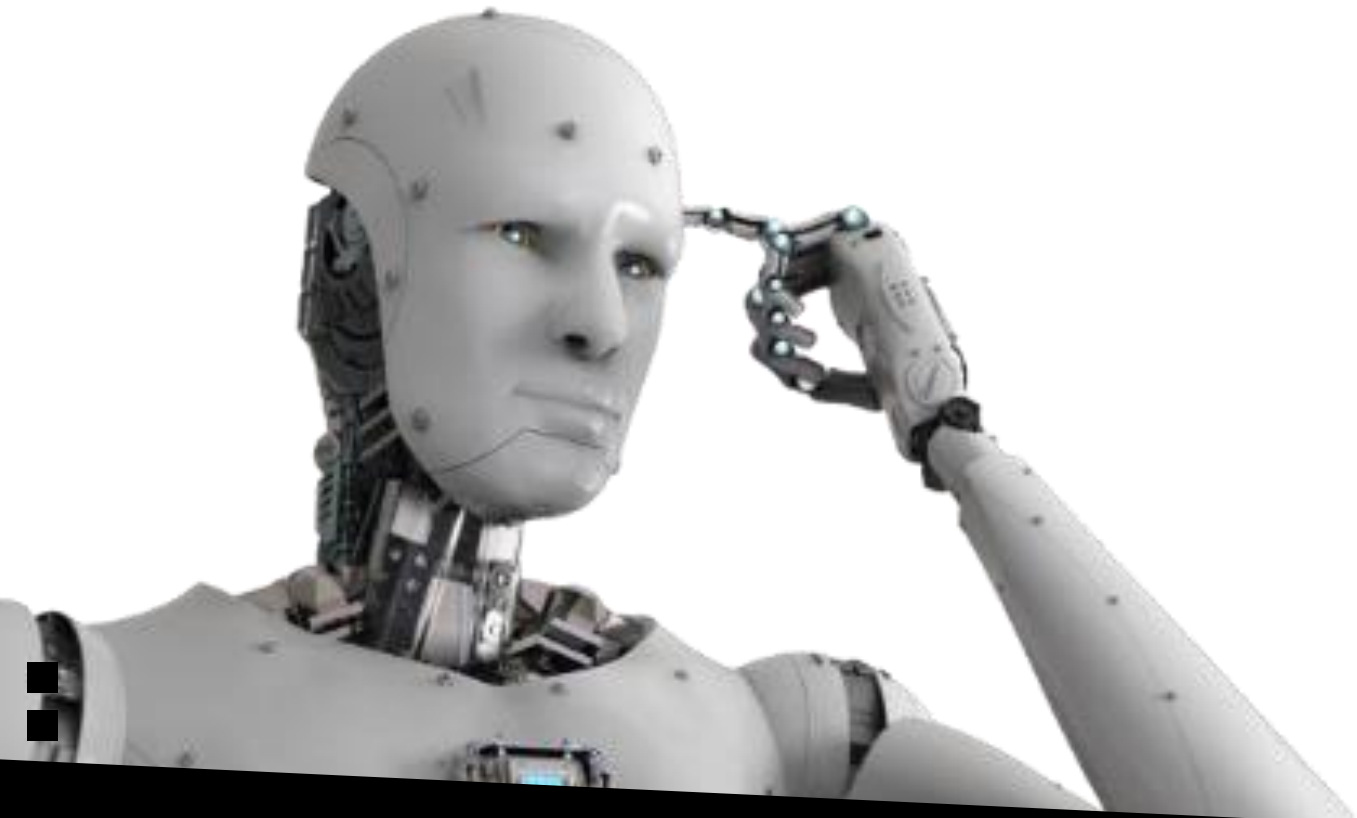




Agentes de Inteligência Artificial



Boa noite!



Wagner Santos, CDO I2AI

CDO (Chief Digital Officer) I2AI, Data
Tech Lead Voith South America,
Especialista em Visão Computacional e
Processamento de Linguagem Natural.
Atua também como professor de Ciência
de Dados e Inteligência Artificial com foco
em Deep Learning.



<https://www.linkedin.com/in/wagner-mn-santos/>



950 EUR / t
Costs



97 %
Time Efficiency



2050 m / min
Yankee Speed



9.5 t / hour
Production



Replace

Bearing #17
Wire Section
Expected Error in
5 Days
6 pm
Technician Informed



5%
Moisture



16.5 g / m²
Grammage

Headbox: Running Simulation

99.8%
Water

0.2%
Fibers

Voith Cloud

Master Reel
MR100

VOITH

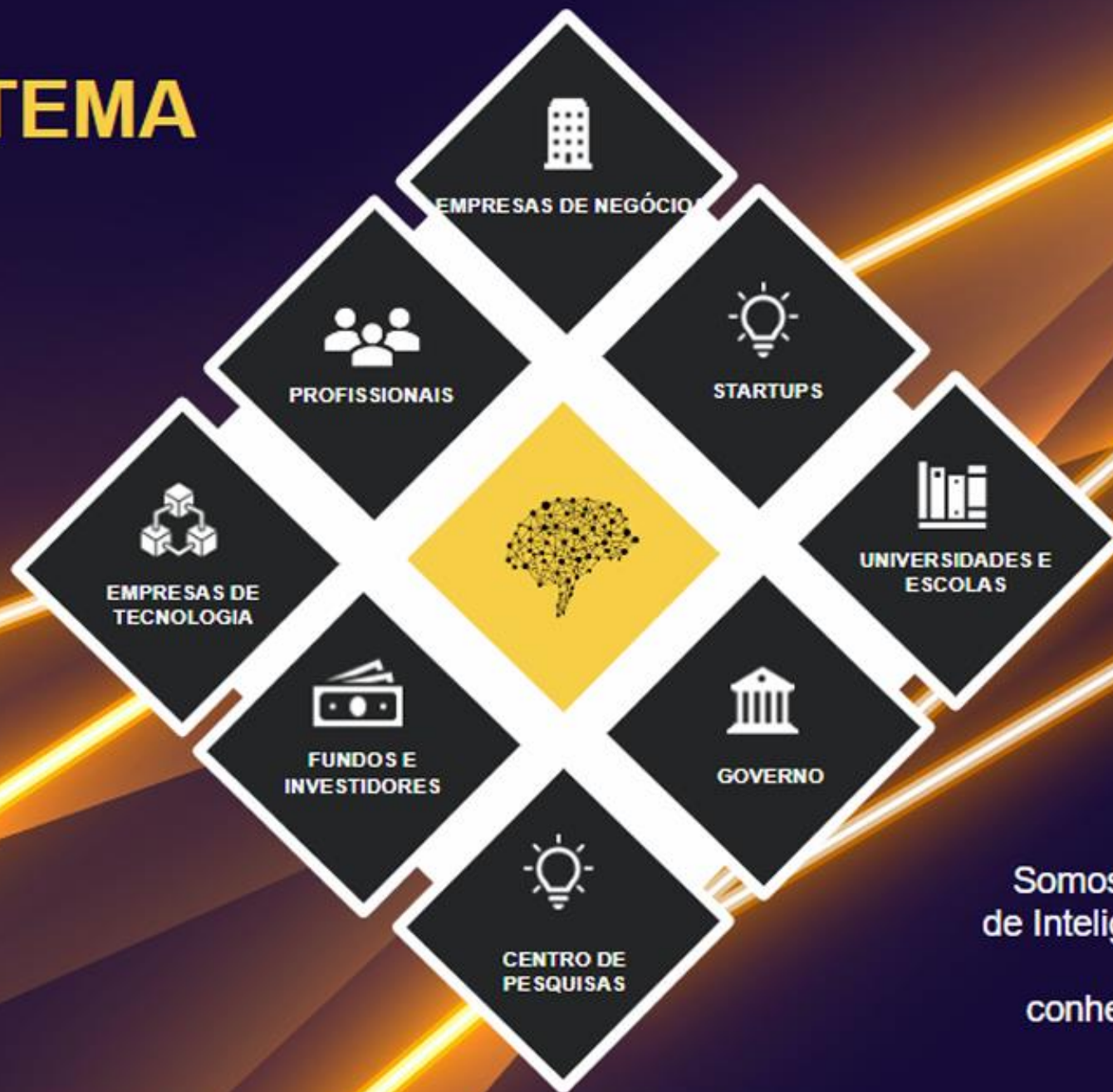


QUEM SOMOS

Uma associação, sem fins lucrativos, que tem o propósito de promover o desenvolvimento de Inteligência Artificial nas sociedades em que atua para capacitar e tornar mais competitivo o país frente às grandes mudanças que o potencial disruptivo desta tecnologia irá causar na economia mundial.

