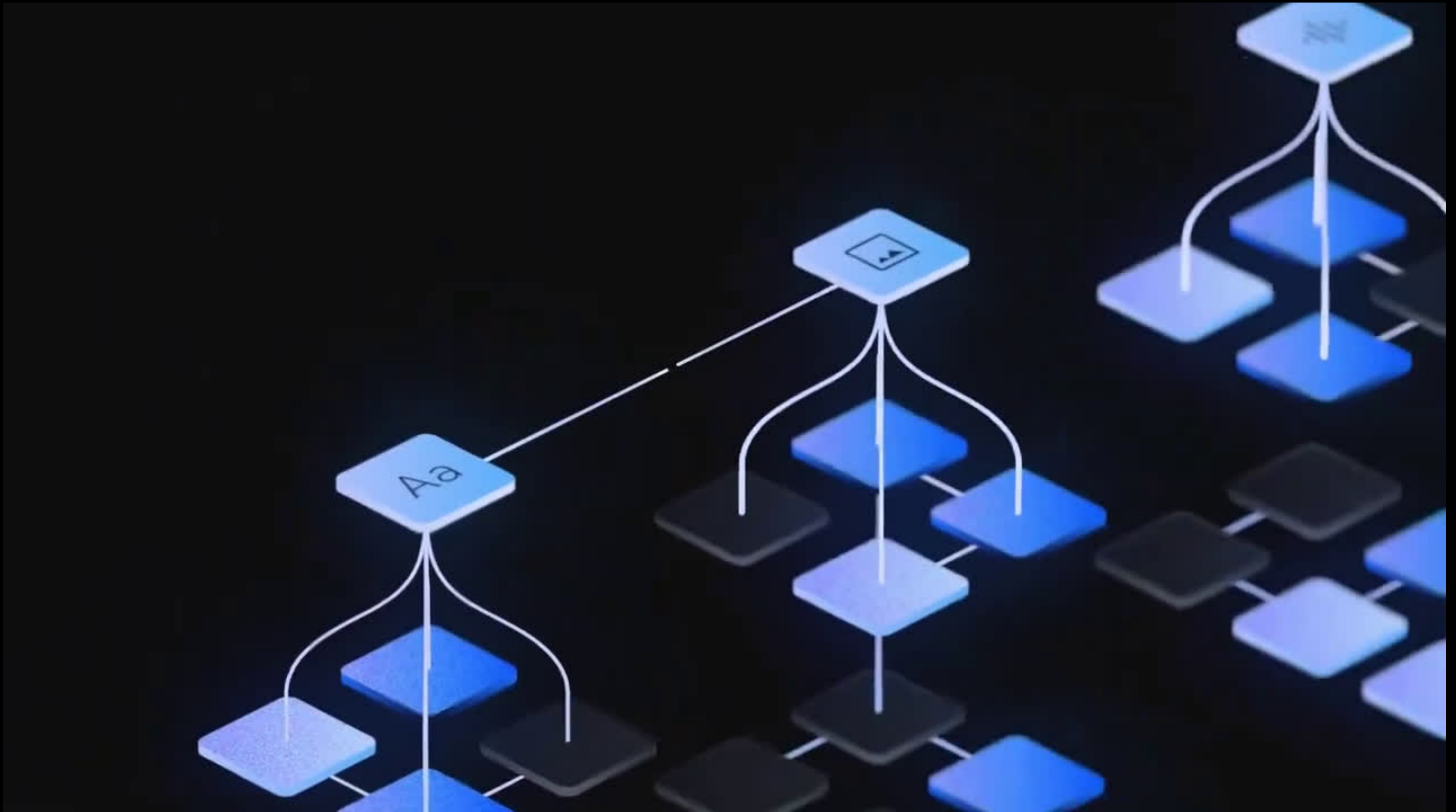**Google**

just launched Gemini 1.0.

