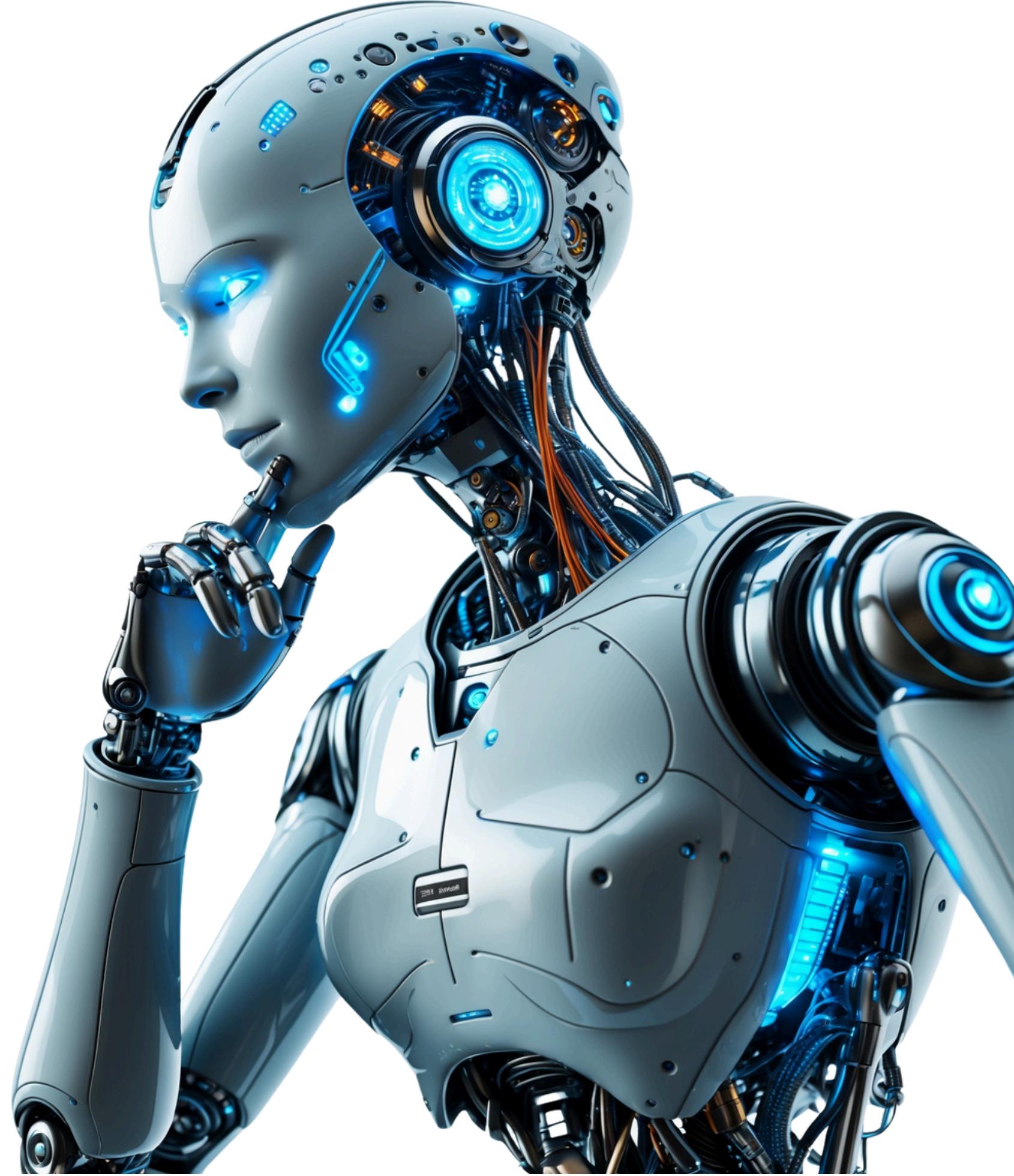


Curso Inteligencia Artificial en el Desarrollo de Software



www.totemsoluciones.com



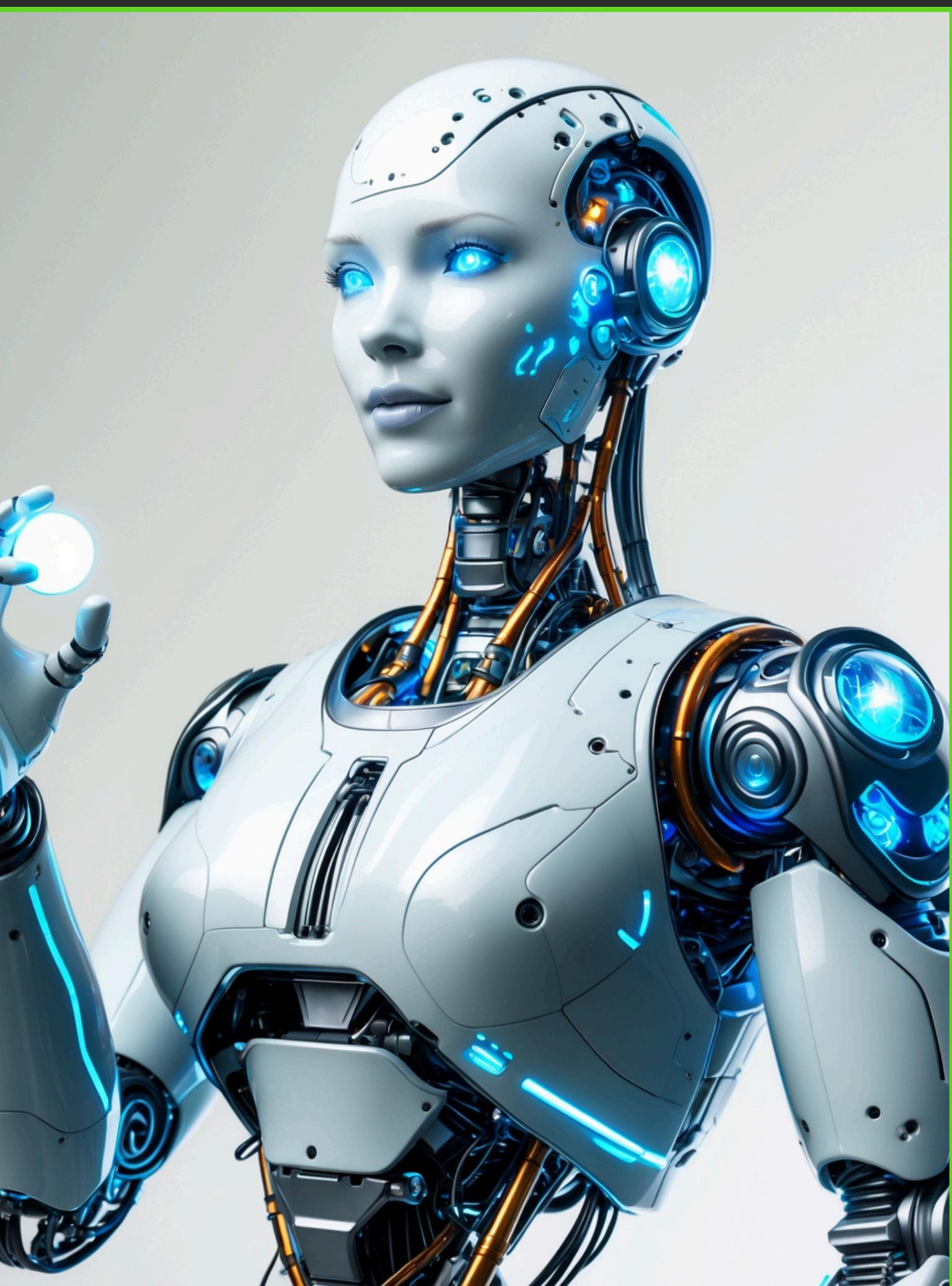
Sesión

3



Copilotos de codificación y análisis de código asistido por IA

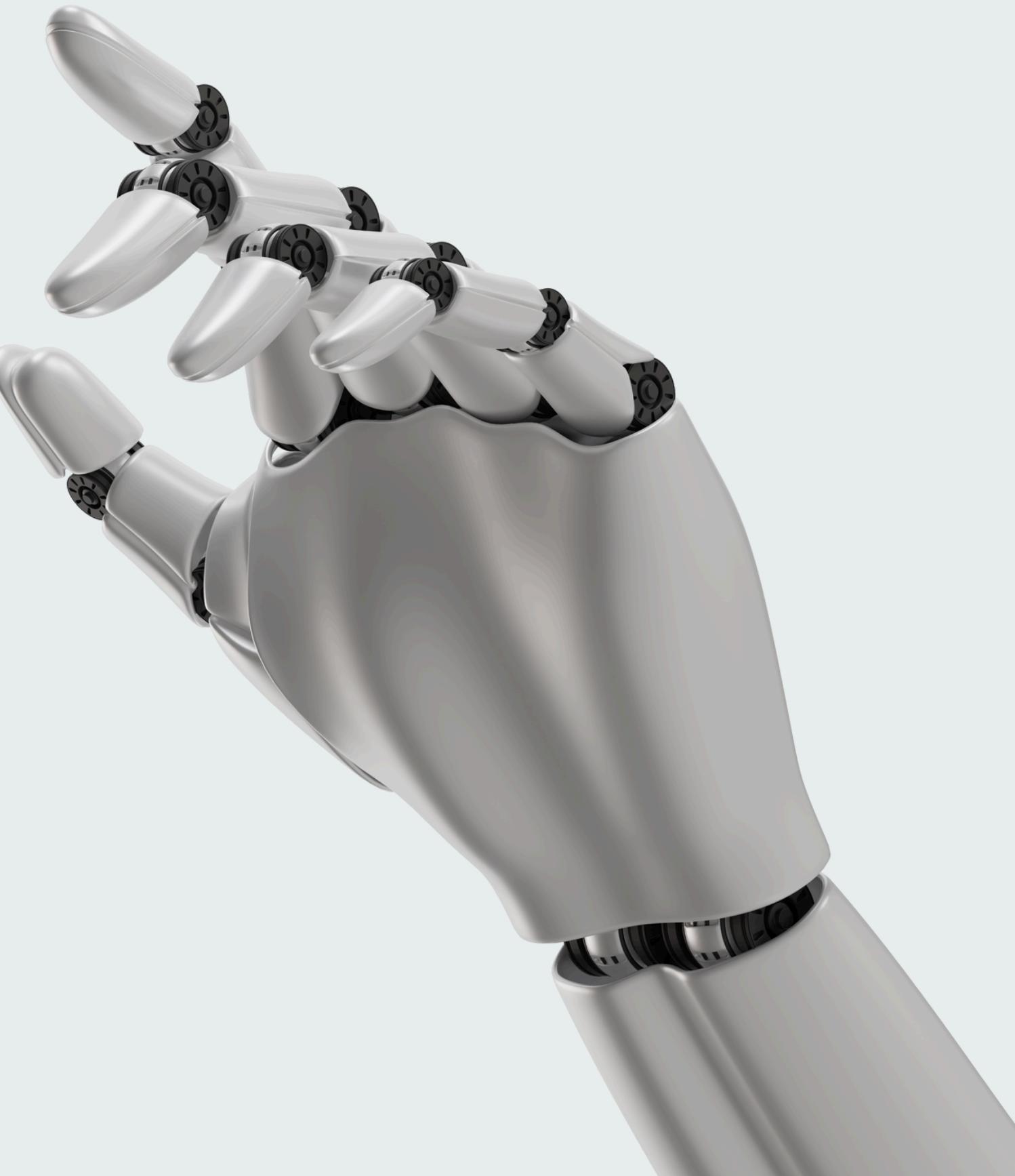
Explorar el uso de herramientas de IA como copilotos de codificación y su aplicación en el análisis, generación y mejora de código fuente en entornos profesionales



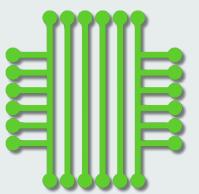
IA en el ciclo de vida del software

Sesion 3

- 01 ¿Qué son los Copilotos de IA?
- 02 Configuracion VS Code Gemini
- 03 Actividad Generación documentación
- 04 Actividad Analisis código
