Unraveling the Magic of AI and LLMs

Josef Machytka

3 min read · Jan 22, 2025

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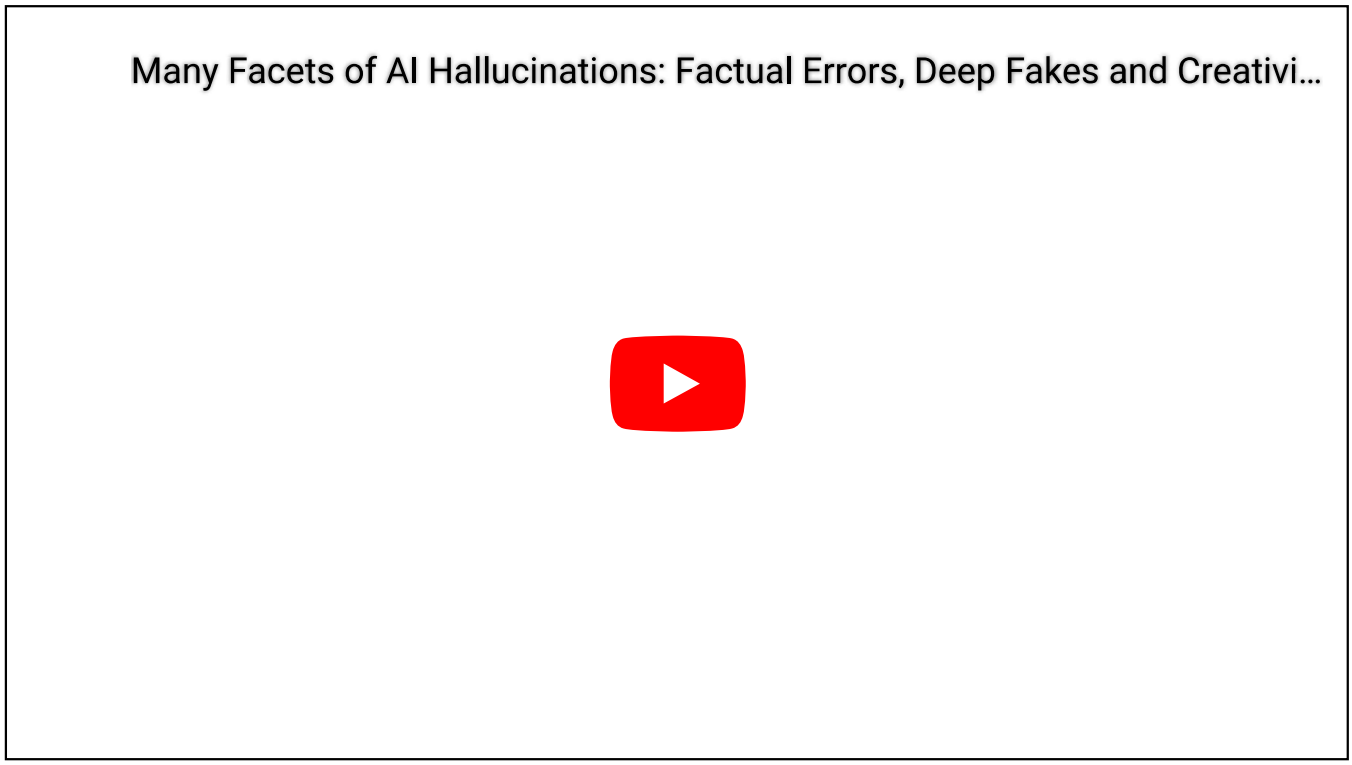
This is the cover article for a series of my writings on AI, LLMs, prompt engineering, AI hallucinations, and related topics. So far, I've published the following articles (in order from latest to oldest):

- Practical Prompt Engineering: Tell Me About Stars
- Clash of the Titans: A Conversation Between Two LLMs About Life and Everything
- Large Language Models: A Mirror of our Civilization
- AI Hallucinations are caused by Quantum Pigeons Nesting in Neural Networks
- Different aspects of AI hallucinations: factual errors vs creativity (NetApp-credativ blog)
- The Art and Science of AI Prompt Engineering (NetApp-credativ blog)

You can also watch my recorded talks on YouTube:



Introduction to the Series

I started using AI almost from the day these models became publicly available in Germany, Europe, where I live. Growing up with science fiction stories and as a Star Trek fan, I was thrilled to finally have a tool capable of providing intelligent, focused answers — far beyond the capabilities of a simple internet search.

