

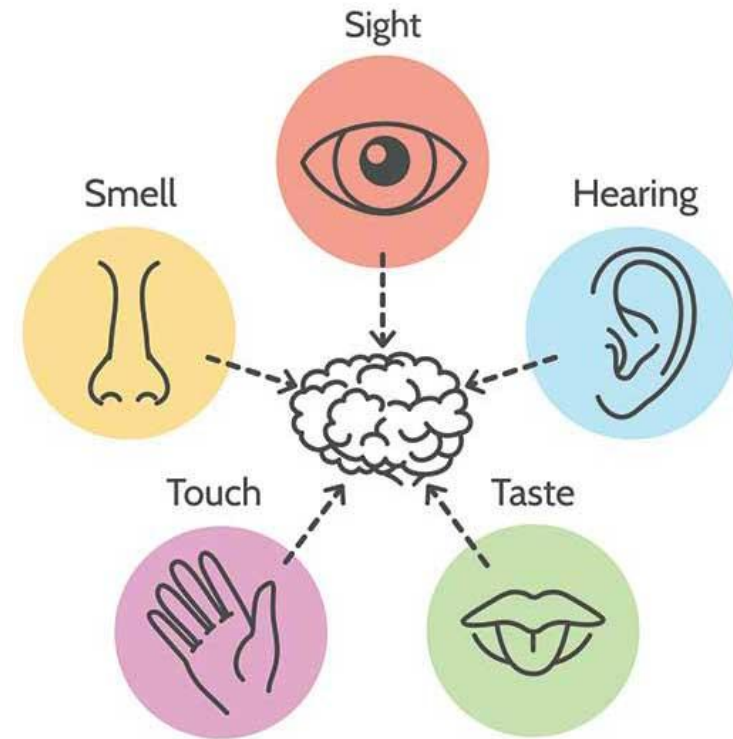
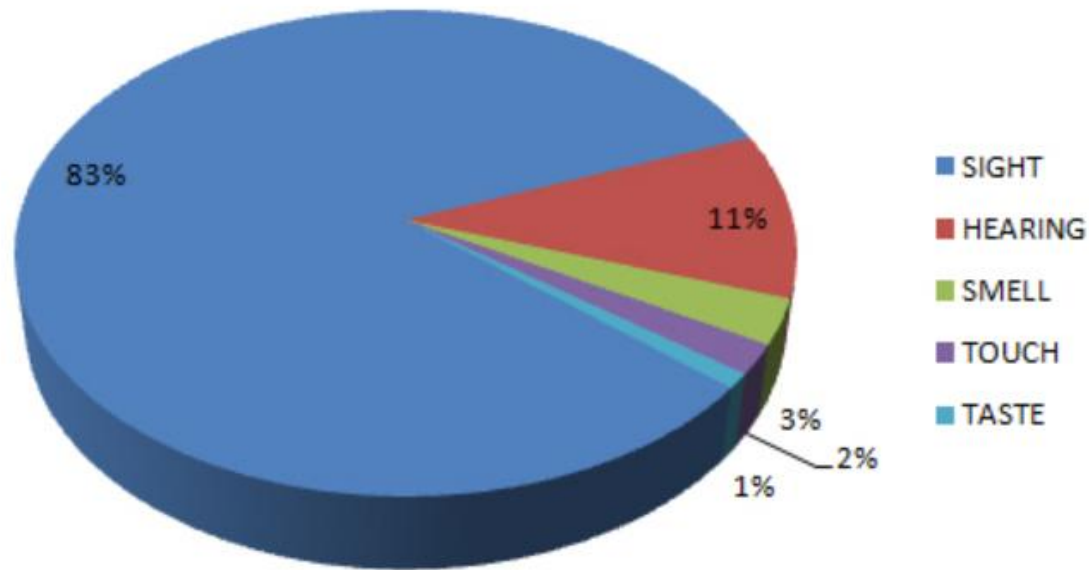
The Intersection of AI and Graphics (AIG)

