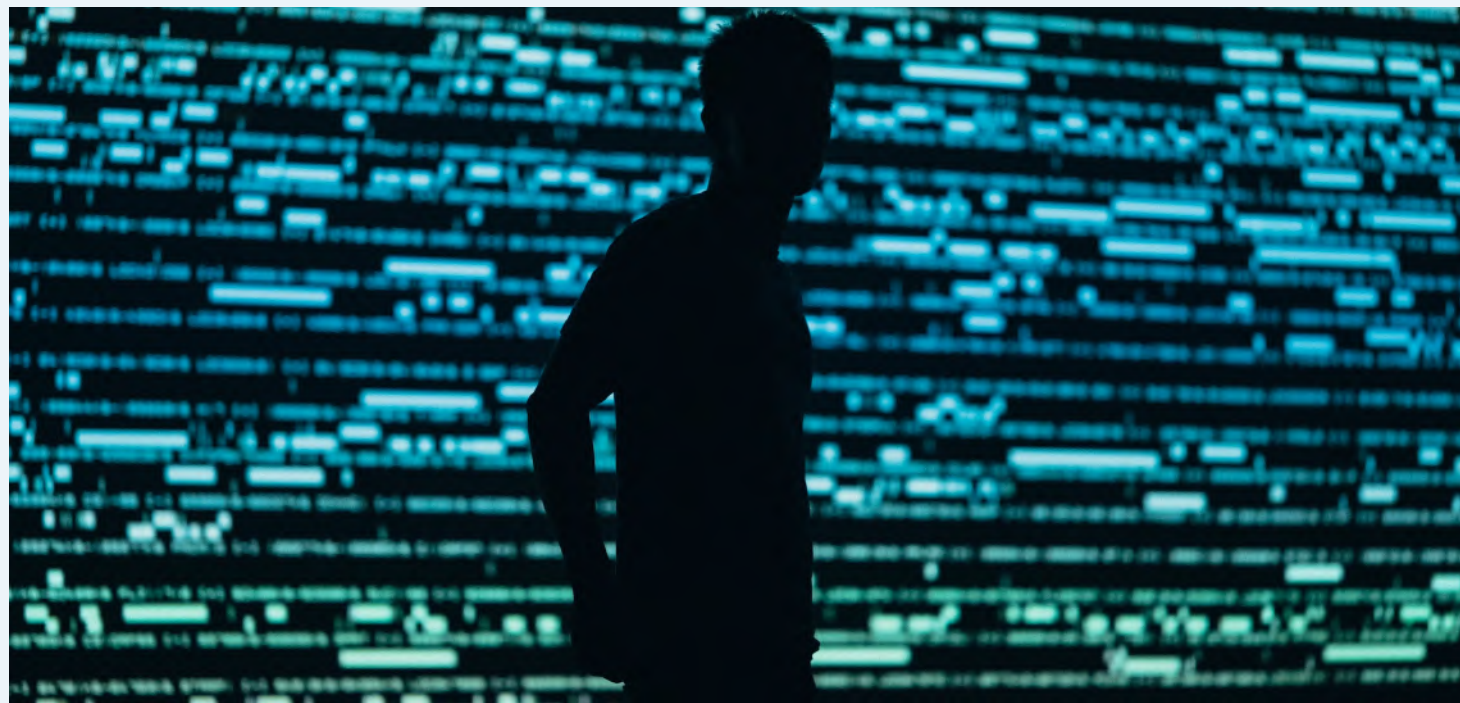


Reinforcement learning agents

Single agent vs multi agents

SINGLE AGENTS

Agents specialised in very specific tasks.



MULTI-AGENTS

Collections of single agents who can handle complex tasks.