However, I quickly realized that not everyone shared my optimism. The first half of 2023 was marked by genuine hysteria surrounding AI. Even some of my friends were deeply apprehensive, clinging to dramatic ideas like, *"Of course AI wants to enslave us; what else would it do with us?"* or *"AI will inevitably extinguish humanity because it can!"*

They were "absolutely sure" that AI had its own digital ego, malevolent and dangerous — something like a mix of *The Matrix* and *Terminator*. These people proclaimed themselves heroes, protecting humanity against this so-called dark evil, while accusing anyone who embraced these tools of being "traitors" or "collaborators."

leaving AI in relative peace. Meanwhile, I continued using various AI tools daily — both for work and my personal projects — steadily learning how to leverage them

effectively. My children also discovered the beauty of these tools and began incorporating them into their creative projects.

Helping Others Embrace AI

Over time, I realized that many of my friends and colleagues remained apprehensive about using AI. Their excuses ranged from, *"It doesn't give me any useful answers,"* to *"I haven't found an area where it could help me."*

What became clear to me was that their reluctance stemmed from a lack of understanding of how to use AI effectively. In response, I created talks and wrote articles to help bridge this gap. While there's still work to be done, I'm glad that at least now they can see these tools for what they are: advanced systems based on statistical patterns from data — not some mythical, all-knowing entity.

Managing Expectations

Using AI tools doesn't automatically guarantee success. One must approach the results with caution, rigorously testing and verifying their output. Frankly, this is no different from what I've always done when searching for information on the internet. A simple search often turns up outdated articles, dubious claims, or recycled misinformation.

AI, trained on publicly available internet data, inevitably reflects these same flaws — errors and biases included. We shouldn't expect miracles from training data rooted in humanity's imperfections. But, with careful use and understanding, AI can become an incredibly powerful tool.

Summary

This article introduces a broader series exploring the fascinating world of AI and LLMs. It reflects on the initial public hysteria surrounding AI, the importance of overcoming fear and learning effective usage, and the need for a balanced, cautious approach to these tools. Far from being an autonomous, malevolent force, AI is a reflection of the data it's trained on — an imperfect yet invaluable resource when used wisely.