AI和图形学的结合

陆鸣 <https://lu-m13.github.io/>

Introduction of Visual Data

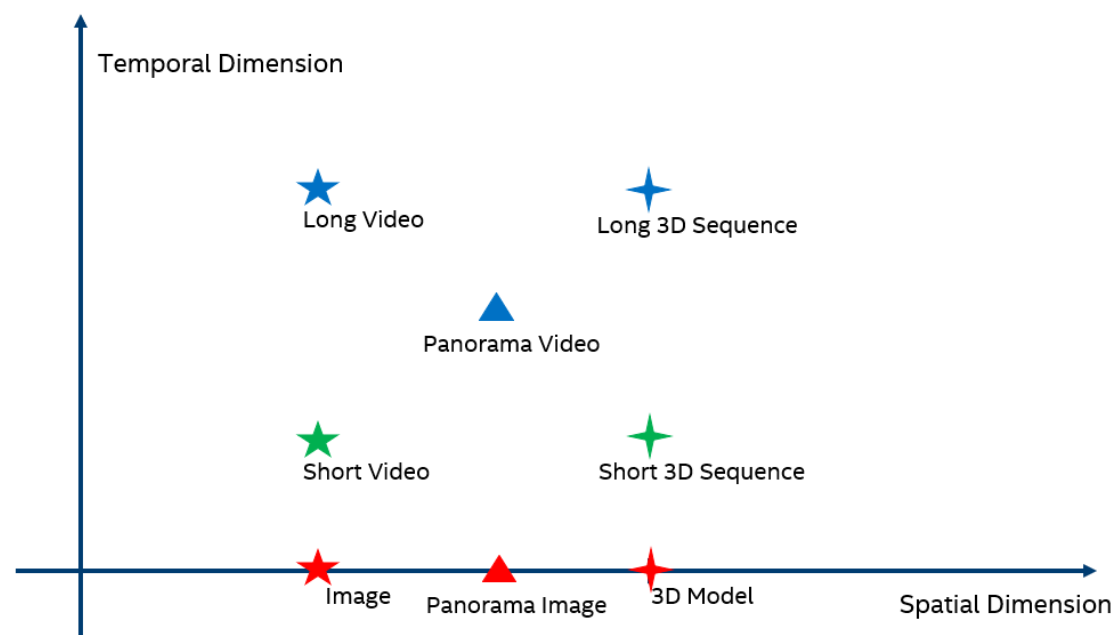
➤ Visual Data



Visual Data is responsible for most of the information from five senses

Introduction of Visual Data

➤ Visual Data



Visual Data



Image



3D Model




Video




3D Sequence

Introduction of Visual AI



Click on a word below and Imagen!

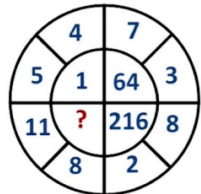
A photo of a An oil painting of a
fuzzy panda British Shorthair cat Persian cat Shiba Inu dog
wearing a cowboy hat and wearing a sunglasses and
red shirt black leather jacket
playing a guitar riding a bike skateboarding
in a garden. on a beach. on top of a mountain.



Click on a word below and Imagen!

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Visual Synthesis

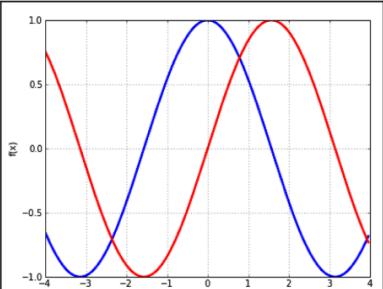


Question: Find the missing value in this math puzzle.

Solution:
 $(5 - 4)^3 = 1$
 $(7 - 3)^3 = 64$
 $(8 - 2)^3 = 216$
Similarly, $(11 - 8)^3 = 27$.
So the missing value is 27.

Answer: 27

Category: Math-targeted
Task: Figure question answering
Context: Puzzle test
Grade: Elementary school
Math: Logical reasoning



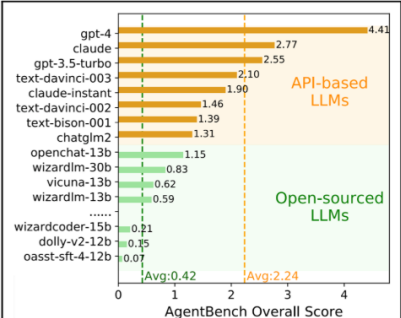
Question: Which function is monotonic in range $[0, \pi]$?

Choices:
(A) the red one (B) the blue one
(C) both (D) none of them

Answer: (B) the blue one

Category: Math-targeted
Task: Textbook question answering
Context: Function plot
Grade: College
Math: Algebraic reasoning