Gemini

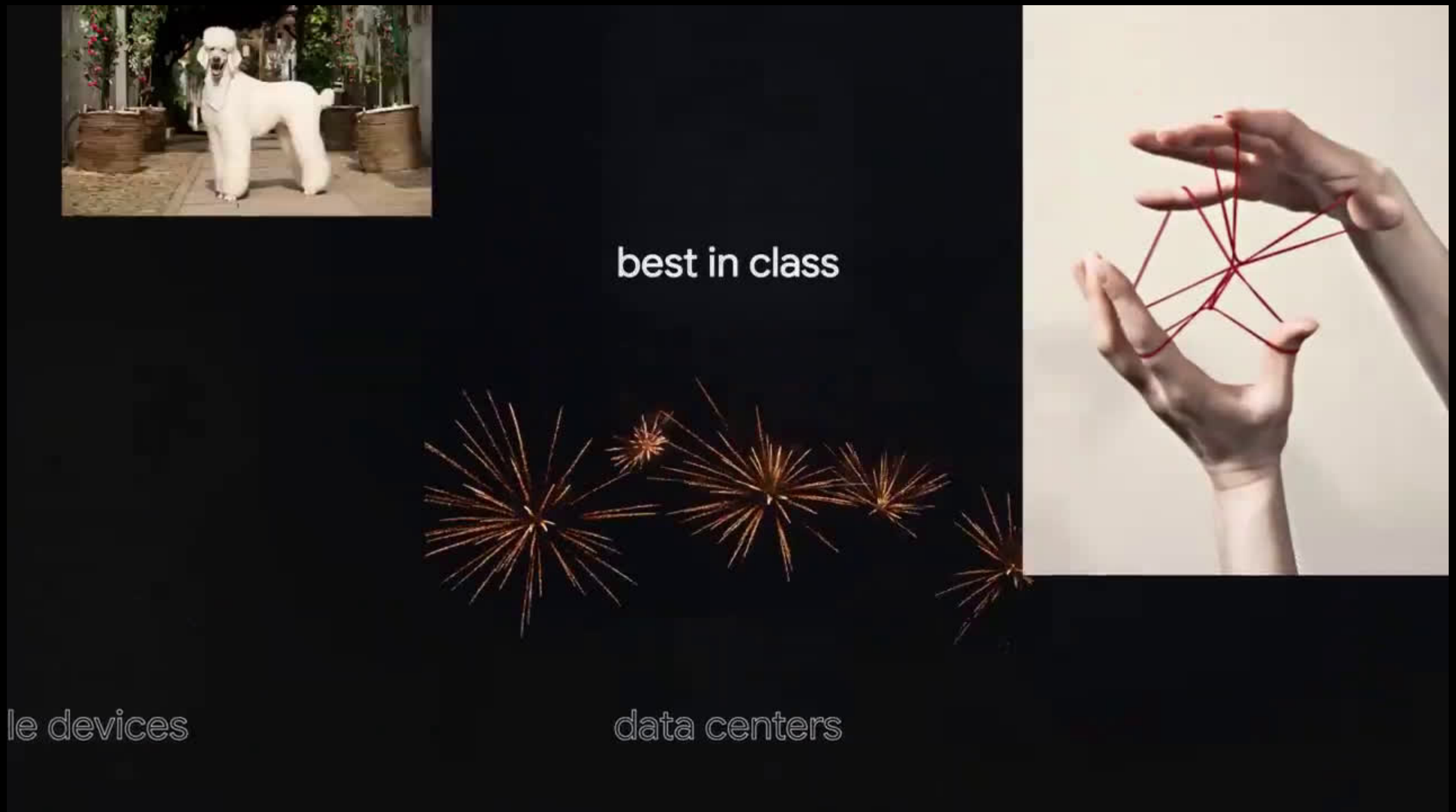Here's **everything** you need to know

>>>>>>

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Multimodality

Gemini is built from the ground up to be multimodal.

This includes: >Text > Code >Audio >Image >Video

This means it can operate across and combine different types of information.

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Size

Gemini is optimised in three sizes: Ultra, Pro, and Nano.

• **Ultra** – The largest and most capable model for complex tasks
• **Pro** – The best model for scaling across a wide range of tasks
• **Nano** – The most efficient model for on-device tasks