Image created by the author using DeepDreamGenerator

Artificial Intelligence | LIm | Large Language Models | AI

Edit profile

Written by Josef Machytka

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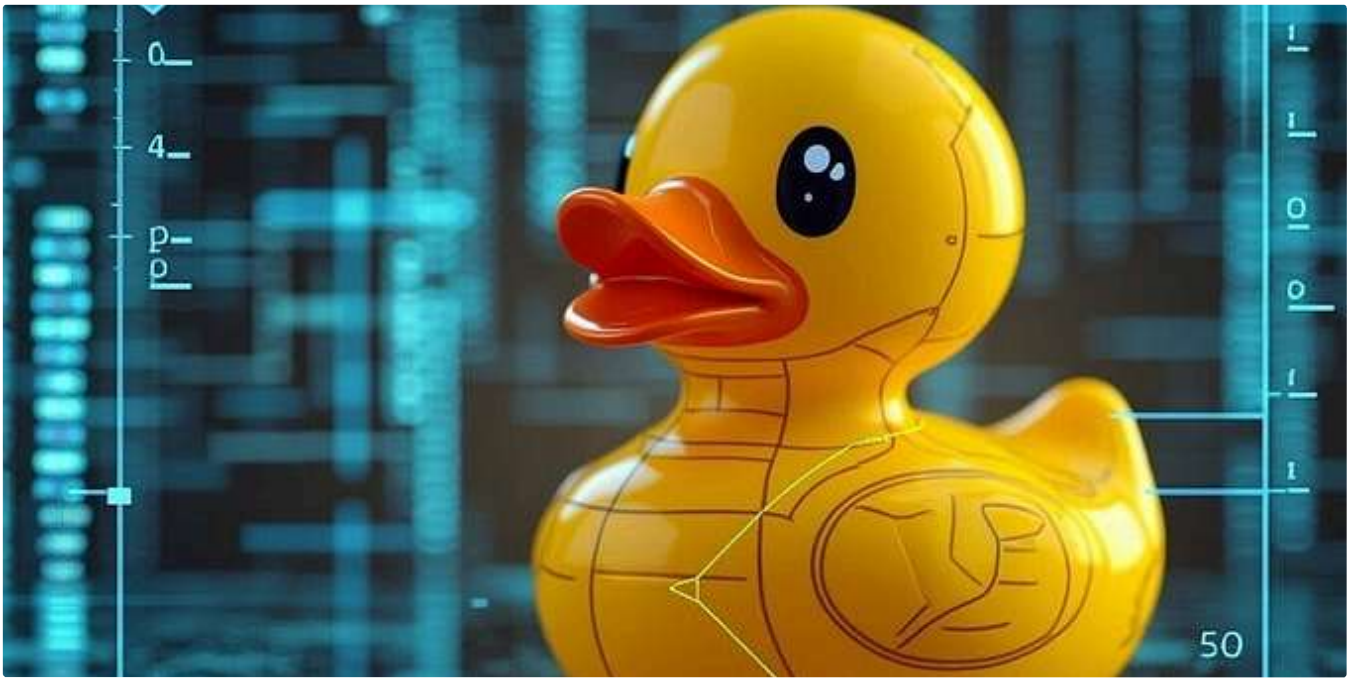
I work as PostgreSQL specialist & database reliability engineer at NetApp Deutschland, Open Source Services division.

No responses yet

What are your thoughts?