A simple single agent in action

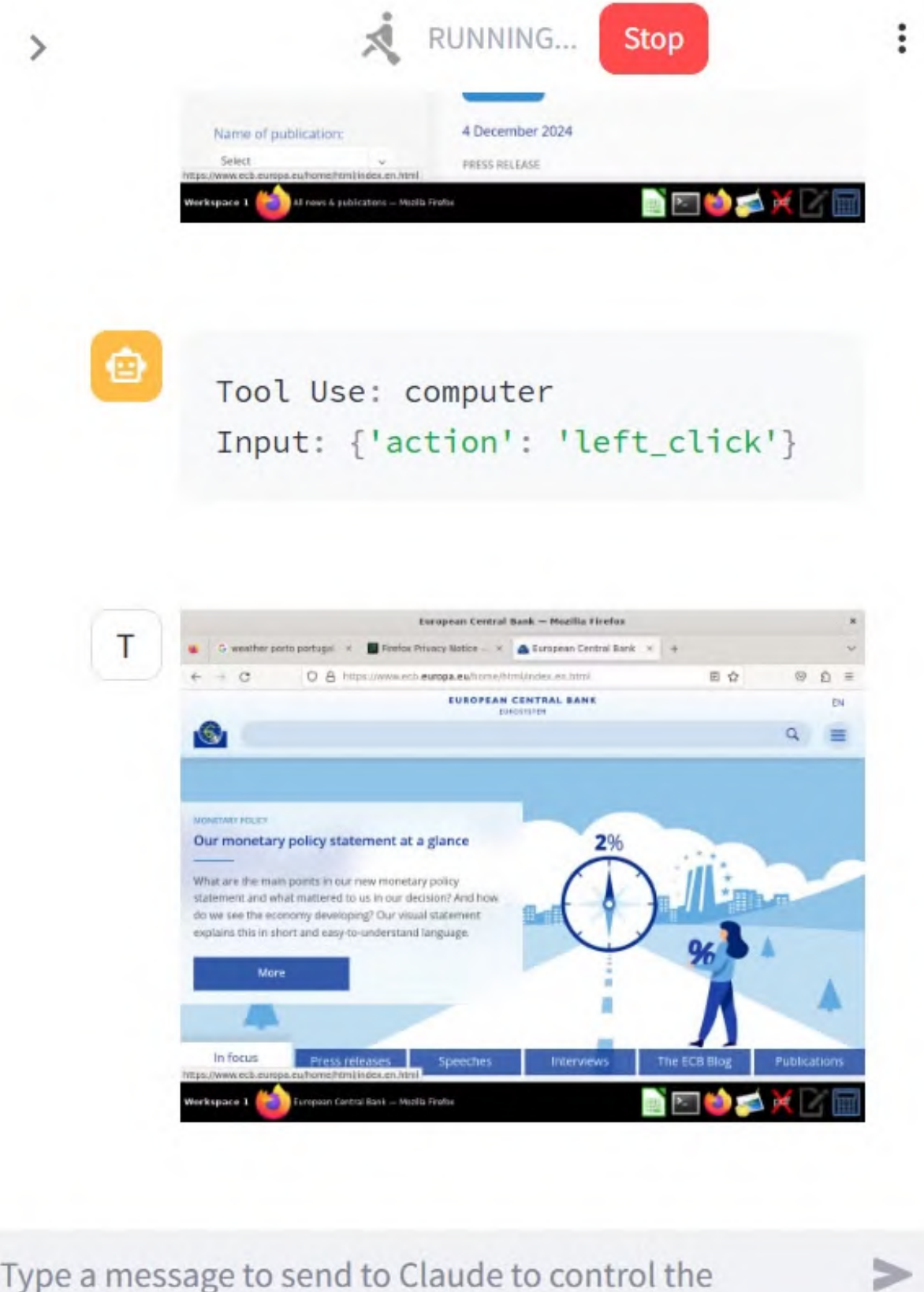
BUILD WITH CLAUDE

Computer use (beta)

The upgraded Claude 3.5 Sonnet model is capable of interacting with tools that can manipulate a computer desktop environment.