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Performance

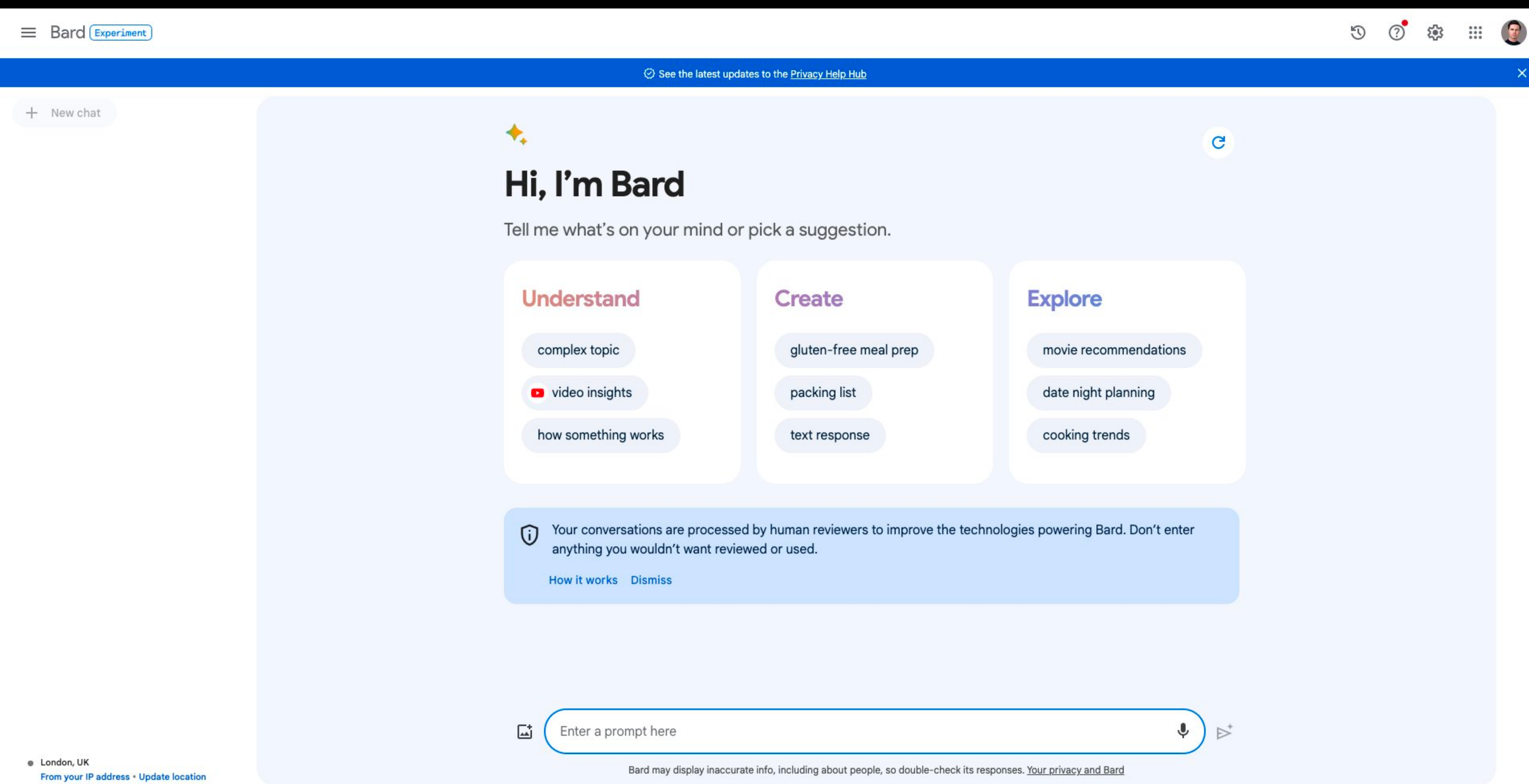| Capability	Benchmark	Description	Gemini Ultra	GPT-4V API numbers calculated where reported numbers were missing
General	MMLU	Representation of questions in 57 subjects (incl. STEM, humanities, and others)	90.0% CoT@32*	86.4% 5-shot* (reported)
Reasoning	Big-Bench Hard	Diverse set of challenging tasks requiring multi-step reasoning	83.6% 3-shot	83.1% 3-shot (API)
	DROP	Reading comprehension (F1 Score)	82.4 Variable shots	80.9 3-shot (reported)
	HellaSwag	Commonsense reasoning for everyday tasks	87.8% 10-shot*	95.3% 10-shot* (reported)
Math	GSM8K	Basic arithmetic manipulations (incl. Grade School math problems)	94.4% maj1@32	92.0% 5-shot CoT (reported)
	MATH	Challenging math problems (incl. algebra, geometry, pre-calculus, and others)	53.2% 4-shot	52.9% 4-shot (API)
Code	HumanEval	Python code generation	74.4% 0-shot (IT)*	67.0% 0-shot* (reported)
	Natural2Code	Python code generation. New held out dataset HumanEval-like, not leaked on the web	74.9% 0-shot	73.9% 0-shot (API)

*See the technical report for details on performance with other methodologies

Gemini Ultra's performance exceeds current state-of-the-art results on 30 of the 32 widely-used academic benchmarks.