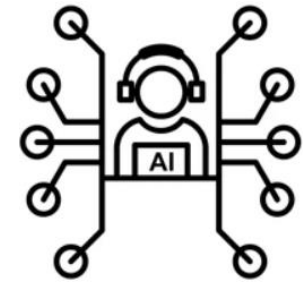
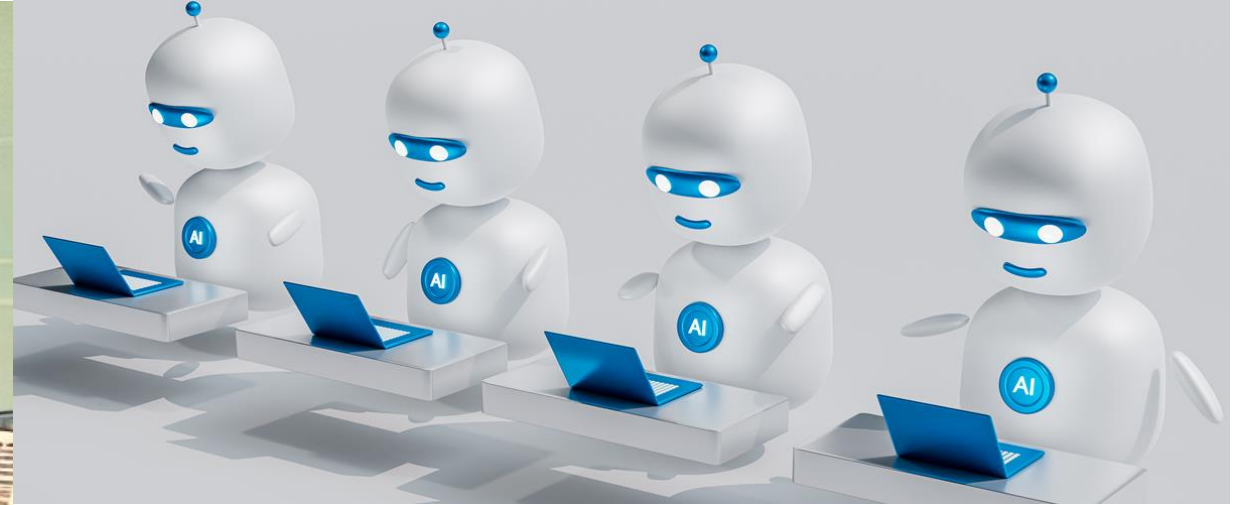
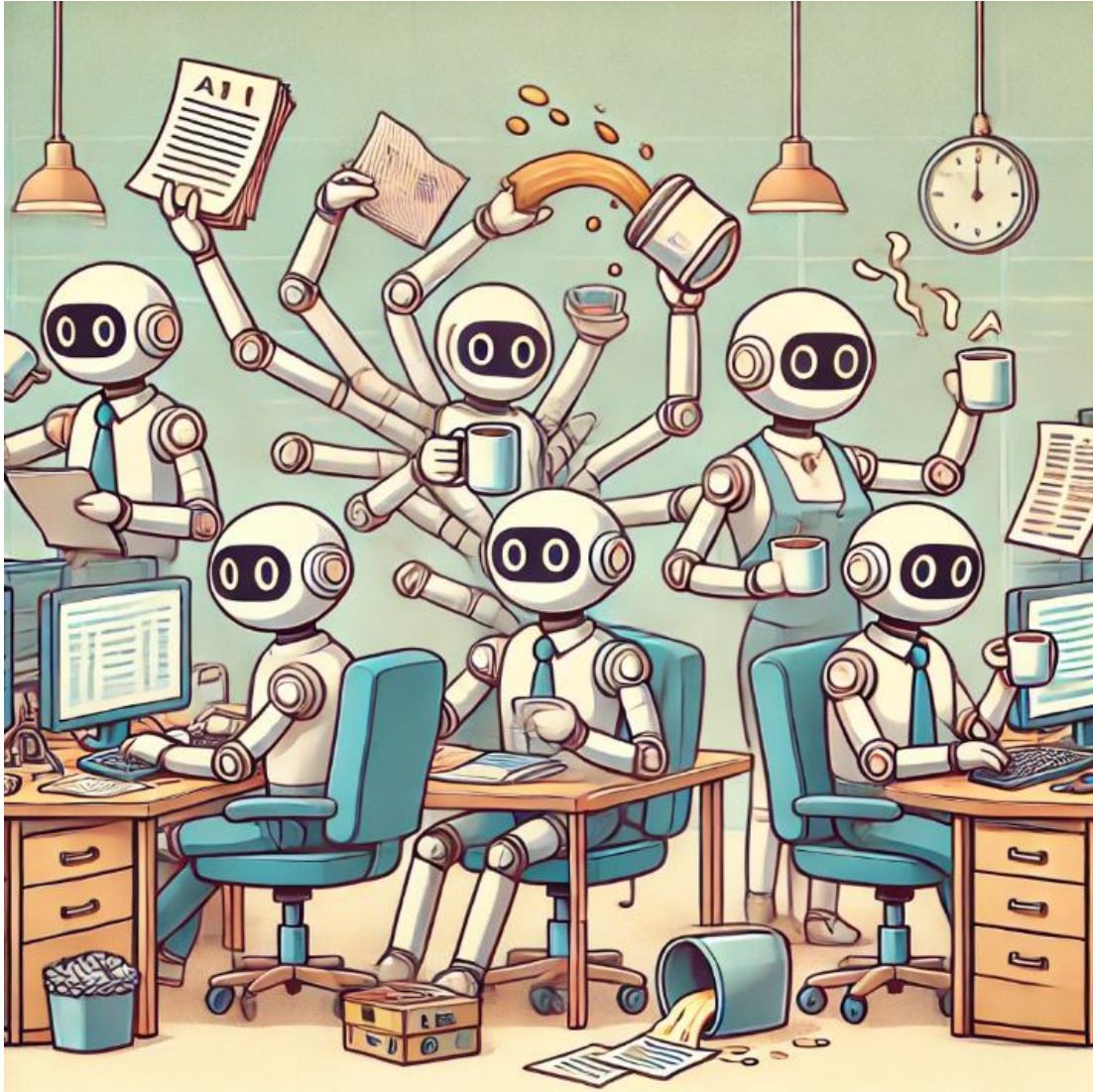
Queremos fazer isso através do compartilhamento de conhecimento de casos aplicados de Inteligência Artificial e, através da conexão do que chamamos de ecossistema de IA, aproximamos as partes, disseminando conhecimento, gerando negócios e desenvolvimento.

ECOSSISTEMA i2Δi



Somos **conectores** do ecossistema de Inteligência Artificial, aproximamos as partes, disseminando conhecimento, gerando negócios e desenvolvimentos.

0 que são Agentes de IA? (*AI Agents*)



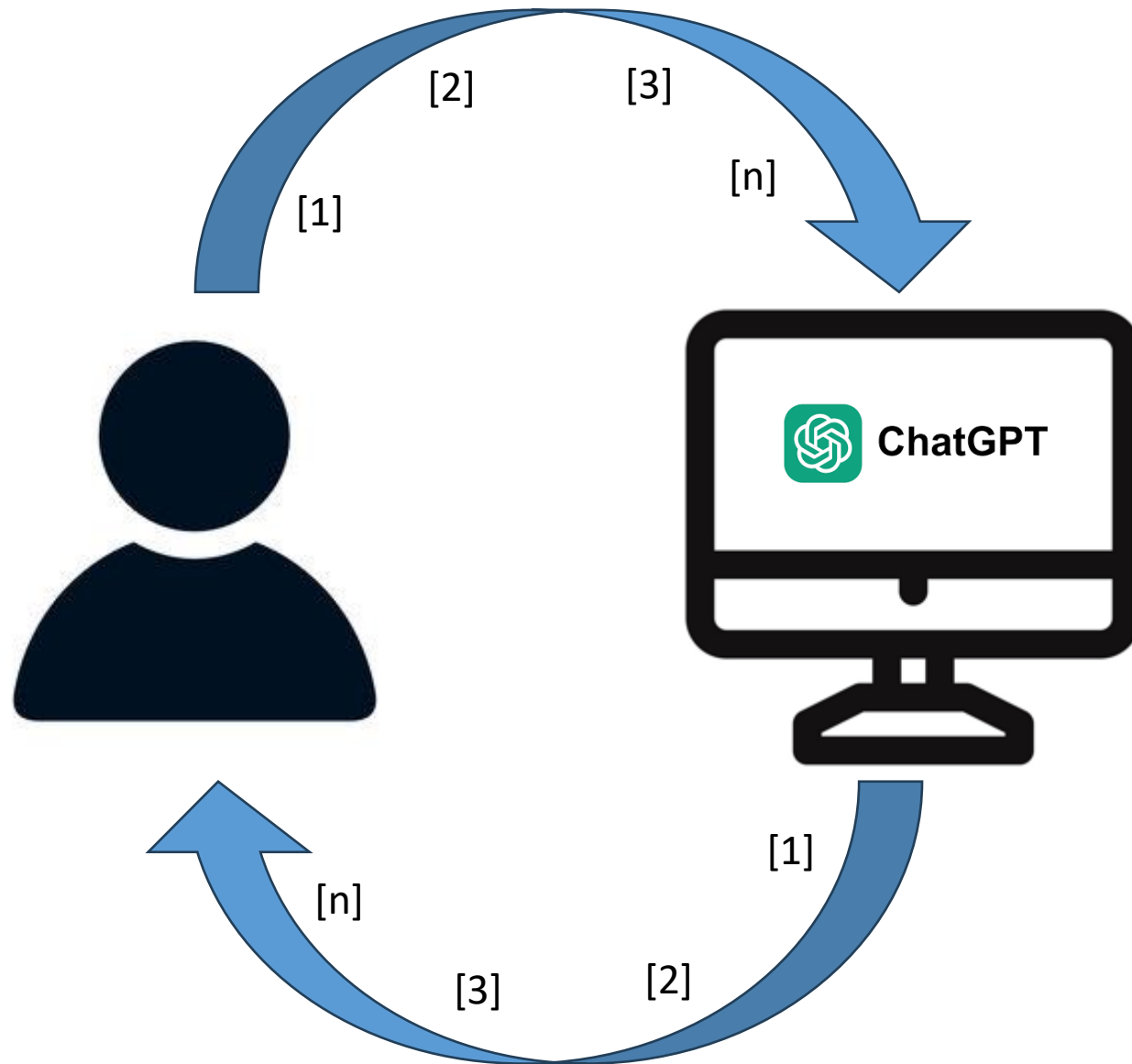
AI Agents

Agentes de IA, ou agentes inteligentes, são **programas de software** que **interagem com seu ambiente**, processam dados e tomam **decisões autônomas**. De sistemas simples baseados em regras a modelos avançados de aprendizado de máquina, eles **simulam comportamentos inteligentes** percebendo informações e **tomando ações para alcançar objetivos**.

