



# The World's Most Widely Adopted AI Developer Tool



Tugdual "Tug" Grall - @tgrall  
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## About Me

### Tugdual “Tug” Grall ( @tgrall )

- GitHub : Solutions Engineer
- Redis : Dev Rel
- Red Hat: Product Management Developer Tools/DevExp
- MapR: Tech Evangelist/Product Manager
- MongoDB: Technical Evangelist
- Couchbase: Technical Evangelist
- eXo Platform: CTO
- Sogeti : Architect
- Oracle: Product Manager / Developer
- NantesJUG co-founder 2008

### Pet Project

- <https://windr.org>

- GitHub
- Node.js
- Java
- MongoDB
- Redis
- Azure
- GCP
- CleverCloud

- <https://tgrall.github.io>

A vertical timeline on the left lists major AI milestones from May 2021 to April 2023. A green line connects the 'Stable Diffusion released' and 'ChatGPT released' events to a callout box. The callout box contains the date '2022 AUG 22' and the text 'Stable Diffusion released'. Another green line connects the 'ChatGPT released' event to the '2022 NOV 30' date in a second callout box, which also contains the text 'ChatGPT released'.

May 2021

Jun 2021

Jul 2021

Aug 2021

Sep 2021

Oct 2021

Nov 2021

Dec 2021

Jan 2022

Feb 2022

Mar 2022

Apr 2022

May 2022

Jun 2022

Jul 2022

**Aug 2022**

Sep 2022

Oct 2022

**Nov 2022**

Dec 2022

Jan 2023

Feb 2023

Mar 2023

Apr 2023

**2022 AUG 22**

Stable Diffusion released

**2022 NOV 30**

ChatGPT released

https://github.blog/

Blog Engineering Product Security Open Source Enterprise More Try GitHub Copilot Contact sales

Open Source Product

# Introducing GitHub Copilot: your AI pair programmer

Today, we're launching a technical preview of GitHub Copilot, a new AI pair programmer that helps you write better code.

Technical preview

# Your AI pair programmer

```
const fetchNASAPictureOfDay = () => {
  return fetch('https://api.nasa.gov/planetary/apod?api_key=DEMO_KEY', {
    method: 'GET',
    headers: {
      'Content-Type': 'application/json',
    },
  })
  .then(response => response.json())
  .then(json => {
    return json;
  })
}
```

# An automated pair programmer: fact or fiction?

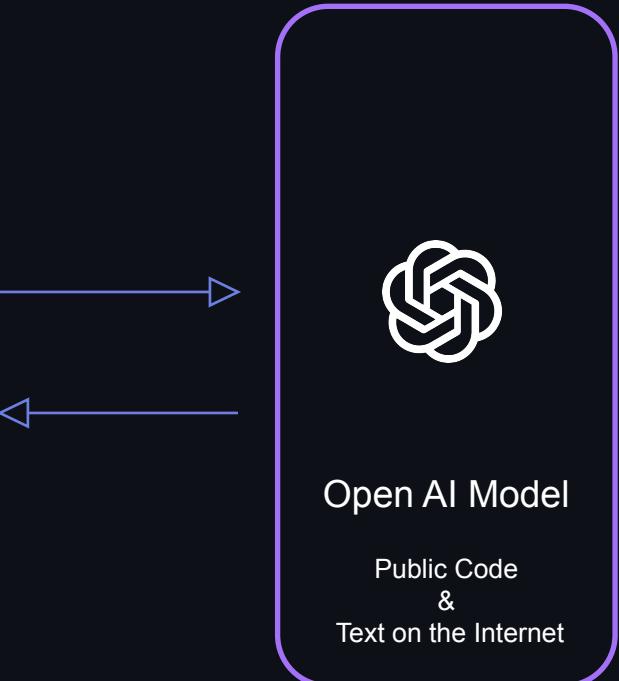
Oege de Moor, Alex Graveley, Albert Ziegler · GitHub OCTO. August 31<sup>st</sup>, 2020

## EXECUTIVE SUMMARY

We evaluate the use of OpenAI's language models trained on source code, for the specific task of Python code synthesis from natural language descriptions.