- 05 Actividad Implementación de código

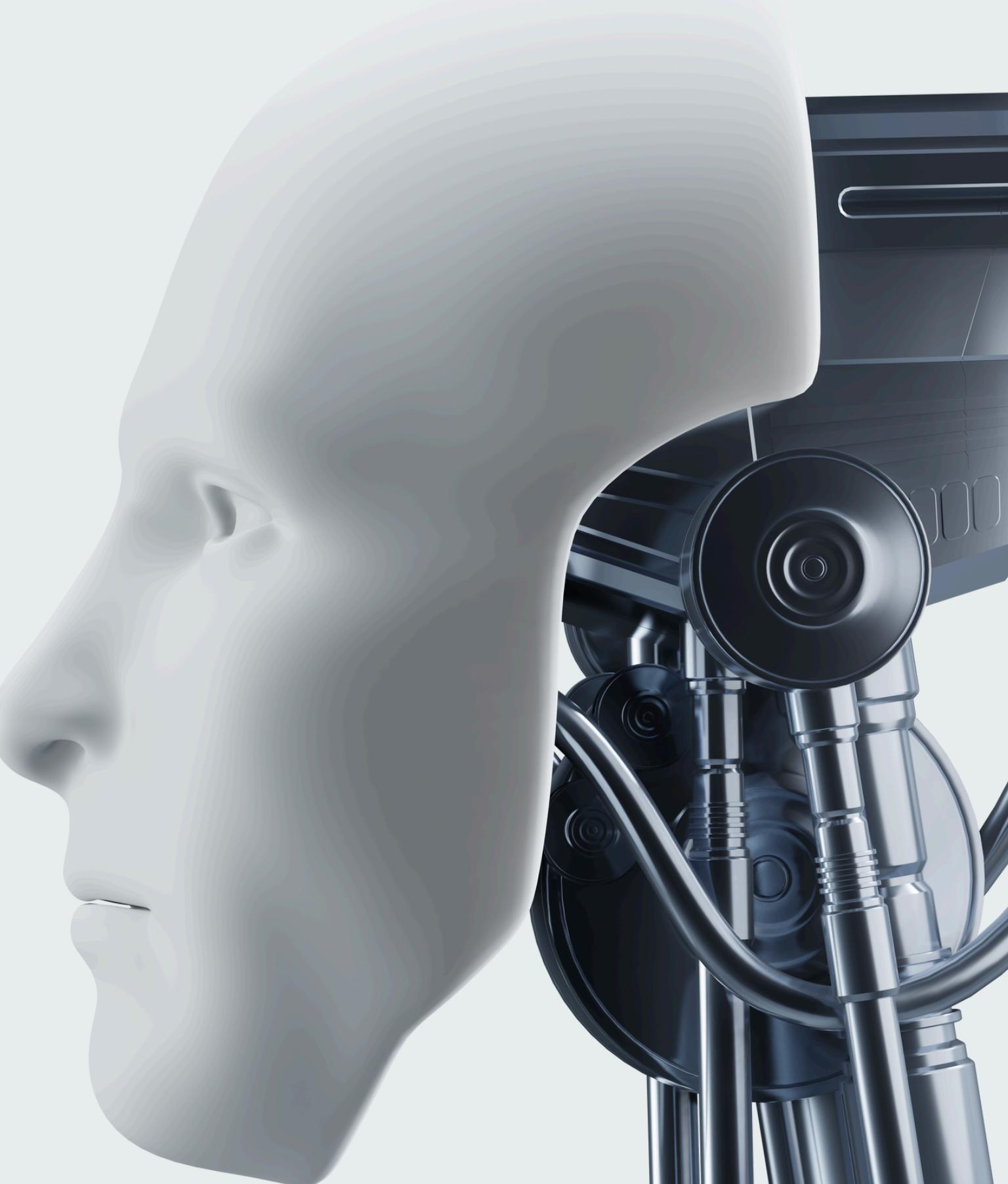


¿Qué son los Copilotos de Inteligencia Artificial?



Los copilotos de IA son herramientas que utilizan modelos de lenguaje entrenados en código para asistir a los desarrolladores en diversas tareas de programación. Actúan como un "par de programación" inteligente que puede:

- Generar código a partir de descripciones en lenguaje natural
- Completar automáticamente líneas y bloques de código
- Analizar y explicar código existente
- Sugerir mejoras y optimizaciones
- Detectar errores potenciales
- Generar documentación y comentarios



¿Qué son los Copilotos de Inteligencia Artificial?