of association with...
The degree of clarity...
which a televised image...
broadcast signal is rec...

def-i-ni-tion n. 1.
The teacher gave de...
of the new words.
of an image (pictu...
... screen

■ ■ ■ ■ Experiência normal – ChatGPT / LLM (*Large Language Models*)



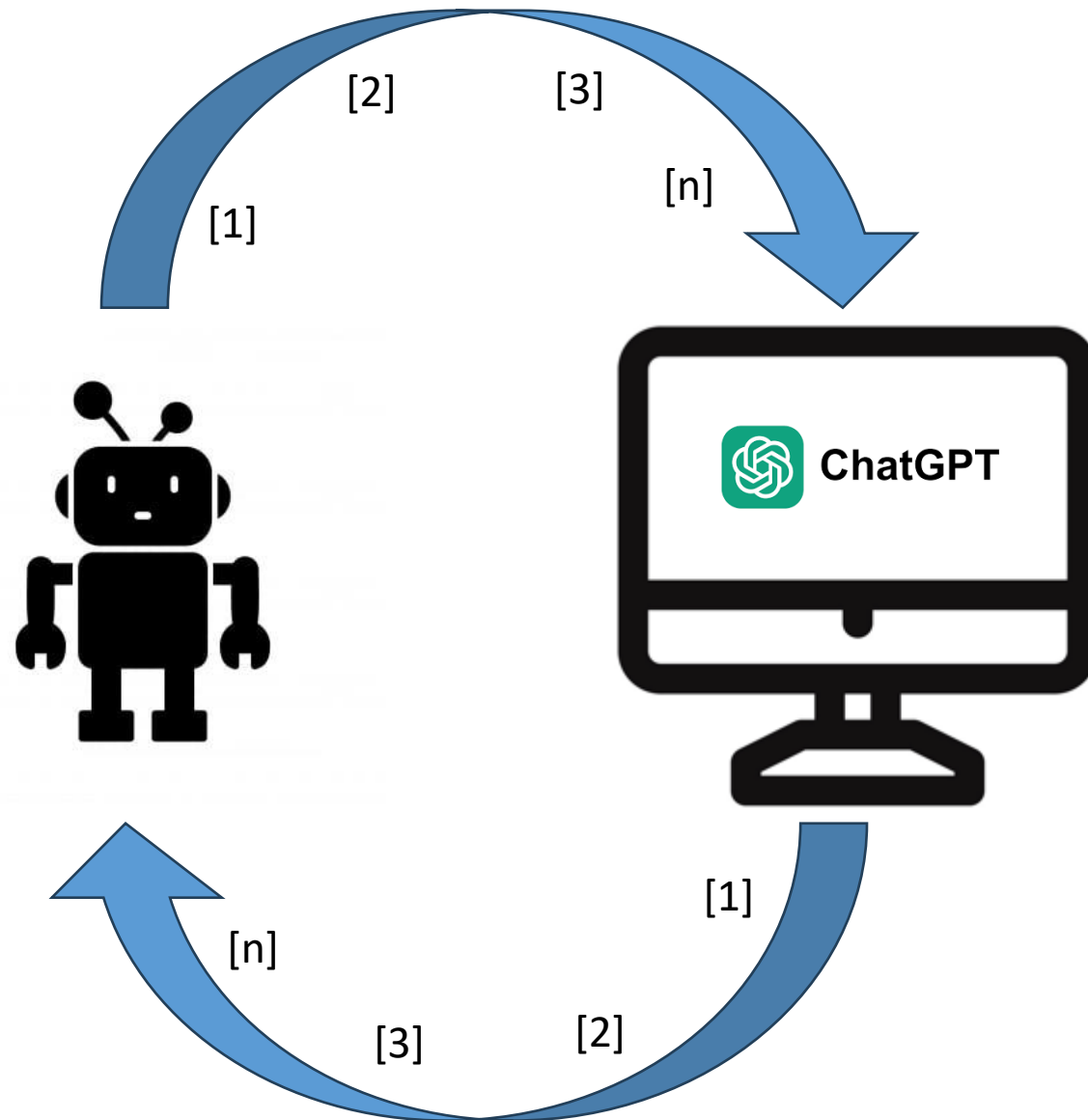
Ao interagirmos com soluções com o ChatGPT – que implementam Grandes Modelos de Linguagem (LLM – *Large Language Models*) podem ser necessárias múltiplas interações até se obter os resultados desejados.

■ ■ ■ ■ LARGE LANGUAGE MODELS (LLMs)



Os LLMs, são **modelos treinados em enormes conjuntos de dados linguísticos para gerar saídas de linguagem natural**, como textos, respostas a perguntas e até mesmo códigos. Eles geralmente usam técnicas de aprendizado de máquina supervisionado e não são capazes de criar novos conceitos ou ideias que não foram introduzidos em seus conjuntos de treinamento.

■ ■ ■ ■ A ideia fundamental de *AI Agents* é automatizar estes processo



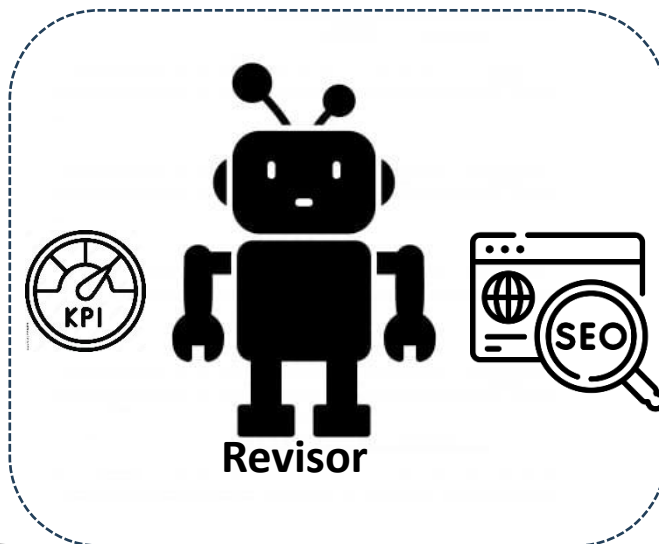
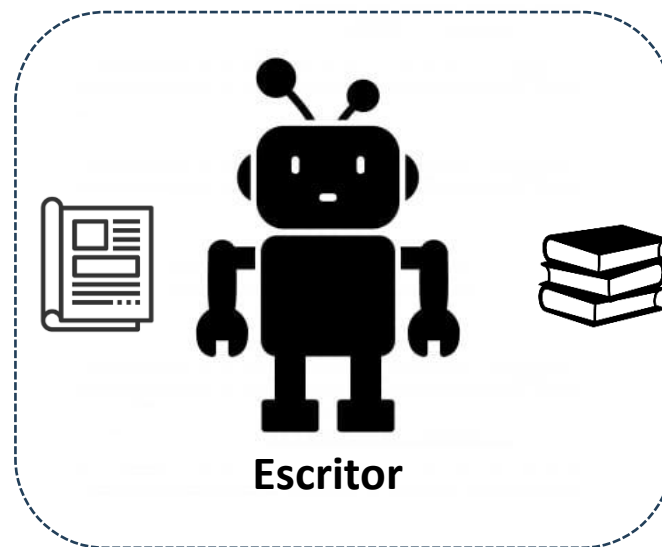
Com AI Agents
queremos que as
interações com os LLM
rendam os resultados
que desejamos - com
pouca ou quase
nenhuma interferência
de pessoas.