Respond

More from Josef Machytka

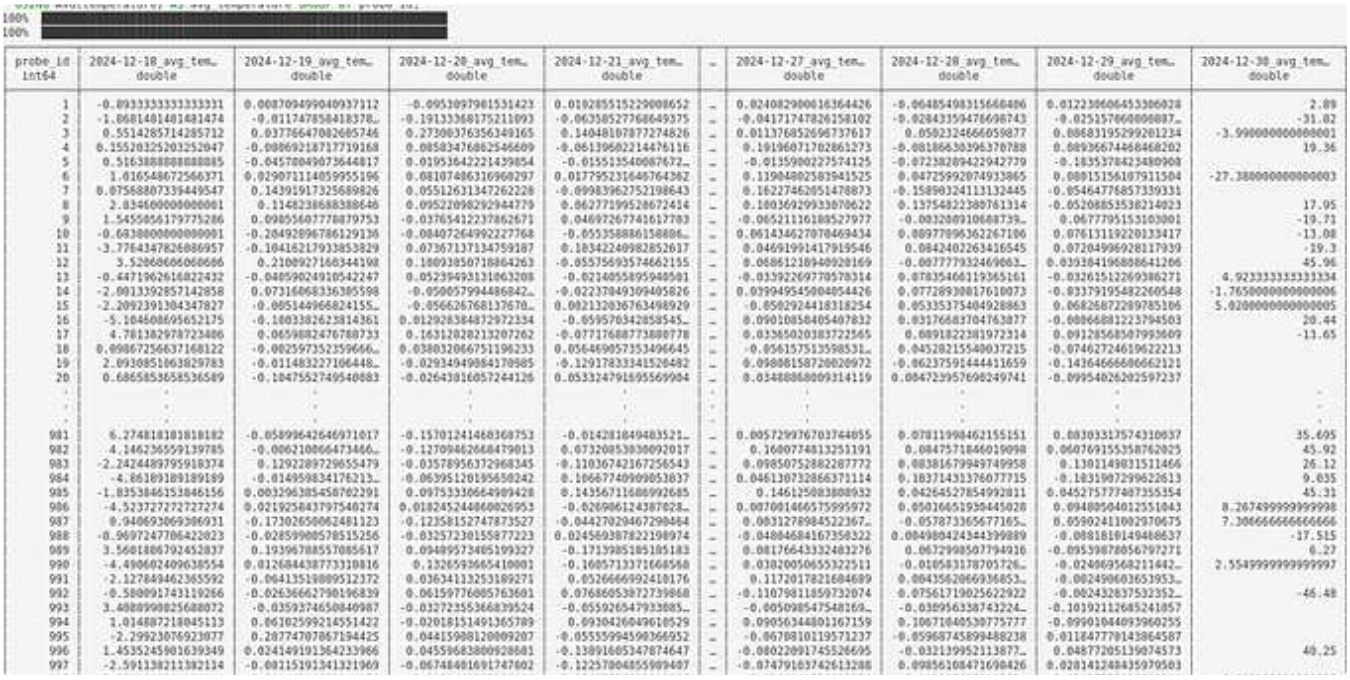


Josef Machytka

DuckDB Database File as a New Standard for Sharing Data?

This is not my original idea; I came across it in an excellent article titled “DuckDB Beyond the Hype” by Alireza Sadeghi. However, it...

Dec 30, 2024 18 2



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4	0.15520325203252047	-0.008692187717719168	0.08583476862546609	-0.06139602214476116	…	0.19196071702861273	-0.08186630396370788	0.08936674468468202	19.36
5	0.5163888888888885	-0.045780496736446817	0.019536422214339854	-0.015551540087672…	…	-0.01359002275741125	-0.07238289422942779	-0.18353784423480968	
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Josef Machytka

DuckDB Performance Problems with Inappropriate Pivoting Queries on Very Large Datasets

The DuckDB documentation clearly states that this tool is designed for handling datasets fitting into memory. I fully understand that I'm…

Jan 3 6

```
Bob      | 2100.0 | 600.0  |
Charlie  | 2300.0 | 1500.0 | 1100.0 |
```

```
D pivot pg.sales on (product,year) using sum(sales_amount) group by salesperson order by salesperson;
```

salesperson varchar	(Laptop, 2022) double	(Laptop, 2023) double	(Phone, 2022) double	(Phone, 2023) double	(Tablet, 2022) double	(Tablet, 2023) double
Alice	1200.0	1400.0	800.0	900.0	300.0	400.0
Bob	1000.0	1100.0	600.0			
Charlie	1100.0	1200.0	700.0	800.0	500.0	600.0

```
D pivot pg.sales on (year,product) using sum(sales_amount) group by salesperson order by salesperson;
```

salesperson varchar	(2022, Laptop) double	(2022, Phone) double	(2022, Tablet) double	(2023, Laptop) double	(2023, Phone) double	(2023, Tablet) double
Alice	1200.0	800.0	300.0	1400.0	900.0	400.0
Bob	1000.0	600.0		1100.0		
Charlie	1100.0	700.0	500.0	1200.0	800.0	600.0

```
D pivot pg.sales on (year) using sum(sales_amount) group by salesperson order by salesperson;
```

Josef Machytka

Easy and Intelligent Pivot Tables with DuckDB

After exploring the various capabilities of DuckDB in my earlier articles, I want to focus more on its powerful data analytical...

Dec 4, 2024 1

Josef Machytka

PostgreSQL and DuckDB: Supercharging Ad-Hoc Data Analysis and ETL

On Wednesday, January 8th, 2025, I had the amazing opportunity to present my talk about the DuckDB database online at the “Postgres MeetUp...