Desarrollo de los copilotos

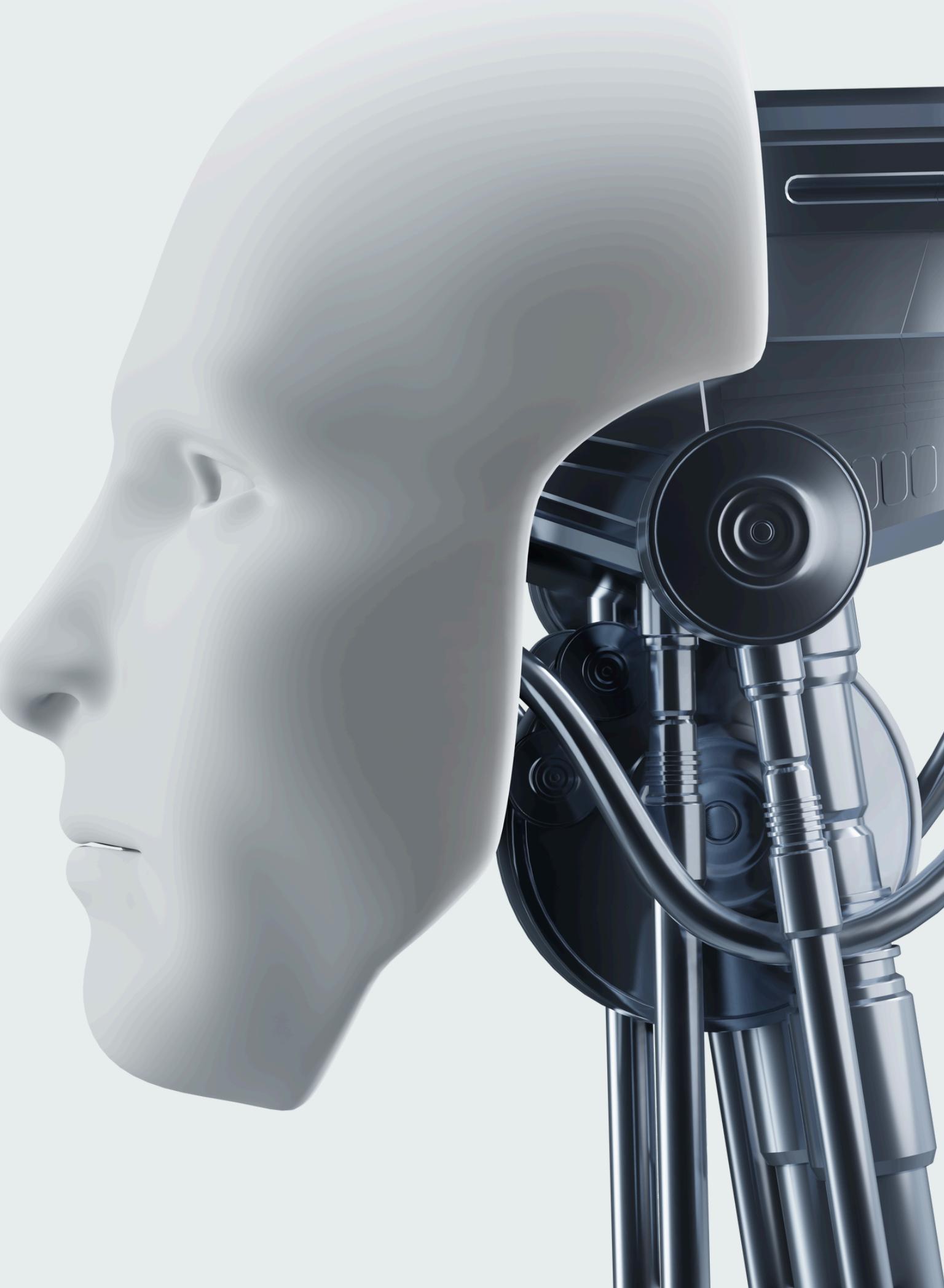


- 2021: GitHub Copilot marca el inicio masivo
- 2023: Explosión de alternativas (CodeWhisperer, Tabnine, Codeium)
- 2024: Integración nativa en IDEs y mejoras en precisión
- 2025: Copilotos especializados por dominio y contexto empresarial

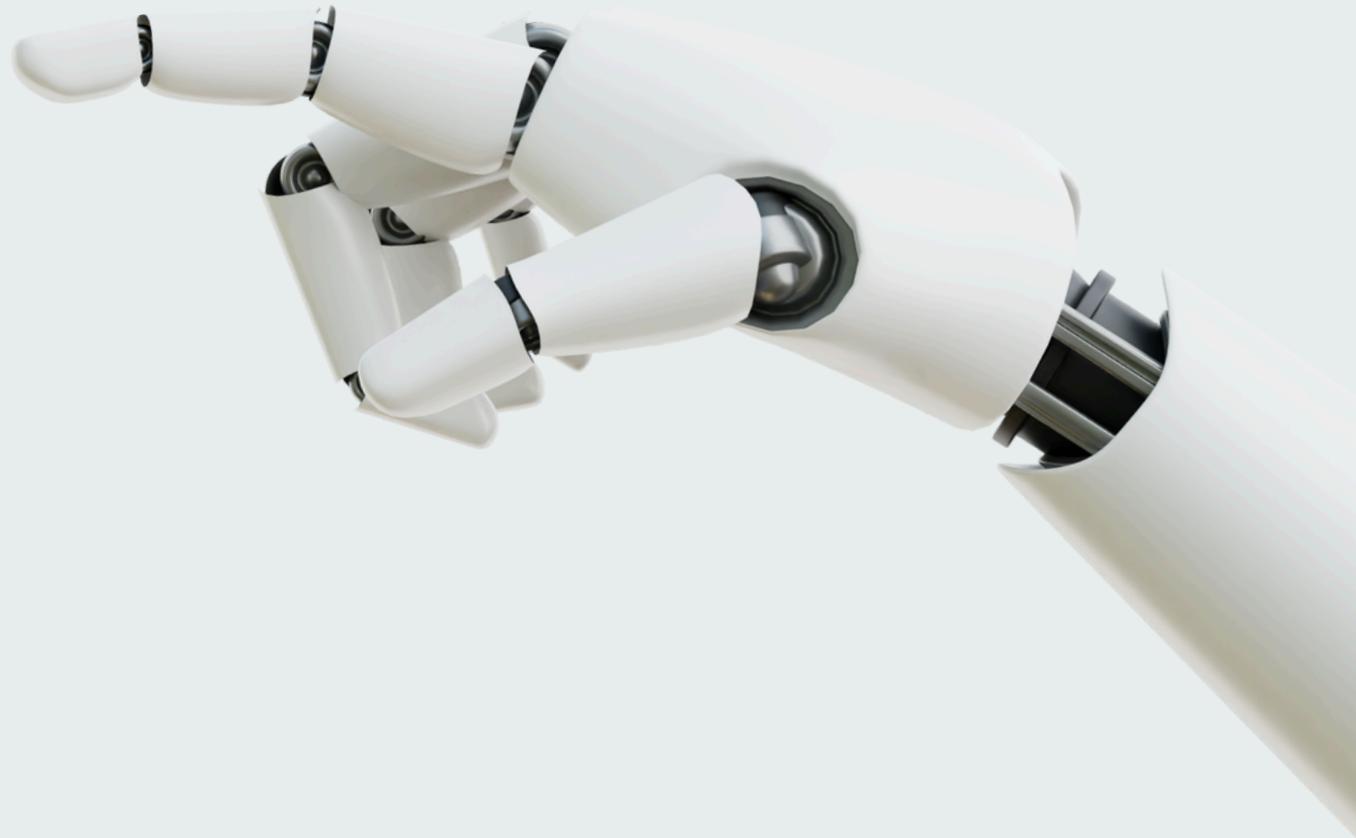
Copilotos más usados



- GitHub Copilot
- Cursor
- Tabnine
- Gemini
- Kite (descontinuado): pionero en uso de IA para autocompletado