■ ■ ■ ■ Queremos que o agente possa refletir sobre as respostas da LLM



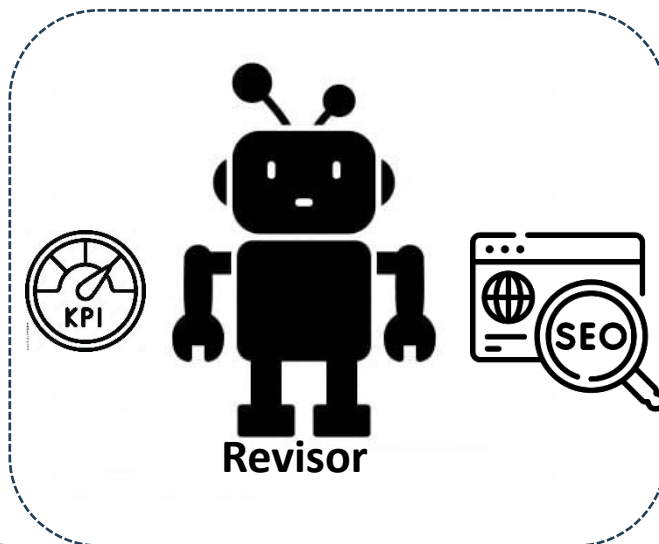
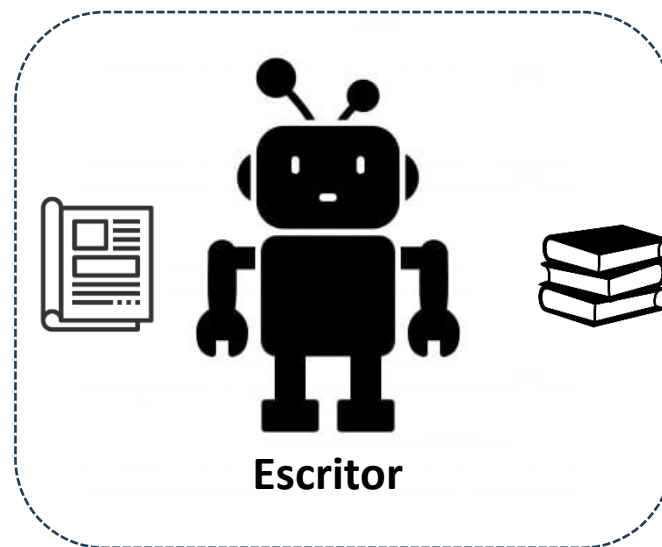
Uma maneira de alcançar este objetivo é fazer com que o Agente reflita sobre o conteúdo gerado pela LLM (ex: ChatGPT).

■ ■ ■ Múltiplos Agentes de IA – Distintas Ferramentas



A especialização em diferentes papéis também nos ajuda a segregar quais ferramentas podem ajudar cada papel.

■ ■ ■ ■ Múltiplos Agentes de IA – Distintas Ferramentas



Análise

- Execução de Código
- Wolfram Alpha
- Intérprete de Código

Pesquisa

- Navegação na web
- Wikipedia

Produtividade

- Email
- Calendário
- Armazenamento na Nuvem

Imagens

- Geração de imagens (por exemplo, DALL-E)
- Legendagem de imagens
- Detecção de objetos

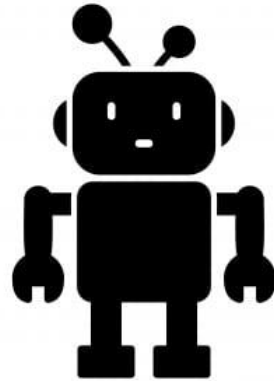


- **Error Handling:** All tools are built with error handling capabilities, allowing agents to gracefully manage exceptions and continue their tasks.
- **Caching Mechanism:** All tools support caching, enabling agents to efficiently reuse previously obtained results, reducing the load on external resources and speeding up the execution time. You can also define finer control over the caching mechanism using the `cache_function` attribute on the tool.

Here is a list of the available tools and their descriptions:

<https://docs.crewai.com/core-concepts/Tools/#available-crewai-tools>

■ ■ ■ Agentes de IA - Planejamento



Importante também o Agente saber a ordem (planejamento) de atividades e ferramentas que precisa para obter o resultado desejado.

**ACESSO SOMENTE
À TRÂNSITO LOCAL**



Processamento
Imagem



“ACESSO SOMENTE A
TRÂNSITO LOCAL”

ChatDev: *Communicative Agents for Software Development*



ChatDev: Communicative Agents for Software Development

Chen Qian* Wei Liu* Hongzhang Liu* Nuo Chen* Yufan Dang*
Jiahao Li* Cheng Yang* Weize Chen* Yusheng Su* Xin Cong*
Juyuan Xu* Dahai Li* Zhiyuan Liu*[✉] Maosong Sun*[✉]

*Tsinghua University *The University of Sydney *BUPT *Modelbest Inc.
qianc62@gmail.com liuzy@tsinghua.edu.cn sms@tsinghua.edu.cn

Abstract

Software development is a complex task that necessitates cooperation among multiple members with diverse skills. Numerous studies used deep learning to improve specific phases in a waterfall model, such as design, coding, and testing. However, the deep learning model in each phase requires unique designs, leading to technical inconsistencies across various phases, which results in a fragmented and ineffective development process. In this paper, we introduce ChatDev, a chat-powered software development framework in which specialized agents driven by large language models (LLMs) are guided in what to communicate (via *chat chain*) and how to communicate (via *communicative dehallucination*). These agents actively contribute to the design, coding, and testing phases through unified language-based communication, with solutions derived from their multi-turn dialogues. We found their uti-



Figure 1: ChatDev, a chat-powered software development framework, integrates LLM agents with various social roles, working autonomously to develop comprehensive solutions via multi-agent collaboration.

<https://arxiv.org/pdf/2307.07924>

The screenshot shows the Sequoia website header with navigation links: SEQUOIA, OUR FOUNDERS, OUR COMPANIES, OUR TEAM (circled), STORIES, COMPANY DESIGN, and ARC. Below the header is a large section titled "AI Ascent 2024" with the text "Sequoia convened leaders in AI for a day of conversations, talks and demos." and "BY TEAM SEQUOIA PUBLISHED MARCH 26, 2024". Below this is a YouTube playlist interface for "AI Ascent 2024" by Sequoia Capital, featuring 12 videos with 26,795 views. The playlist includes a "Keynote" video and five other videos: "The AI opportunity: Sequoia Capital's AI Ascent 2024 opening remarks", "What's next for AI agentic workflows ft. Andrew Ng of AI Fund", "Trust, reliability, and safety in AI ft. Daniela Amodei of Anthropic and Sonya Huang", "Making AI accessible with Andrej Karpathy and Stephanie Zhan", and "Open sourcing the AI ecosystem ft. Arthur Mensch of Mistral AI and Matt Miller".

SEQUOIA 隆

OUR FOUNDERS OUR COMPANIES OUR TEAM STORIES COMPANY DESIGN ARC

AI Ascent 2024

Sequoia convened leaders in AI for a day of conversations, talks and demos.

BY TEAM SEQUOIA
PUBLISHED MARCH 26, 2024

1 unavailable video is hidden

AI Ascent

Keynote

AI Ascent 2024

Sequoia Capital
12 videos • 26,795 views • Last updated on Apr 8, 2024

Play all Shuffle

Sequoia Capital's AI Ascent brings together 100+ leading founders and researchers in AI to discuss the transformational opportunities of the technology.

1 The AI opportunity: Sequoia Capital's AI Ascent 2024 opening remarks
Sequoia Capital • 91K views • 3 months ago

2 What's next for AI agentic workflows ft. Andrew Ng of AI Fund
Sequoia Capital • 265K views • 3 months ago

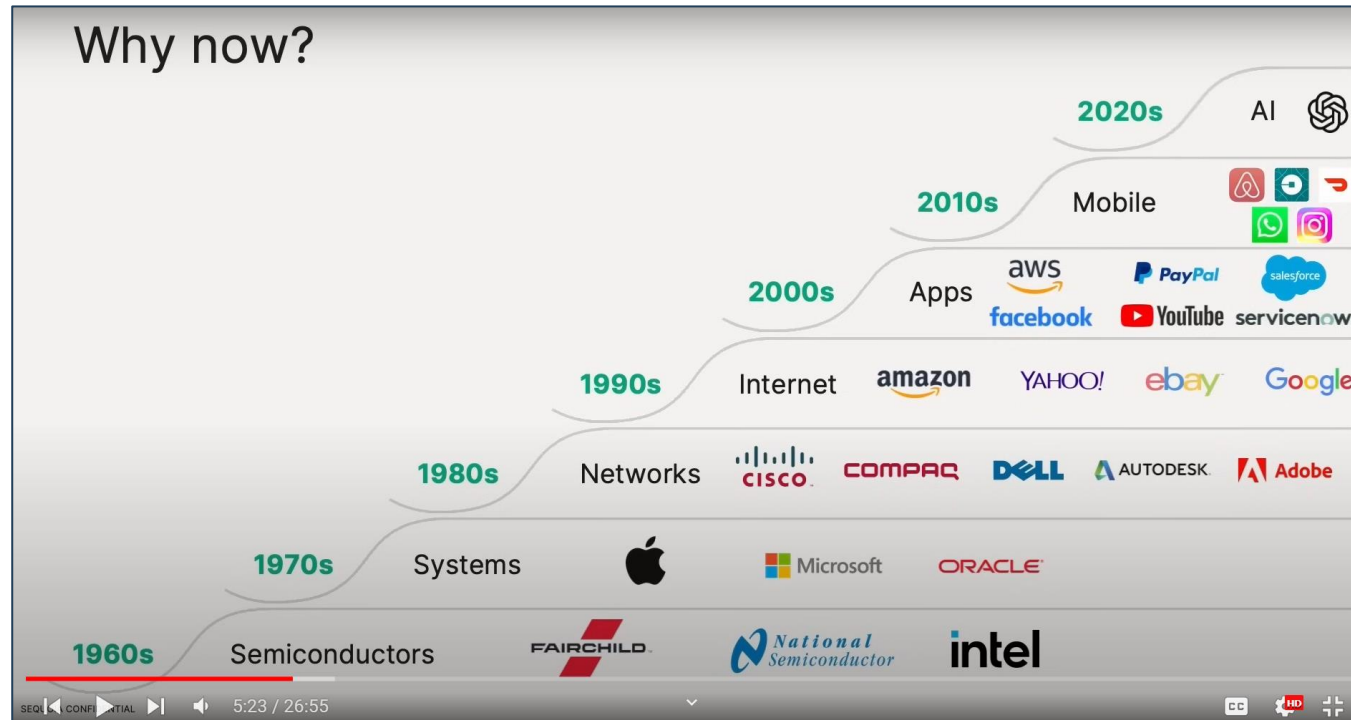
3 Trust, reliability, and safety in AI ft. Daniela Amodei of Anthropic and Sonya Huang
Sequoia Capital • 17K views • 3 months ago