Our findings are as follows:

- Out of 233 hand-crafted programming exercises supplied by 30 GitHub engineers, 93% are successfully solved. The exercises include StackOverflow-type problems involving the use of an unfamiliar package, as well as programming challenges typically used in coding





# The Copilot effect.

The world's most widely adopted AI developer tool.

Maximize developer happiness

Increase developer productivity

Accelerate software development



# A six-month study of 450 developers



## ACTIVITY

**35%**

Acceptance rate



## PRODUCTIVITY

**50%**

More pull requests



## EFFICIENCY

**50%**

More builds



## SATISFACTION

**96%**

Successful on day one

**88%**

Characters retained

**15%**

Higher merge rate

**45%**

Higher success rate

**90%**

More fulfilled



Security



Open  
Source

Intellectual  
Property



Privacy



**GitHub Copilot Trust Center**

We enable developers and organizations to maximize their potential by prioritizing security, privacy, compliance, and transparency as we develop and iterate on GitHub Copilot.

**GitHub Copilot Trust Center**

Welcome to the GitHub Copilot Trust Center, we are excited you are here.

**Trust Center Overview**

Watch on YouTube

**GitHub Copilot and AI**

Hii, I'm Shelley McKinley.

Watch on YouTube

**Enterprise trial** **Contact Sales**

**FAQs**

**Frequently asked questions.**

**General**

**Privacy**

**Responsible AI**

**Upcoming features and offerings**

**What is GitHub Copilot?**

**What are the differences between the GitHub Copilot Business, GitHub Copilot Enterprise, and GitHub Copilot Individual plans?**

**What languages, IDEs, and platforms does GitHub Copilot support?**

**What data has GitHub Copilot been trained on?**

**Buy now**

# How does Copilot work?

- 01 Limited context is sent to Copilot
- 

- 02 Makes suggestions
- 

- 03 Deletes the context right after suggestions have been generated

Code editor / IDE

my-project.js

```
1 const arr = [1, 2, 3, 4, 5];
2 // find the largest prime number in the array
3 const largest = Math.max(...arr);
4
5
6
7
8
9
10
11
12
13
14
15
16
```

# Copilot transforms GitHub into the AI-powered developer platform

Now with GPT-4

## Copilot Chat

Generally available December 2023



Copilot Chat coming to GitHub Mobile



## Copilot Enterprise

Personalized context for your organization



# UNIVERSE23

## AI-powered security

Code scanning autofix & secret scanning

## Partner Program

Extend Copilot with the power of the GitHub ecosystem



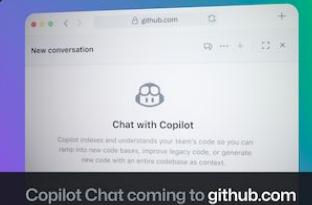
Copilot Chat in JetBrains IDEs



## Copilot Workspace

Vision





Copilot Chat coming to github.com



# Your copilot for an AI-powered software development lifecycle.

From the  
IDE and  
Terminal



To the  
Platform



# GitHub Copilot

## An AI Journey

✓ Jun 2021 : Completion in IDE (Beta)

✓ March 2022 : GitHub Copilot Labs Extension

✓ Aug 2022 : GitHub Copilot GA

✓ Jun 2023 : GitHub Copilot Chat (Beta)

✓ Nov 2023 : GitHub Copilot Enterprise (Announcements)

✓ Nov 2023 : AI-powered Security (Announcements)

✓ ...

The screenshot shows a dark-themed web page for 'GitHub Next'. At the top right is a purple button labeled 'GitHub Next'. Below it, a large heading reads 'GitHub Next investigate software development'. A sub-section titled 'PROJECTS' is visible, featuring a circular icon with a grid pattern and the word 'Projects' next to it. Below this, there's a link 'All Categories' and a card for 'Monaspace'.

# Demonstration