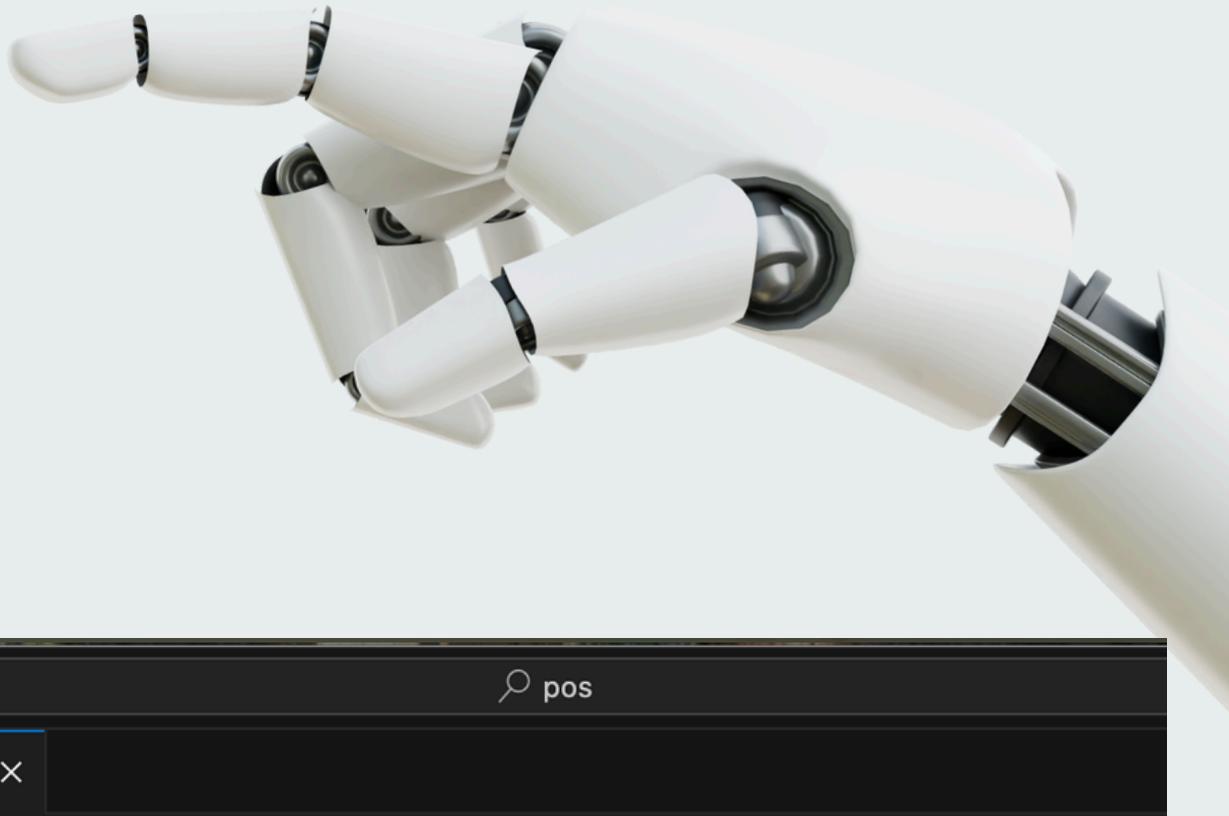


Configuración de Gemini en VSCode



Actividad 1.

Configuración de Gemini en VSCode

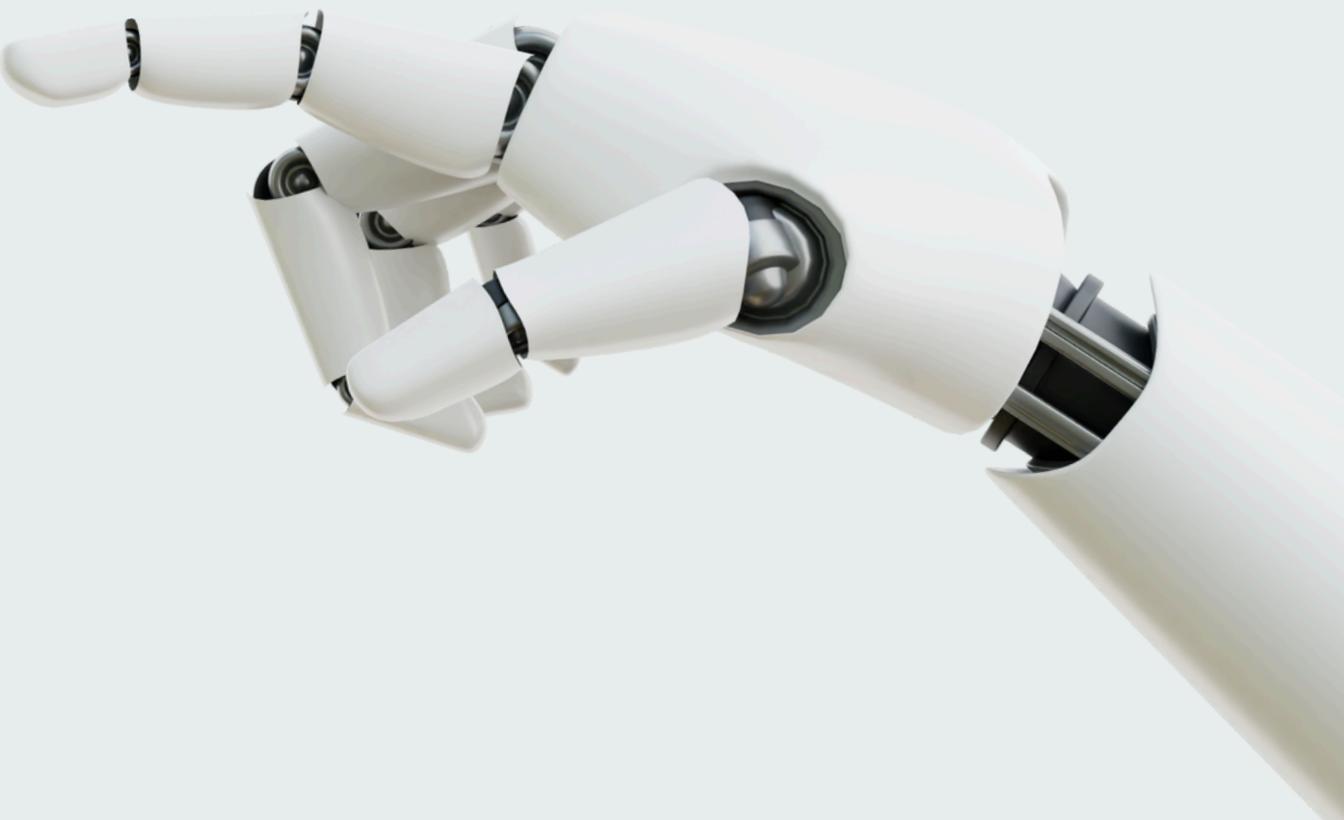


Instalar extensión:

Gemini Code Assist

The screenshot shows the VSCode Extension Marketplace interface. On the left, a sidebar lists icons for files, search, repository, and extensions. The main area has a search bar at the top with the text 'pos'. Below it, a sidebar shows search results for 'gemini', listing several extensions: 'Gemini Code As...', 'Gemini', 'Gemini Chat', 'Gemini Assistant', and 'Gemini Autoc...'. The 'Gemini Code As...' extension is highlighted. To the right, a large modal window displays the details for the 'Gemini Code Assist' extension. The modal has a dark header with the text 'Extension: Gemini Code Assist'. Below the header is a large blue starburst icon. The extension's name is 'Gemini Code Assist' in a large blue button. It is developed by 'Google' and has a rating of 5 stars from 272 reviews, with 1,223,393 installs. A 'Disable' button is shown in a dropdown menu, and an 'Uninstall' button is also visible. An 'Auto Update' checkbox is checked. The 'DETAILS' tab is selected, showing the description: 'AI-assisted development powered by Gemini'. Below this is a section titled 'Gemini Code Assist - Your AI assistant powered by Gemini', which includes a sub-section 'Key Features' with the text 'Bring the power of Gemini to help you build applications faster and easier than ever before.' On the far right, there are sections for 'Installation' (Identifier: googlesdk/Gemini Code Assist, Version: 2.42, Last updated: 2025-06-14, Updated: 14:49, Size: 221.7 MB), 'Marketplace' (with a link to 'Coding assistance powered by Gemini'), and a footer note 'Coding assistance powered by Gemini'.