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See all from Josef Machytka

Recommended from Medium

English	MMLU (Pass@1)	88.3	87.2	88.5	85.2	**91.8**	90.8
	MMLU-Redux (EM)	88.9	88.0	89.1	86.7	-	**92.9**
	MMLU-Pro (EM)	78.0	72.6	75.9	80.3	-	**84.0**
	DROP (3-shot F1)	88.3	83.7	91.6	83.9	90.2	**92.2**
	IF-Eval (Prompt Strict)	**86.5**	84.3	86.1	84.8	-	83.3
	GPQA Diamond (Pass@1)	65.0	49.9	59.1	60.0	**75.7**	71.5
	SimpleQA (Correct)	28.4	38.2	24.9	7.0	**47.0**	30.1
	FRAMES (Acc.)	72.5	80.5	73.3	76.9	-	**82.5**
	AlpacaEval2.0 (LC-winrate)	52.0	51.1	70.0	57.8	-	**87.6**
	ArenaHard (GPT-4-1106)	85.2	80.4	85.5	92.0	-	**92.3**
Code	LiveCodeBench (Pass@1-COT)	38.9	32.9	36.2	53.8	63.4	**65.9**
	Codeforces (Percentile)	20.3	23.6	58.7	93.4	**96.6**	96.3
	Codeforces (Rating)	717	759	1134	1820	**2061**	2029
	SWE Verified (Resolved)	**50.8**	38.8	42.0	41.6	48.9	49.2
	Aider-Polyglot (Acc.)	45.3	16.0	49.6	32.9	**61.7**	53.3
Math	AIME 2024 (Pass@1)	16.0	9.3	39.2	63.6	79.2	**79.8**
	MATH-500 (Pass@1)	78.3	74.6	90.2	90.0	96.4	**97.3**

Isaak Kamau

A Simple Guide to DeepSeek R1: Architecture, Training, Local Deployment, and Hardware Requirements

DeepSeek's Novel Approach to LLM Reasoning

Jan 23 2.7K 25

Lets Unlearn

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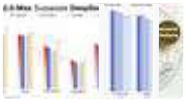
Learn to unlock the power of Ollama,a flexible AI framework designed to efficiently run advanced language models like LLaMA for free with...