4 Making AI accessible with Andrej Karpathy and Stephanie Zhan
Sequoia Capital • 222K views • 3 months ago

5 Open sourcing the AI ecosystem ft. Arthur Mensch of Mistral AI and Matt Miller
Sequoia Capital • 35K views • 3 months ago

<https://www.youtube.com/playlist?list=PLOhHNjZItNnOoPxOF3dmq30UxYqFuxXKn>

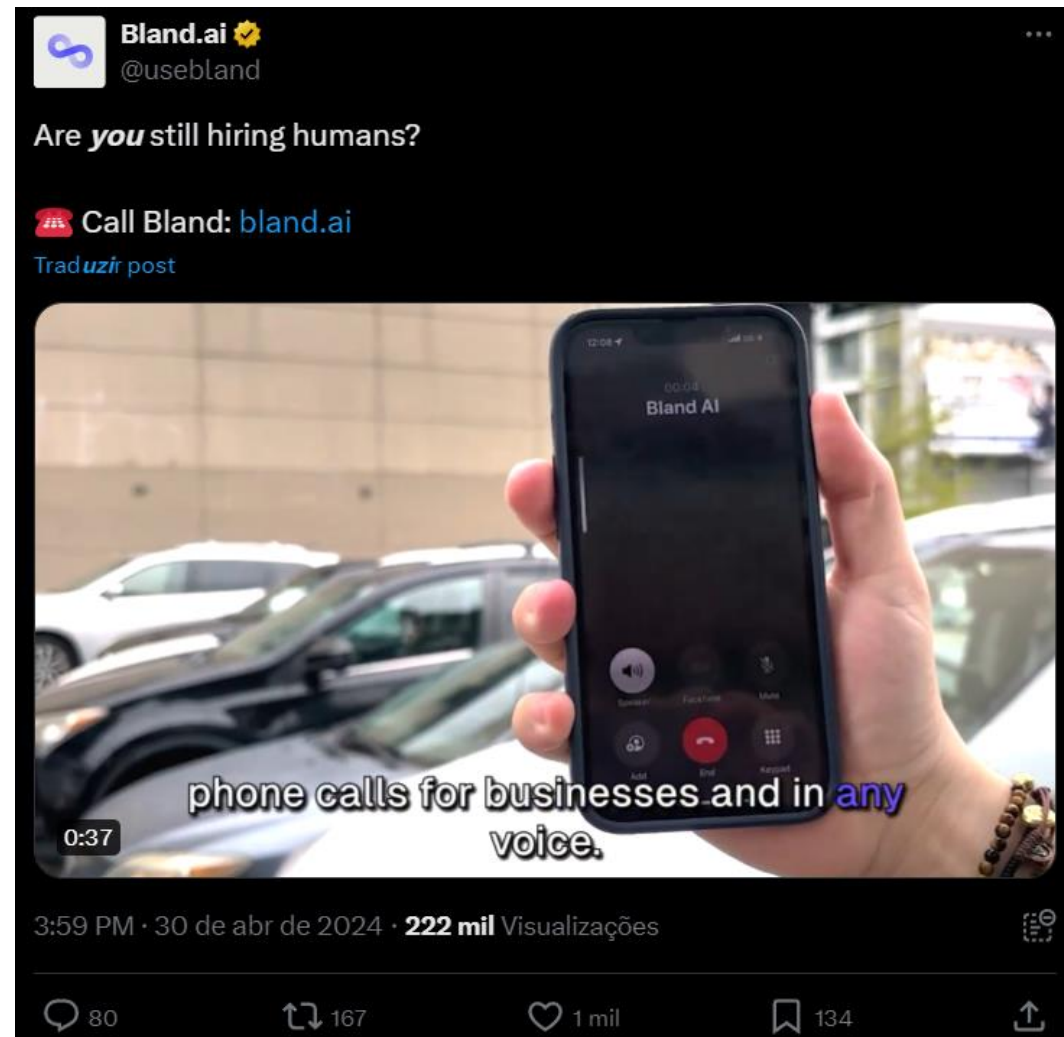
Convergência das tecnologias desenvolvidas



<https://youtu.be/TDPqt7ONUCY?si=4iYvRowpbrSf6Wvf>

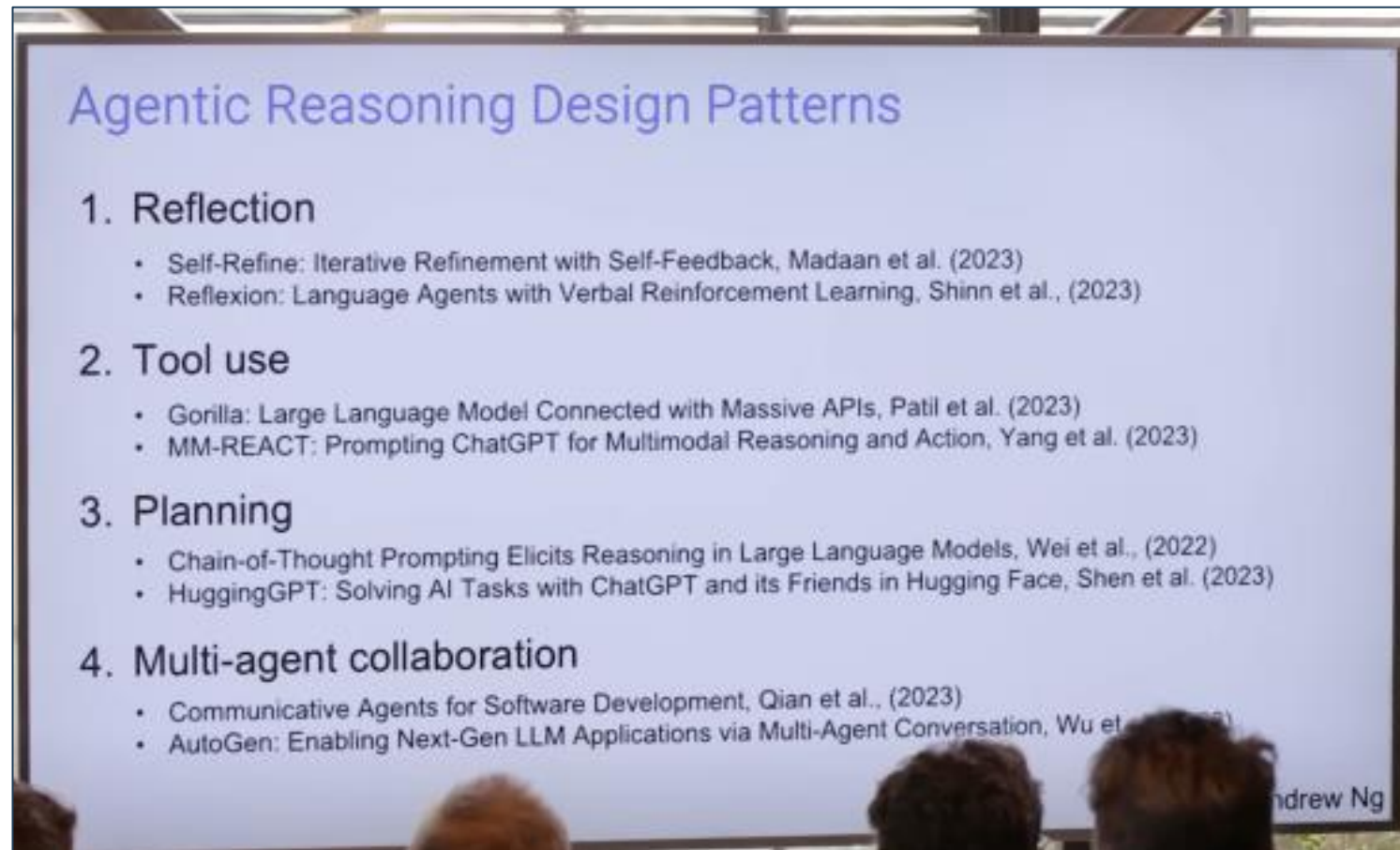
Com a convergência das tecnologias, AI Agents não tem o potencial somente de substituir tecnologias, mas sim o **Mercado de Serviços.**