Generacion de Documentación con IA

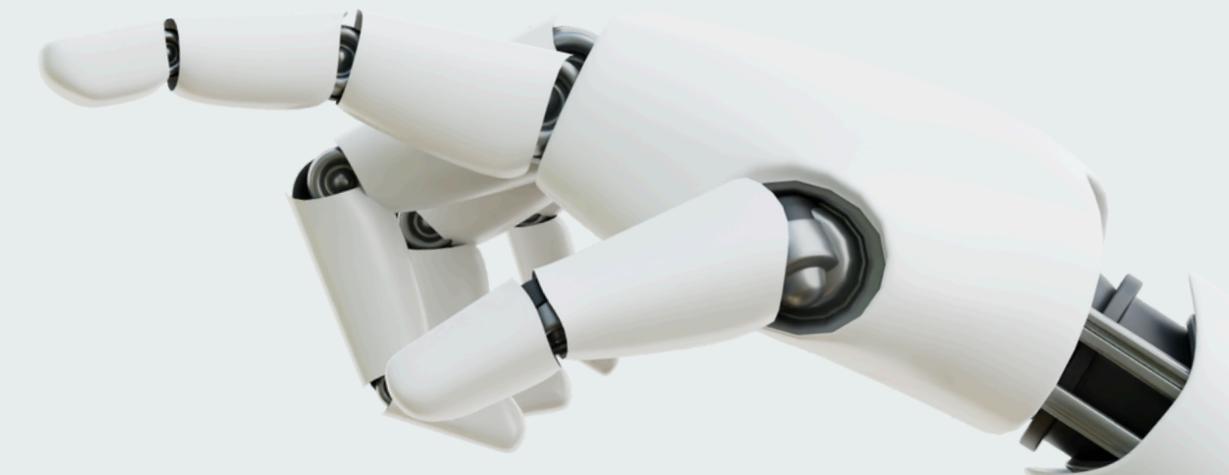


Actividad 2

Instalación Github Copilot

Instalar extensión:

GitHub Copilot



The image shows a screenshot of a Mac OS X desktop environment. On the left, the Dock is visible with icons for Finder, Safari, Mail, and others. In the center, a window titled "Extension: GitHub Copilot" is open in the "Extensions: MARKTPL..." tab of the App Store. The search bar at the top of the window has "pos" typed into it. The main content area displays the "GitHub Copilot" extension by GitHub, which is described as "Your AI pair programmer". It has a rating of 4.5 stars from 974 reviews and over 45 million installations. Below the main details, there is a section titled "GitHub Copilot - Your AI peer programmer" with a brief description of what the extension does. To the right of the main window, there is a sidebar titled "Installation" showing the identifier, version, last updated date, and size of the extension. At the bottom right, there is a "Marketplace" section showing the publish date and time.

EXTENSIONS: MARKTPL...

Github Copilot

GitHub Copilot 869ms
Your AI pair programmer
GitHub

GitHub Copilot ... 146ms
AI chat features powered ...
GitHub

A GitHub Copi... 515K ★ 4
GitHub Copilot for Azure ...
Microsoft Install

BLACKBOXAI ... 4M ★ 4
BLACKBOX AI is an AI co...
BLACKBOXAI Install

Copilot The... 491K ★ 5
A VSCode implementatio...
Benjamin Benais Install

GitHub-Copil... 69K ★ 5
Use GitHub Copilot Work...
GitHub Install

Extension: GitHub Copilot

GitHub Copilot

GitHub github.com | 45,014,421 | ★★★★☆ (974)

Your AI pair programmer

Disable | Uninstall | Switch to Pre-Release Version | Auto Update

DETAILS FEATURES EXTENSION PACK

GitHub Copilot - Your AI peer programmer

GitHub Copilot is an AI peer programming tool that helps you write code faster and smarter.

GitHub Copilot adapts to your unique needs allowing you to select the best model for your project, customize chat responses with custom instructions, and utilize agent mode for AI-powered, seamlessly integrated peer programming sessions.

Sign up for [GitHub Copilot Free!](#)

Identifier: github.copilot

Version: 1.350.0

Last Updated: 2025-07-30, 14:27:14

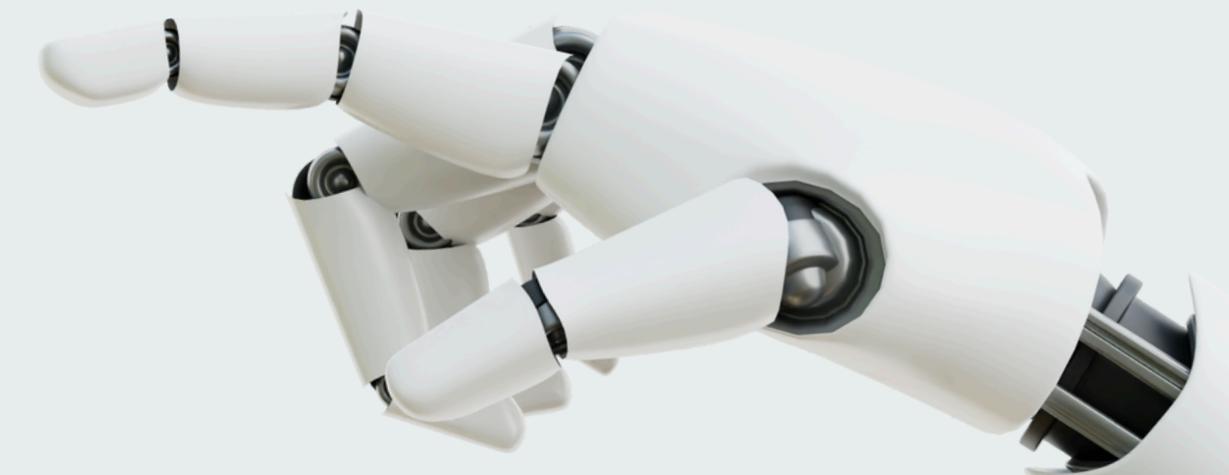
Size: 63.33MB

Marketplace

Publish Date: 2021-06-29, 09:26:17

Instalación Github Copilot

Inicias Sesión
con cuenta
de github



EXTENSIONS: MARKETPL...

Github Copilot

GitHub Copilot 869ms Your AI pair programmer GitHub

GitHub Copilot ... 146ms AI chat features powered ... GitHub

A GitHub Copi... 515K ★ 4 GitHub Copilot for Azure i... Microsoft Install

BLACKBOXAI ... 4M ★ 4 BLACKBOX AI is an AI co... BLACKBOXAI Install

Copilot The... 491K ★ 5 A VSCode implementatio... Benjamin Benais Install

GitHub-Copil... 69K ★ 5 Use GitHub Copilot Work... GitHub Install

Extension: GitHub Copilot

GitHub Copilot

GitHub github.com | 45,014,421 | ★★★★☆ (974)

Your AI pair programmer

Disable | Uninstall | Switch to Pre-Release Version | Auto Update

Installation

Identifier github.copilot

Version 1.350.0

Last 2025-07-30,

Updated 14:27:14

Size 63.33MB

Marketplace

Publish... 2021-06-29, 09:26:17

GitHub Copilot - Your AI peer programmer

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Sign up for [GitHub Copilot Free!](#)

Instalación Codex

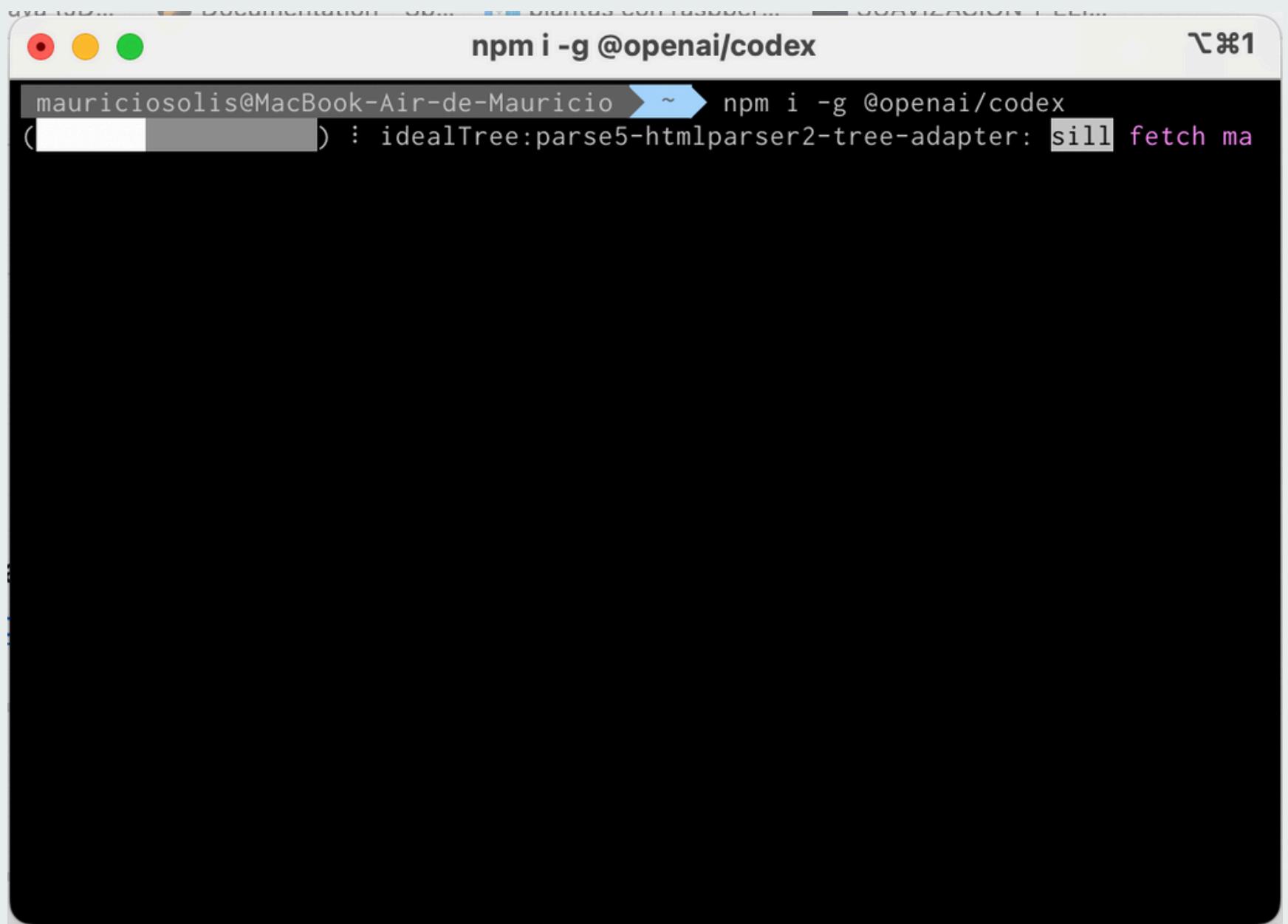


Requerimientos:

- node js (<https://nodejs.org/>)

Instalación:

`npm i -g @openai/codex`

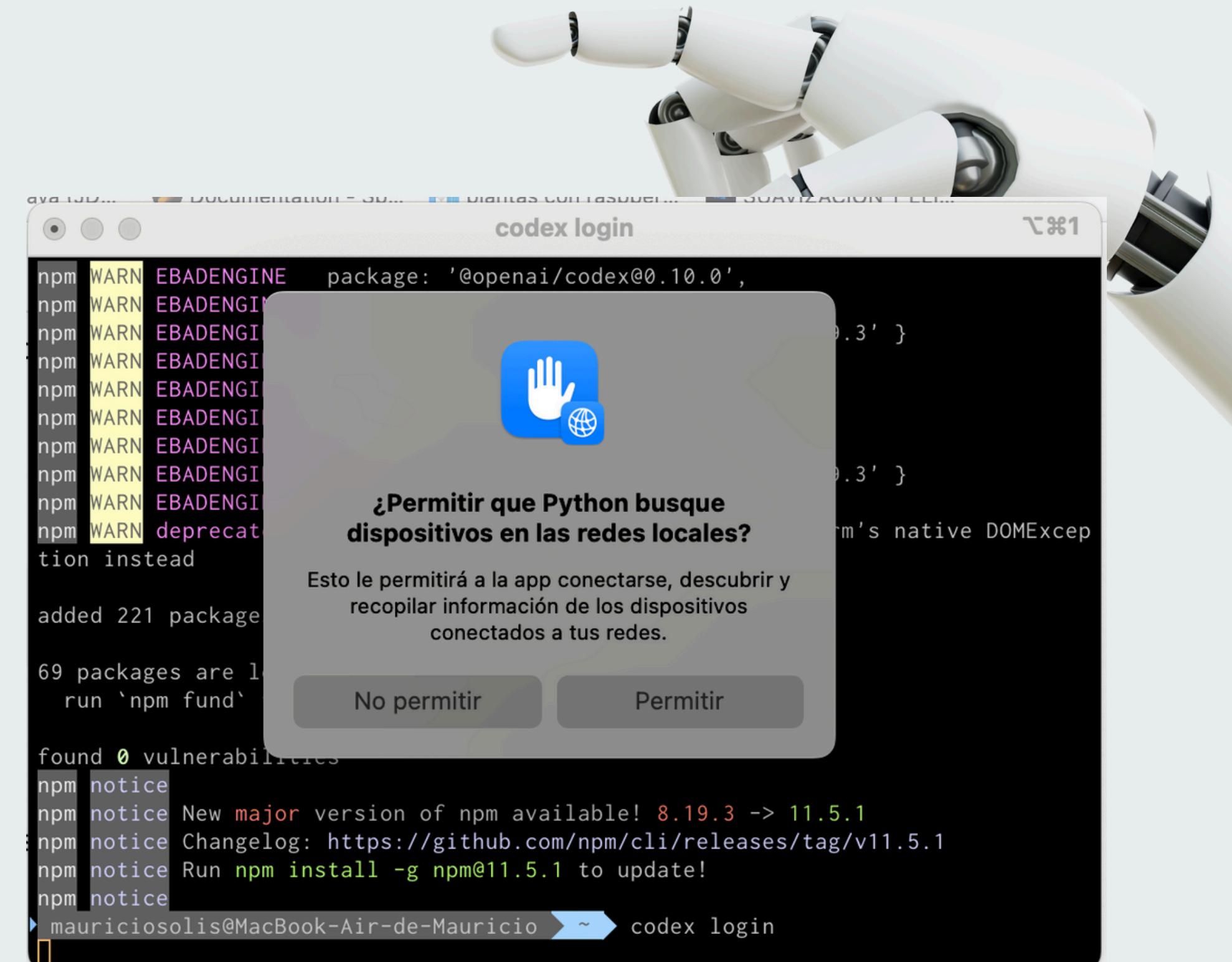


```
mauriciosolis@MacBook-Air-de-Mauricio ~ ➤ npm i -g @openai/codex
( [ ] ) : idealTree:parse5-htmlparser2-tree-adapter: sill fetch ma
```

Instalación Codex

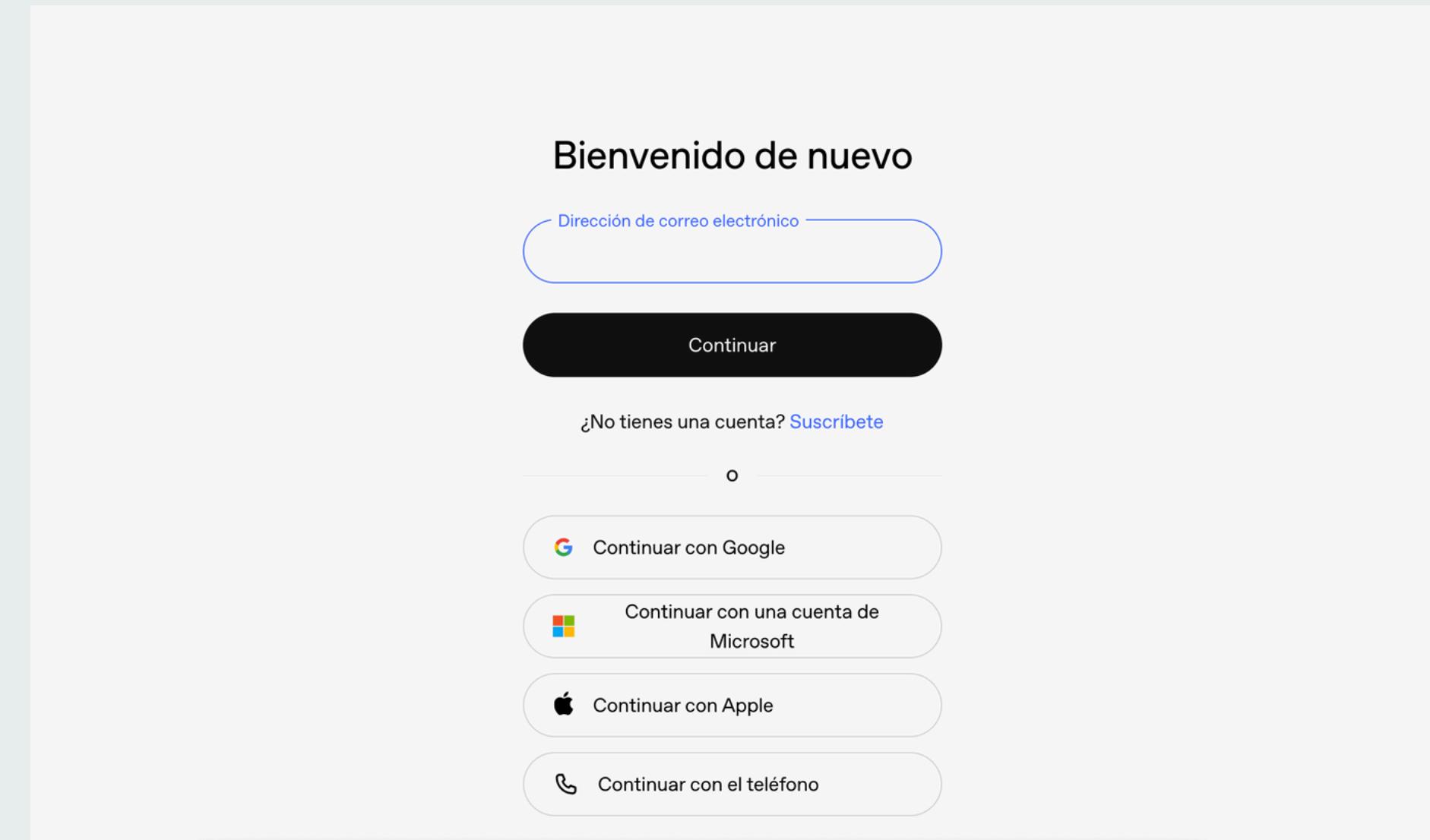
Log in:

codex login



Instalación Codex

Iniciar sesión con usuario
y password de chatgpt



Instalación Codex

Verificar identidad

Verifica tu identidad

Revisa tu aplicación de contraseñas de un solo uso preferida para obtener el código.