Oct 19, 2024 73 1

Lists



Natural Language Processing

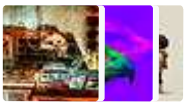
1908 stories · 1563 saves

AI Regulation

6 stories · 679 saves

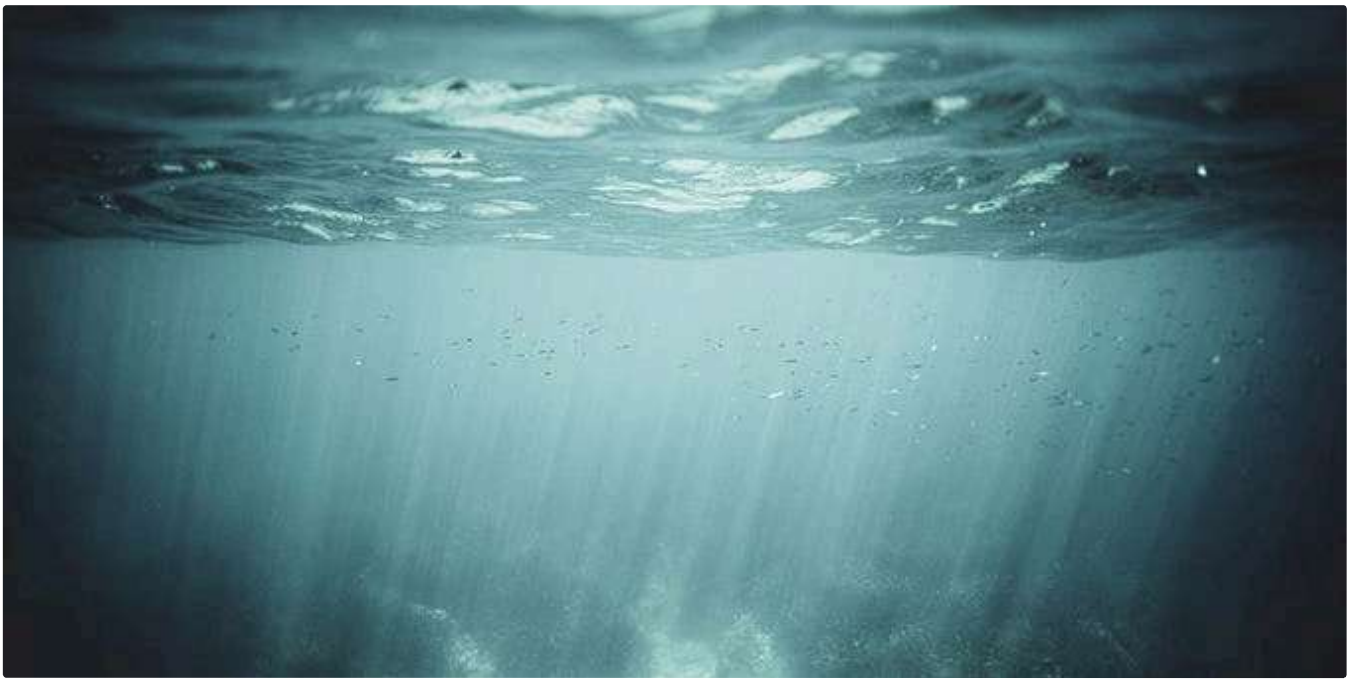
Generative AI Recommended Reading

52 stories · 1628 saves



What is ChatGPT?

9 stories · 499 saves

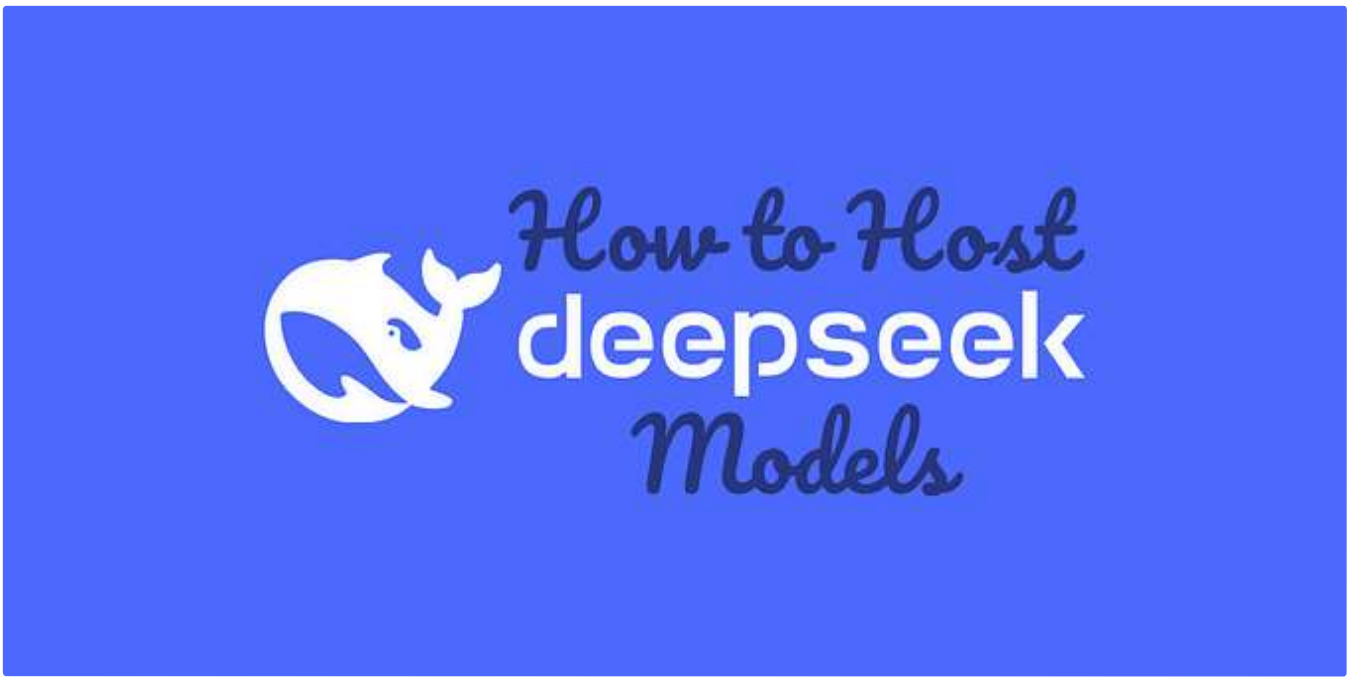


In AI Advances by Wei-Meng Lee

Integrating DeepSeek into your Python Applications

Learn how to use the DeepSeek chat and reasoning models in your Python applications using Ollama, Hugging Face, and the DeepSeek API