Exemplo – Agentes de IA



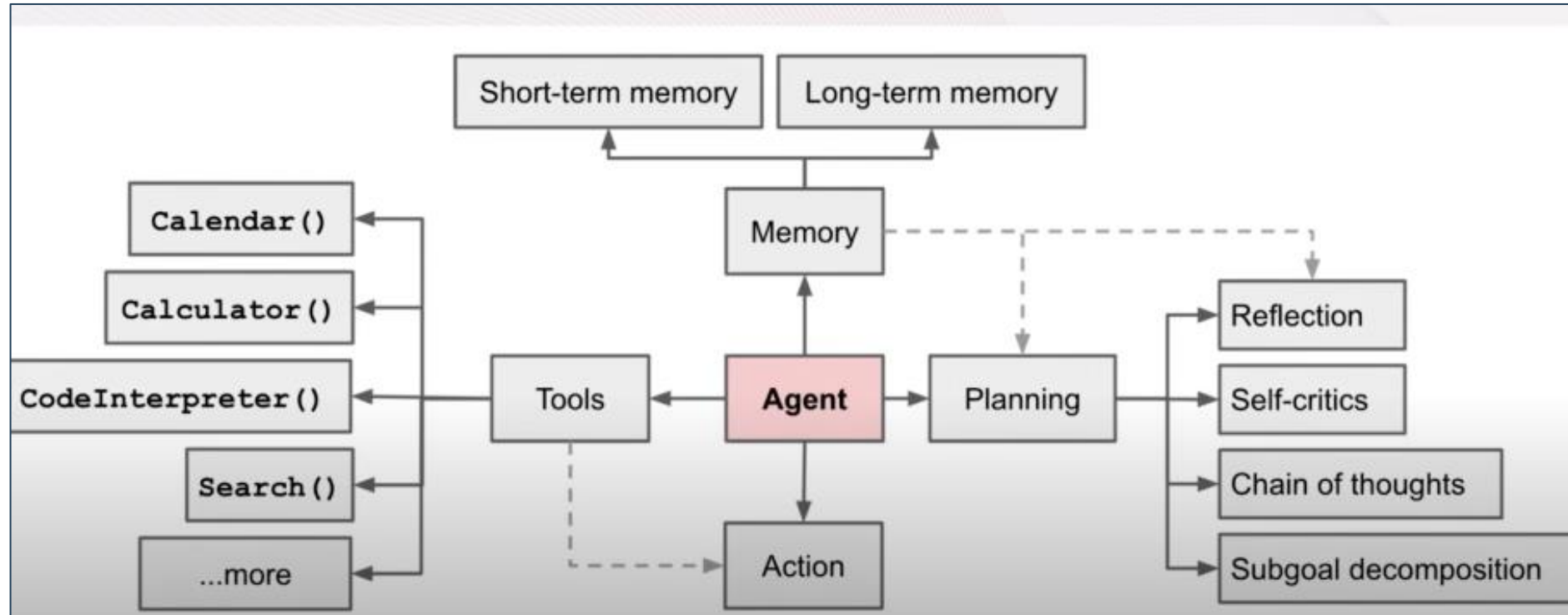
<https://x.com/usebland/status/1785383574419718541>

Sequoia – AI Ascent 2024 – Conceitos Principais

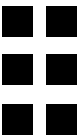


<https://youtu.be/sal78ACtGTc?si=fe6uw7XAmlByuOHX>

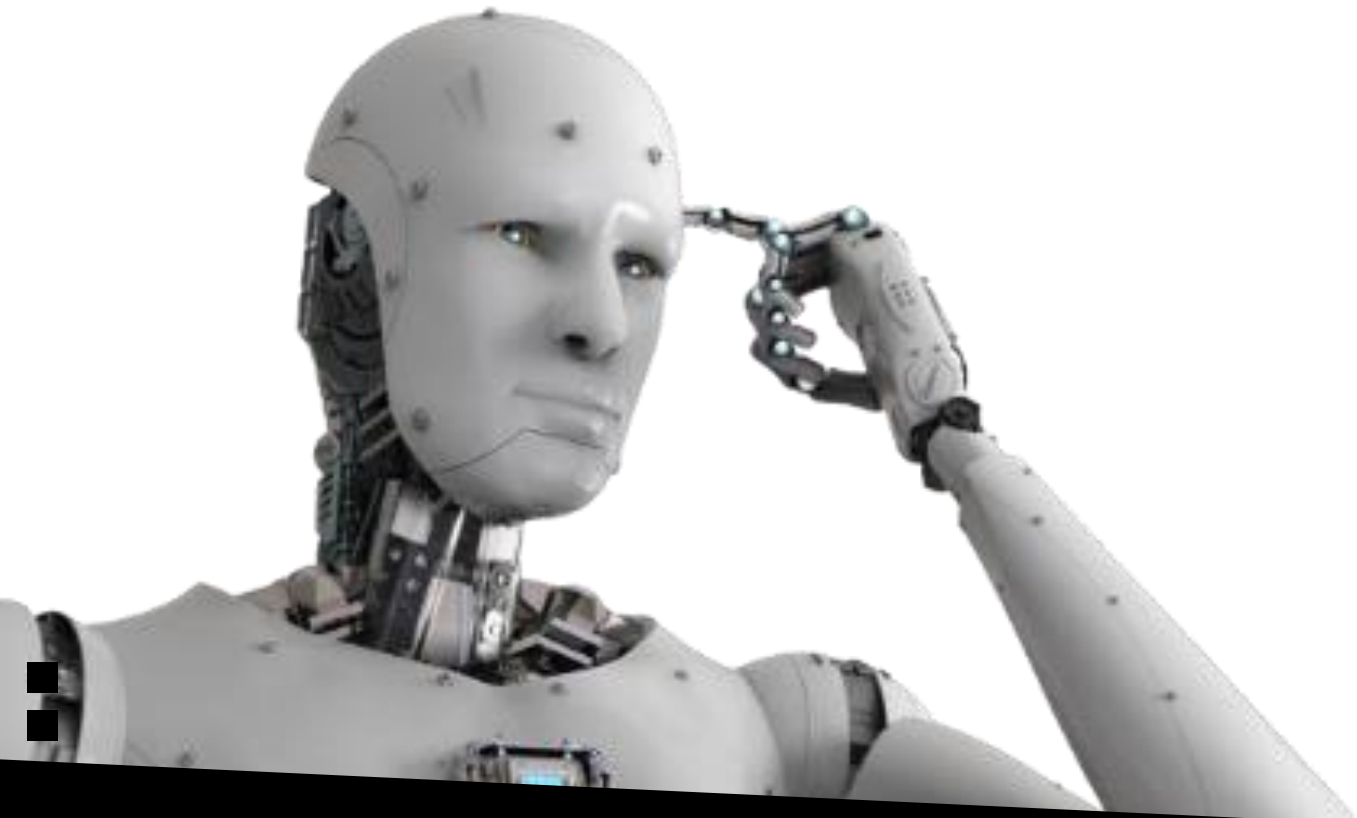
Sequoia - AI Ascent 2024 - Visão Macro




<https://youtu.be/pBBe1pk8hf4?si=bwSGwKOtaLRgrLRI>



Soluções – *AI Agents*



■ ■ ■ ■ Panorama de Agentes de IA(!)

 E2B

E2B.DEV
@E2B_DEV

AI Agents Landscape


By E2B.dev - Cloud Runtime for AI Agents


E2B users or integrations

Open sourceClosed Source


Coding


Open Interpreter

 Maige


 Sweep AI

WorkGPT

 WrenAI

 Vanna.AI


DemoGPT

 Aide

Smol Developer

bloop.


Automata


 Continue

GPT Migrate


GPT Engineer


CodeFuse


 Stackwise


 Sourcegraph


Cody AI


 cody


 BLACKBOX AI


 Deepnote AI


 Tusk


 Airplane Autopilot


 grit


 Factory


 autopilot


 Dosu


 Copilot X


 Hex Magic


 codium


 GitLab Duo


 GitWit


 MakeDraft


 Ellipsis


 CodeWP


 v0 by Vercel


 Input

 Kusho

 SECOND

 phind

 mutable.ai

 Butternut AI

<https://raw.githubusercontent.com/e2b-dev/awesome-ai-agents/main/assets/landscape-latest.png>

AutoDev: Automated AI-Driven Development

Michele Tufano
Microsoft
Redmond, USA

Anisha Agarwal
Microsoft
Redmond, USA

Jinu Jang
Microsoft
Redmond, USA

Roshanak Zilouchian
Moghaddam
Microsoft
Redmond, USA

Neel Sundaresan
Microsoft
Redmond, USA

Abstract

The landscape of software development has witnessed a paradigm shift with the advent of AI-powered assistants, exemplified by GitHub Copilot. However, existing solutions are not leveraging all the potential capabilities available in an IDE such as building, testing, executing code, git operations, etc. Therefore, they are constrained by their limited capabilities, primarily focusing on suggesting code snippets and file manipulation within a chat-based interface.