With a score of 90.0%, Gemini Ultra is the first model to outperform human experts on Massive Multitask Language Understanding (MMLU).
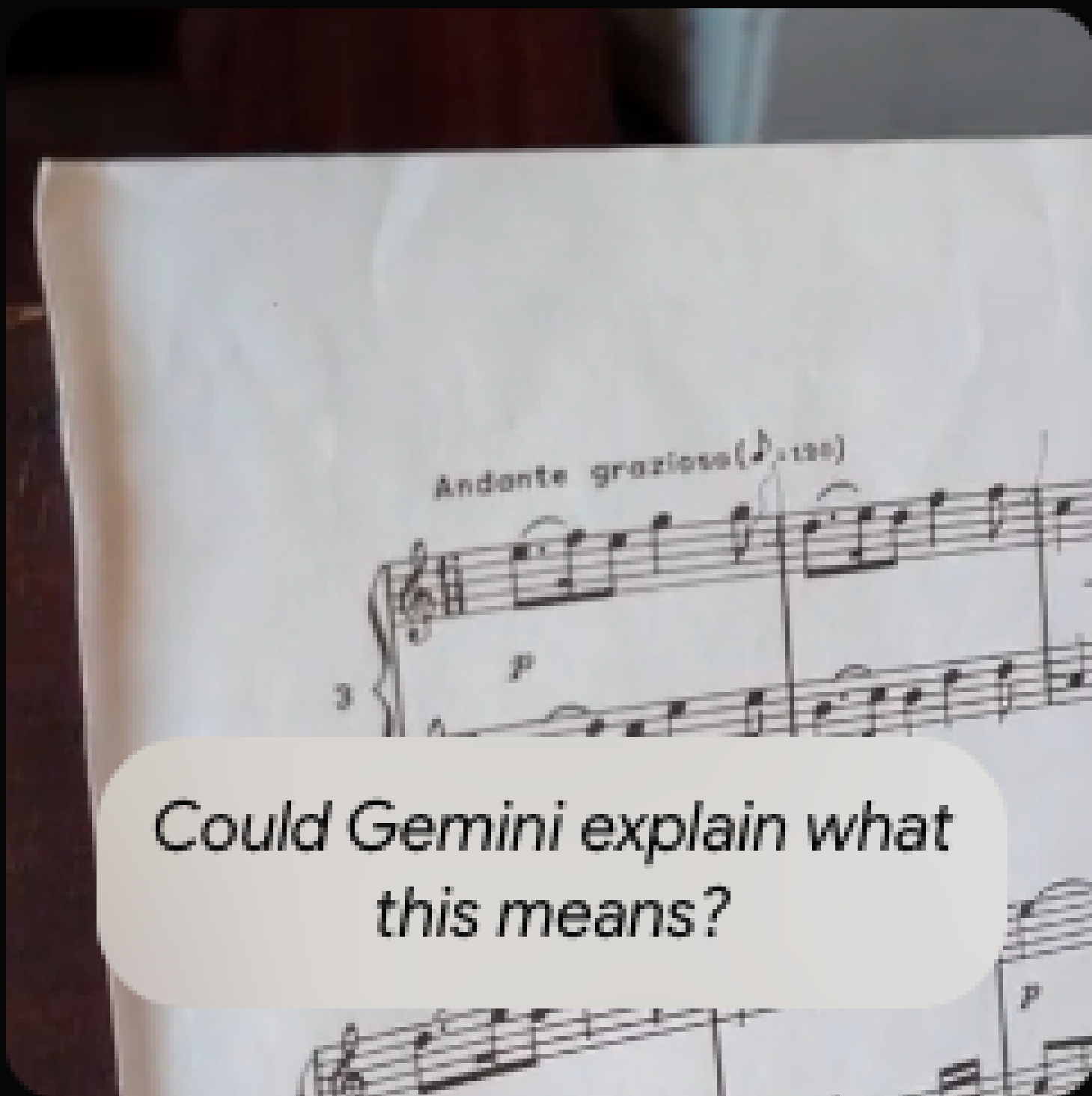
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Integration with Bard

Today, Bard will leverage a refined version of Gemini Pro for advanced reasoning, planning, and comprehension.

In the near future, Google plans to unveil 'Bard Advanced,' incorporating and providing public access to Gemini Ultra by early next year.

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Applications

Gemini's multimodality gives you the potential to transform any type of input into any type of output.

- Generate code based on different inputs
- Generate text and images, combined
- Reason visually across languages

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Development

Build with Gemini

Integrate Gemini models into your applications with Google AI Studio and Google Cloud Vertex AI. Available December 13th.

Coming soon

Starting on December 13, developers and enterprise customers can access Gemini Pro via the Gemini API in Google AI Studio or Google Cloud Vertex AI.

Google is further refining the Gemini Ultra model before making it broadly available early next year.

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