4d ago 413 4

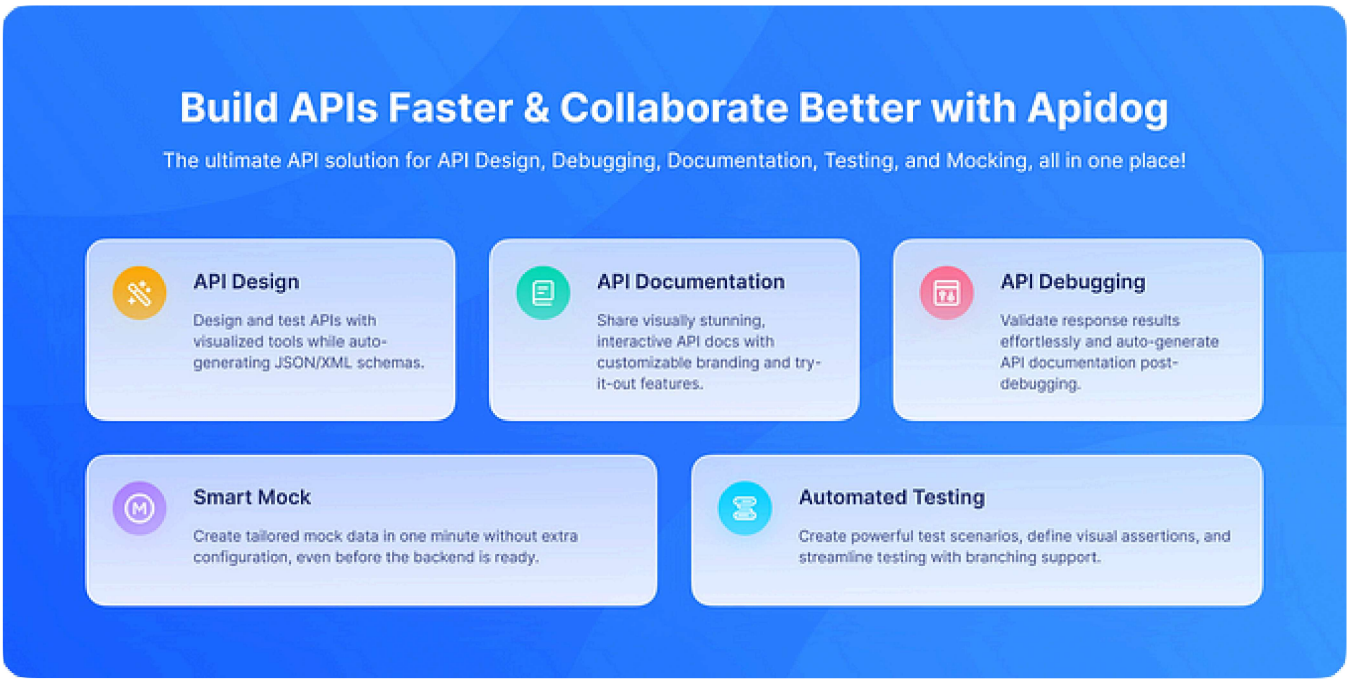


Colby T. Ford, Ph.D.

4 Ways to Run Your Own DeepSeek AI Instance Today

After this week's rollercoaster in the AI world due to the release of DeepSeek's latest reasoning models, I'd like to show you how to host...

3d ago 2



Sebastian Petrus

Developing RAG Systems with DeepSeek R1 & Ollama (Complete Code Included)

Ever wished you could directly ask questions to a PDF or technical manual? This guide will show you how to build a Retrieval-Augmented...

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Luke Steuber

Actually Useful AI for Accessibility: DeepSeek r1

It’s been in the news a bit, hasn’t it?

3d ago 65