To fill this gap, we present AutoDev, a fully automated AI-driven software development framework, designed for *autonomous* planning and execution of intricate software engineering tasks. AutoDev enables users to define complex software engineering objectives, which are assigned to an AI Agent to achieve.

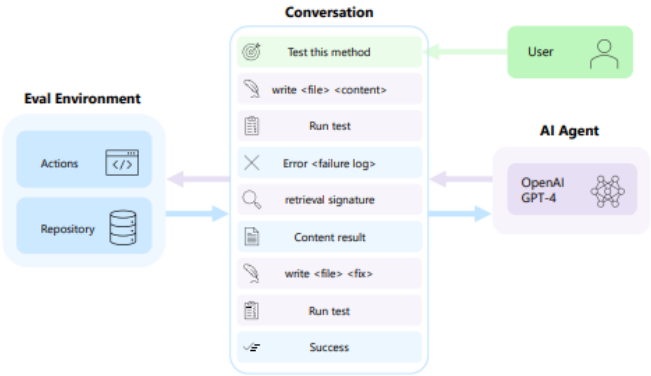


Figure 1. AutoDev enables an AI Agent to achieve a given objective by performing several actions within the repository

NEWS

f in X

Microsoft Paper Intros Fully Autonomous AI Framework, Turning Devs into Supervisors

By David Ramel 03/20/2024

GitHub Copilot is one thing, AutoDev is another, completely automating software development with autonomous AI agents that do all the work themselves, turning developers into supervisors.


A recently published paper from five Microsoft researchers, titled, **AutoDev: Automated AI-Driven Development**, explains the concept:

We present AutoDev, a fully automated AI-driven software development framework, designed for autonomous planning and execution of intricate software engineering tasks. AutoDev enables users to define complex software engineering objectives,

<https://visualstudiomagazine.com/Articles/2024/03/20/autodev.aspx>

<https://arxiv.org/pdf/2403.08299>

Microsoft Autogen

 Microsoft

Research

Our research ▾


Programs & events ▾

Connect & learn ▾

About ▾

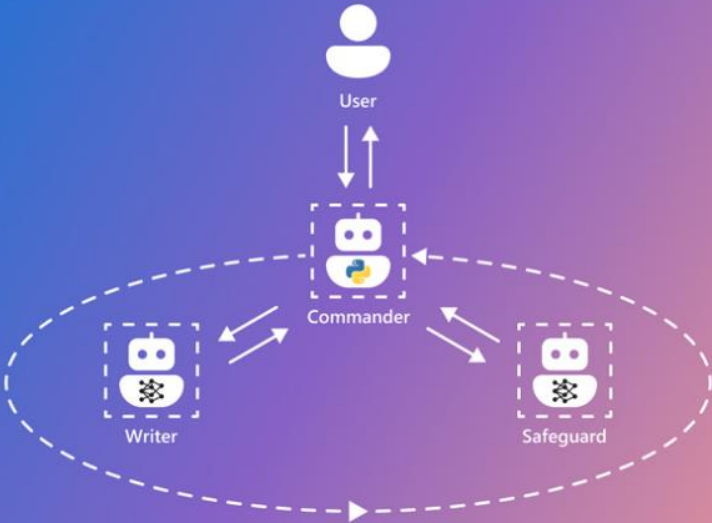
Register: Research Forum

All Microsoft ▾



AutoGen

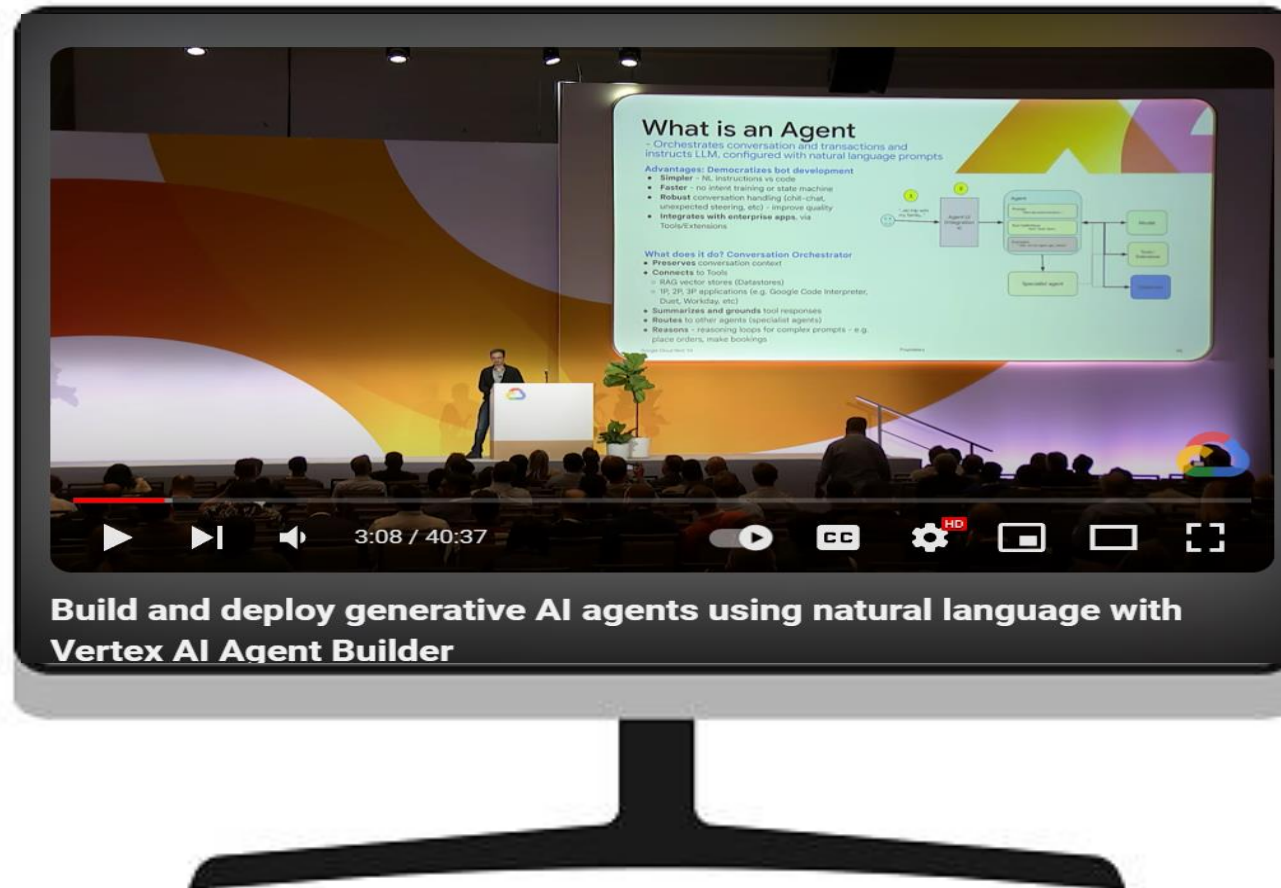
Build multi-agent GenAI applications
autogen@microsoft.com



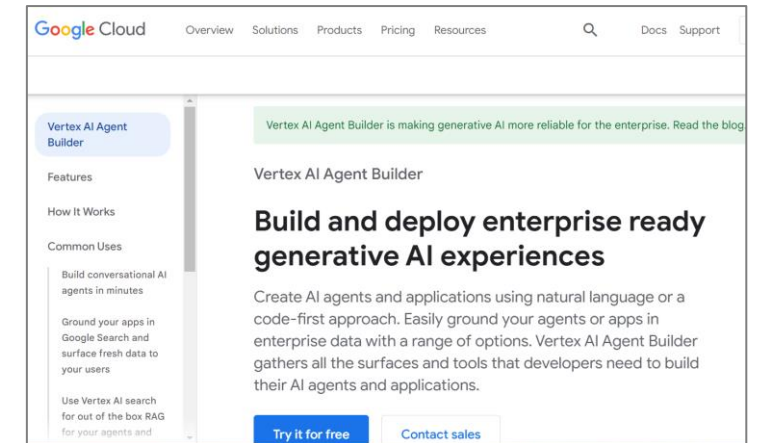
The diagram illustrates the AutoGen architecture. At the top, a 'User' icon (a person) is connected by a double-headed arrow to a 'Commander' icon (a robot head with a Python logo). The 'Commander' is enclosed in a dashed box. Below the 'Commander', two other robot icons are shown, each in a dashed box: 'Writer' on the left and 'Safeguard' on the right. Arrows point from the 'Commander' to both the 'Writer' and 'Safeguard'. A dashed oval encloses the 'Writer' and 'Safeguard' icons, with a curved arrow at the bottom indicating a flow or interaction between them.