⚠ Computer use is a beta feature. Please be aware that computer use poses unique risks that are distinct from standard API features or chat interfaces. These risks are heightened when using computer use to interact with the internet. To minimize risks, consider taking precautions such as:

1. Use a dedicated virtual machine or container with minimal privileges to prevent direct system attacks or accidents.
2. Avoid giving the model access to sensitive data, such as account login information, to prevent information theft.
3. Limit internet access to an allowlist of domains to reduce exposure to malicious content.
4. Ask a human to confirm decisions that may result in meaningful real-world consequences as well as any tasks requiring affirmative consent, such as accepting cookies, executing financial transactions, or agreeing to terms of service.



> RUNNING... Stop

Name of publication: 4 December 2024
Select PRESS RELEASE
<https://www.ecb.europa.eu/home/html/index.en.html>

Workspace 1 All news & publications — Mozilla Firefox

Tool Use: computer
Input: `{'action': 'left_click'}`

T

European Central Bank — Mozilla Firefox
weather porto portugal — Firefox Privacy Notice — European Central Bank —
<https://www.ecb.europa.eu/home/html/index.en.html>

EUROPEAN CENTRAL BANK
EN

MONETARY POLICY
Our monetary policy statement at a glance
What are the main points in our new monetary policy statement and what mattered to us in our decision? And how do we see the economy developing? Our visual statement explains this in short and easy-to-understand language.
More

In focus Press releases Speeches Interviews The ECB Blog Publications
<https://www.ecb.europa.eu/home/html/index.en.html>

Workspace 1 European Central Bank — Mozilla Firefox

Type a message to send to Claude to control the ➤

A finance research multi agent with Crew AI

```
paper_finder:
  role: >
    Research Paper Finder
  goal: >
    Find relevant scientific papers related to Generative AI in finance.

analyzer:
  role: >
    Research Paper Analyst
  goal: >
    Analyze scientific papers to extract key findings and limitations.

seed_idea_generator:
  role: >
    Seed Idea Generator
  goal: >
    Generate initial research ideas by synthesizing insights from papers.

idea_iterator:
  role: >
    Idea Refinement Specialist
  goal: >
    Iterate and improve upon seed ideas.

completion_specialist:
  role: >
    Research Proposal Developer
  goal: >
    Transform ideas into a single complete research proposal.
```

```
@agent
def paper_finder(self) -> Agent:
    return Agent(
        config=self.agents_config['paper_finder'],
        tools=[SerperDevTool()],
        verbose=True
    )

@agent
def analyzer(self) -> Agent:
    return Agent(
        config=self.agents_config['analyzer'],
        tools=[SerperDevTool(), ScrapeWebsiteTool()],
        verbose=True
    )
```


finoge: A business finance agent

Business Demographics

Search, CRO, FAME

Business Financials

Search, Open Banking, FAME

Owner Demographics

Search, Socials, Finley

Owner Preferences

Finley



PROTEUS TWIN AI



This Week's Goal

Build your financial foundation by understanding your key metrics and setting up simple tracking systems. [Learn more >](#)



News

TikTok Shop launches: opportunity for your bakery to sell online

Recently, *The Irish Examiner* reported that TikTok has launched its TikTok Shop in Ireland, partnering with...



Daily Pod • 13:42

Today's focus: Festive strategies for thriving this Christmas

This episode helps Irish bakeries maximise profits and spread festive cheer during the Christmas season. It highlights...



News

Amazon.ie launch could boost your online bakery sales

Next steps in agent development

While Robotic Process Automation (RPA) has been largely surpassed, there is learning in this field that we could use – e.g. mix RPA/AI models to ensure data flow fidelity / structured outputs + distillation from larger models.

We still need a lot of tool build-out, and a lot more reliability for multi-agent pass-on. These fundamental building blocks are the difference between agents as novelty and agents as workers.

We need a lot more domain-expert models that can think in the correct way for a given domain. This requires a lot of human expert input and the new Reinforcement Learning Fine-Tuning models.