Código único

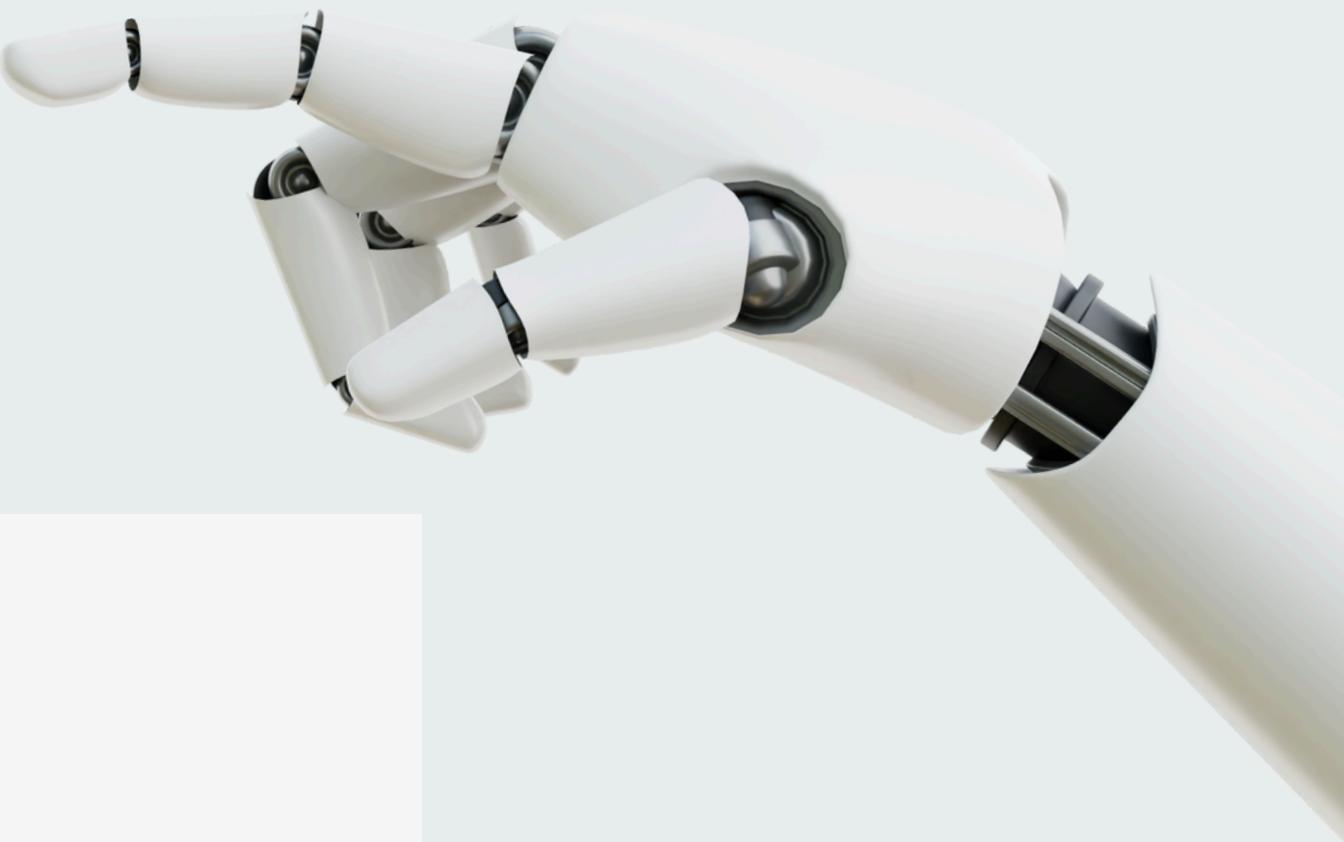
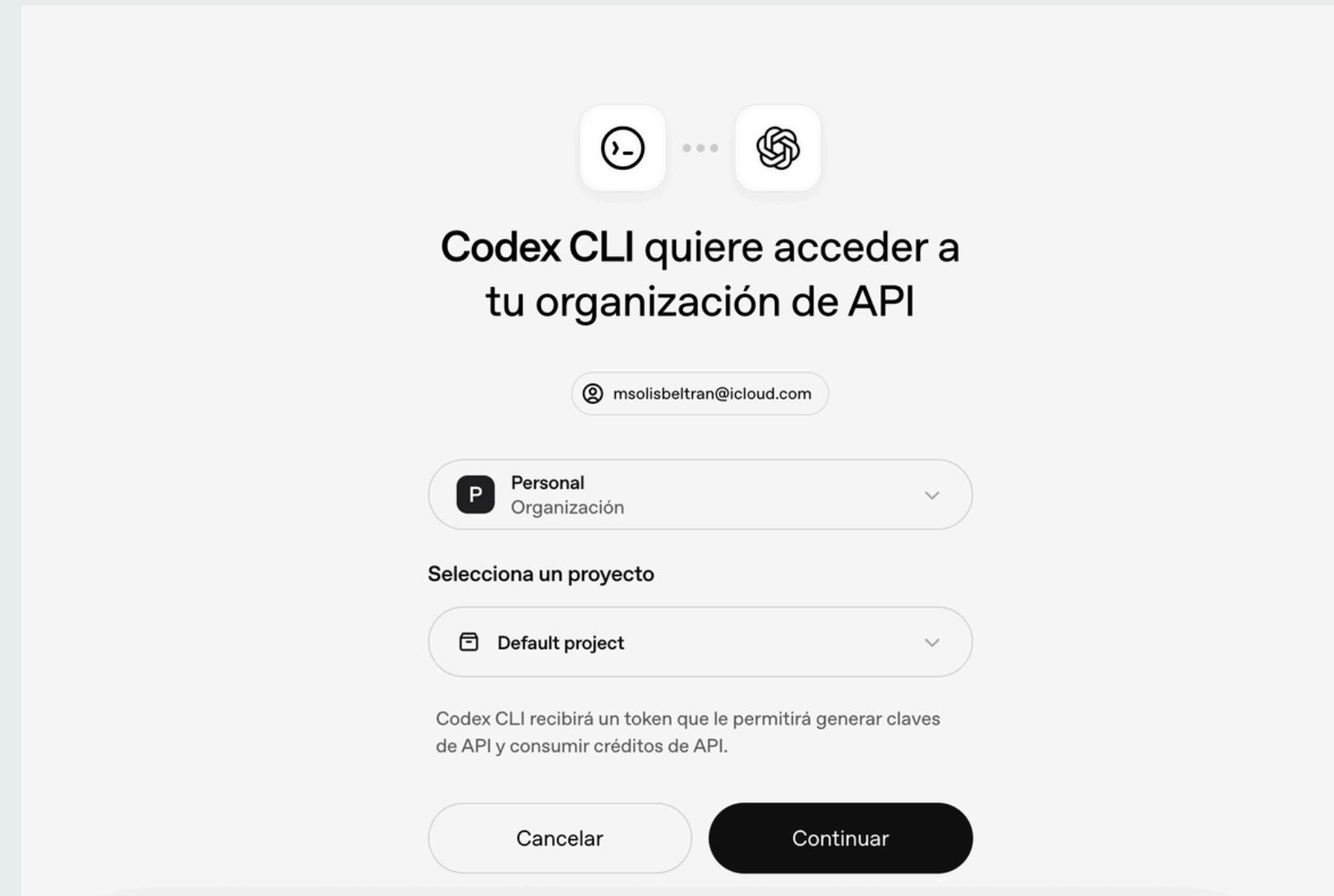
Continuar