<https://www.microsoft.com/en-us/research/project/autogen/>

Google – Vertex AI Agent Builder



<https://www.youtube.com/watch?v=GCmGxBI3RLY>

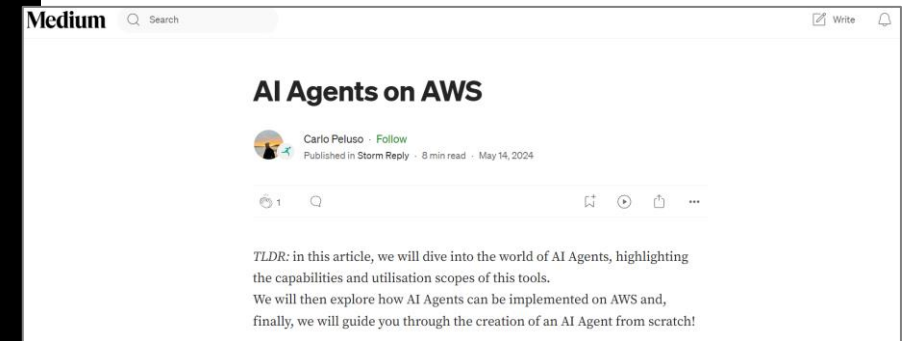


<https://cloud.google.com/products/agent-builder>

■ ■ ■ ■ AWS – Amazon Bedrock AI Agents

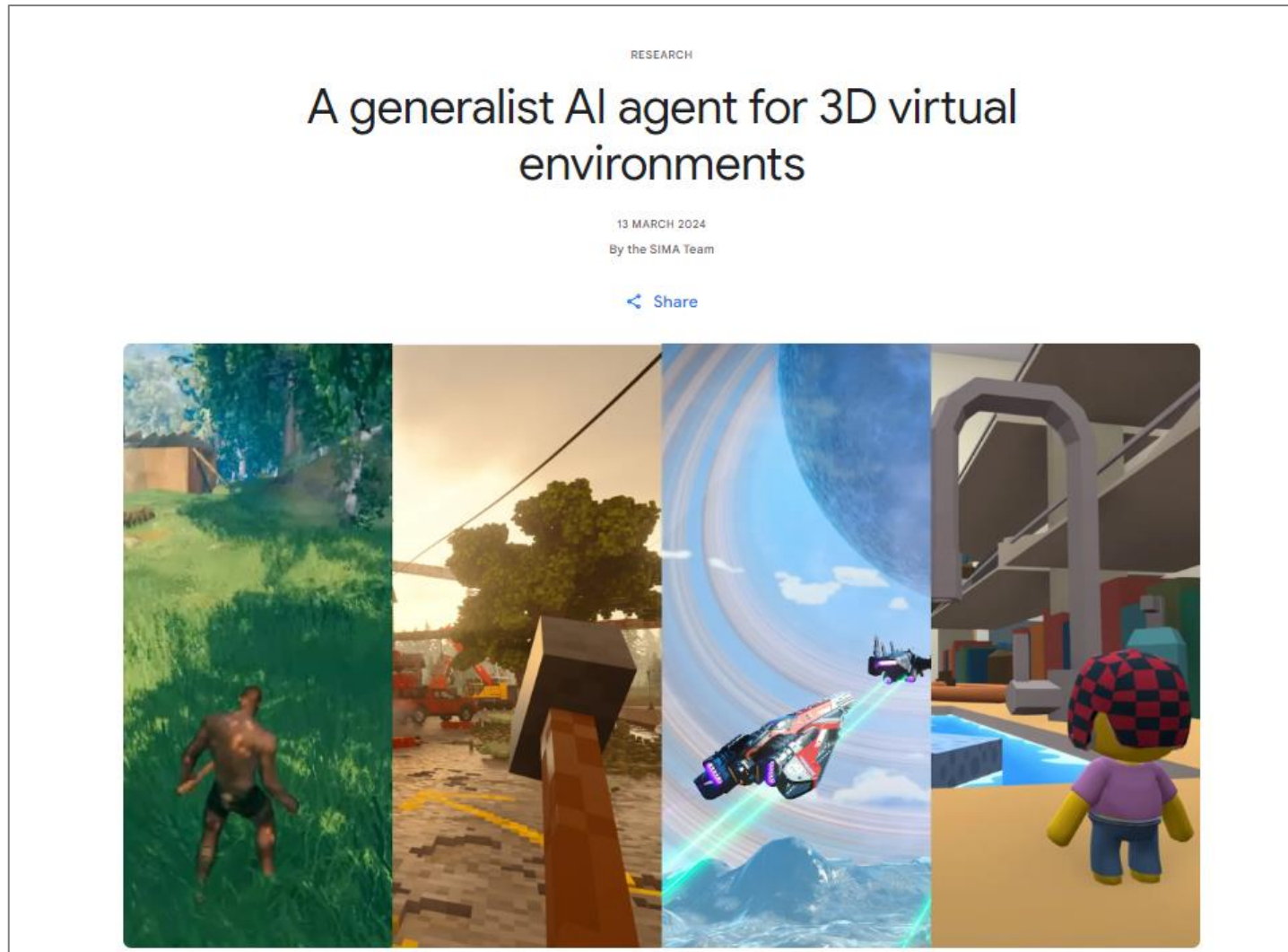


Amazon Bedrock




<https://medium.com/storm-reply/ai-agents-on-aws-63f9853a2166>

SIMA: A generalista AI Agent for 3D virtual environments



<https://deepmind.google/discover/blog/sima-generalist-ai-agent-for-3d-virtual-environments/>

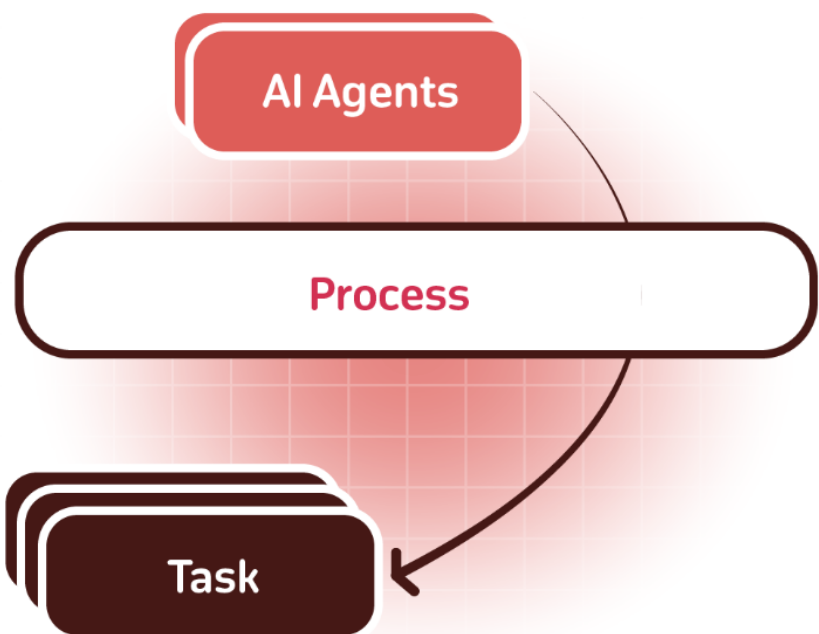
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AI Agents for real use cases

Most AI agent frameworks are hard to use.
We provide power with simplicity.
Automate your most important workflows quickly.

1,400,000+
Multi-Agent Crews run **last 7 days** using crewAI.

CrewAI+ for Enterprises



```
graph TD; Agent[AI Agents] --> Process[Process]; Process --> Task[Task];
```

<https://www.crewai.com/>

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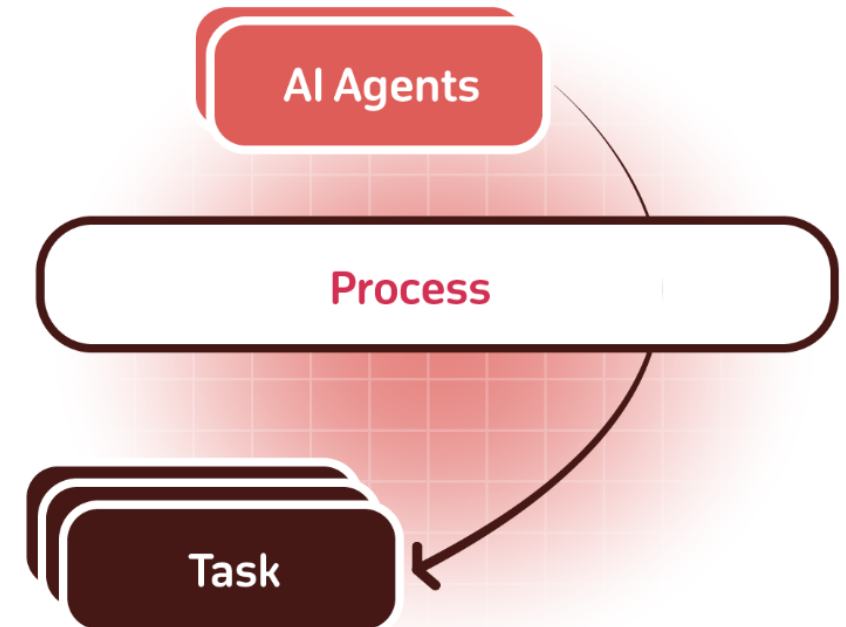
AI Agents for real use cases

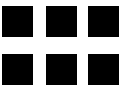
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Obrigado!