Prueba otro método



Instalación Codex

Seleccionar la organización



Instalación Codex

Verificar

```
mauriciosolis@MacBook-Air-de-Mauricio:~
```

69 packages are looking for funding
run `npm fund` for details

found 0 vulnerabilities

```
npm notice
```

npm notice New major version of npm available! 8.19.3 -> 11.5.1
npm notice Changelog: https://github.com/npm/cli/releases/tag/v11.5.1
npm notice Run `npm install -g npm@11.5.1` to update!

```
npm notice
```

mauriciosolis@MacBook-Air-de-Mauricio ➜ ~ codex login
Starting local login server on http://localhost:1455
If your browser did not open, navigate to this URL to authenticate:

https://auth.openai.com/oauth/authorize?response_type=code&client_id=app_EMoamEEZ73f0CkXaXp7hrann&redirect_uri=http%3A%2F%2Flocalhost%3A1455%2Fauth%2Fcallback&scope=openid+profile+email+offline_access&code_challenge=kqqZ9Qlchpo1Ie15lqV2FOaYvLjyGwNj_La3dkidjms&code_challenge_method=S256&id_token_add_organizations=true&state=bc0d615aae1edc4b8d068541e7ab64783165c3c2e555acb17fdec9ee20b24950

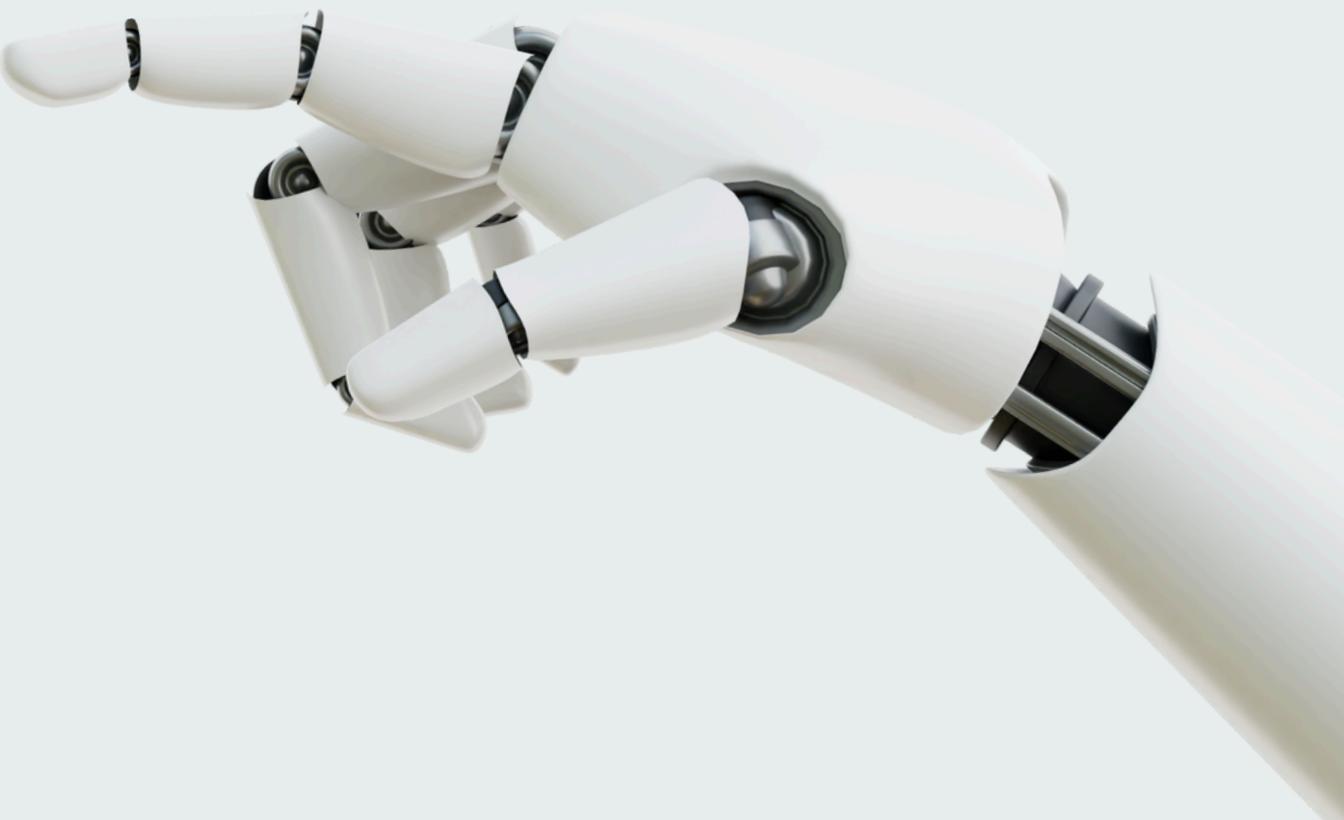
Thanks for being a ChatGPT Plus subscriber!
If you haven't already redeemed, you should receive \$5 in API credits.

Credits: <https://platform.openai.com/settings/organization/billing/credit-grants>
More info: <https://help.openai.com/en/articles/11381614>
Successfully logged in

```
mauriciosolis@MacBook-Air-de-Mauricio ➜ ~
```



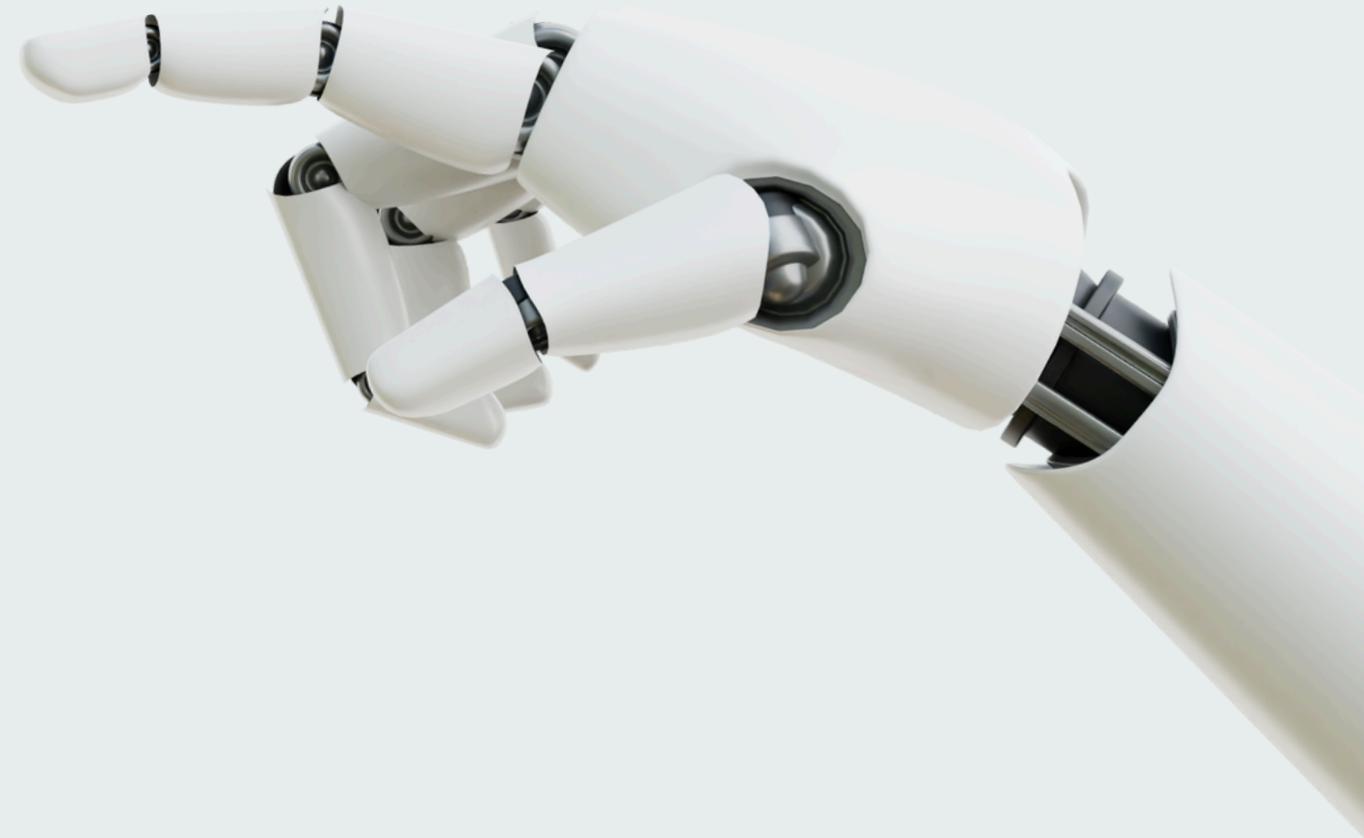
Análisis de Código con IA



Actividad 3

ConversionService

Implementación de código con IA



Actividad 4