Visual Understanding

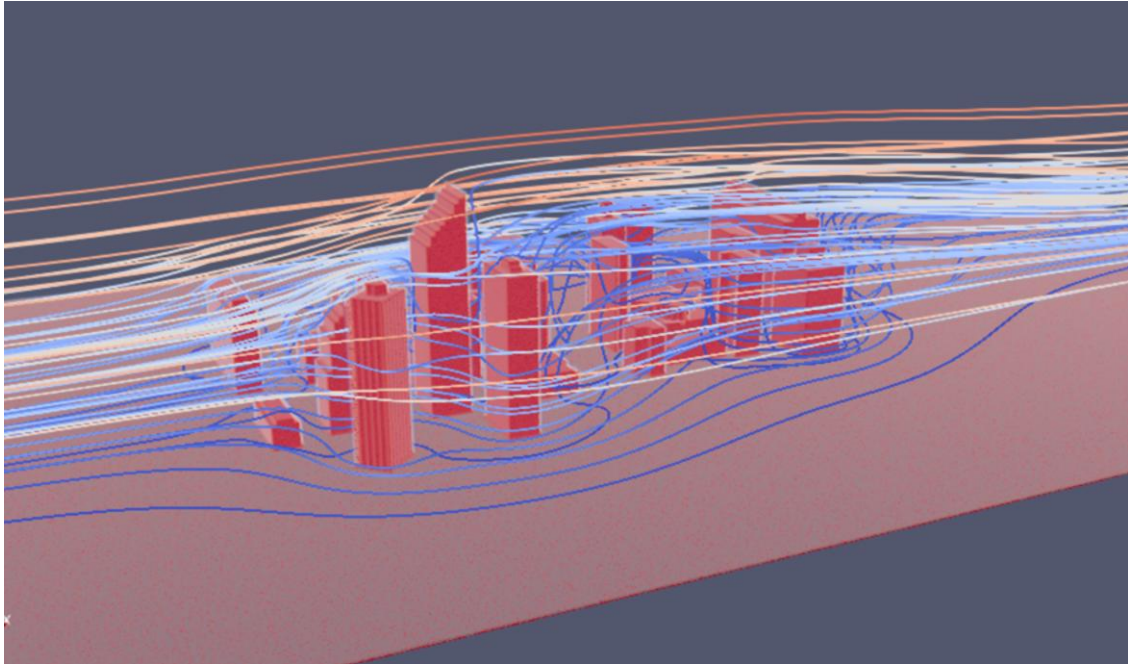


Question: What is the performance gap in the AgentBench Overall Score between the worst API-based LLM and the best open-sourced LLM?

Answer: 0.16

Category: Math-targeted
Task: Figure question answering
Context: Scientific figure
Grade: College
Math: Scientific reasoning

Introduction of Graphics

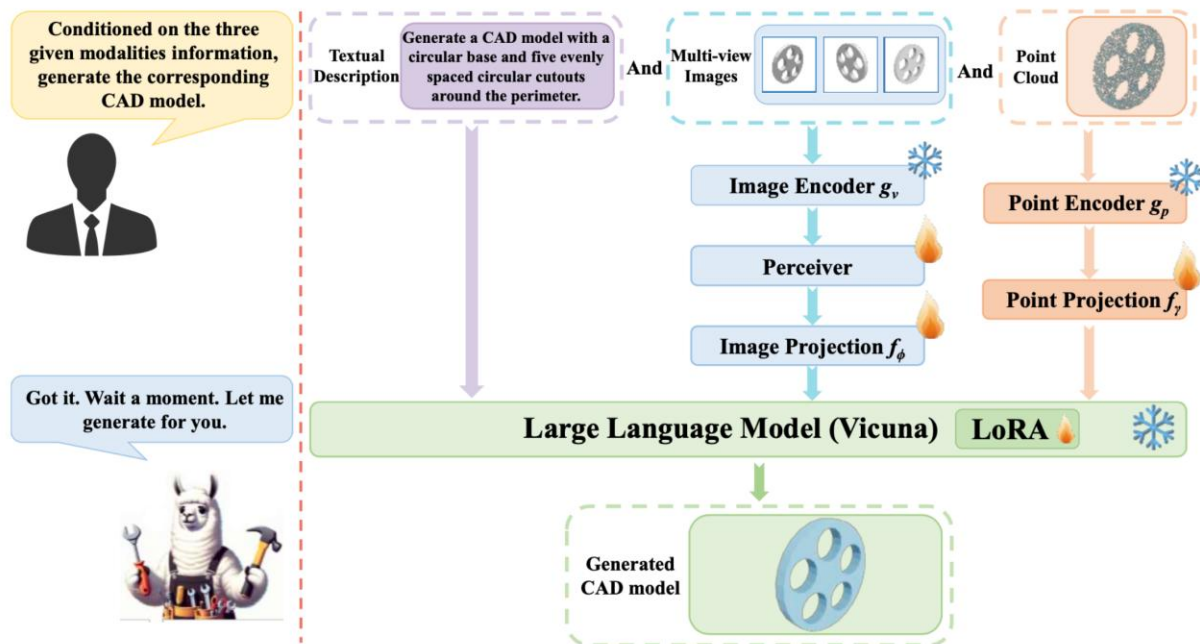


Numerical Simulation

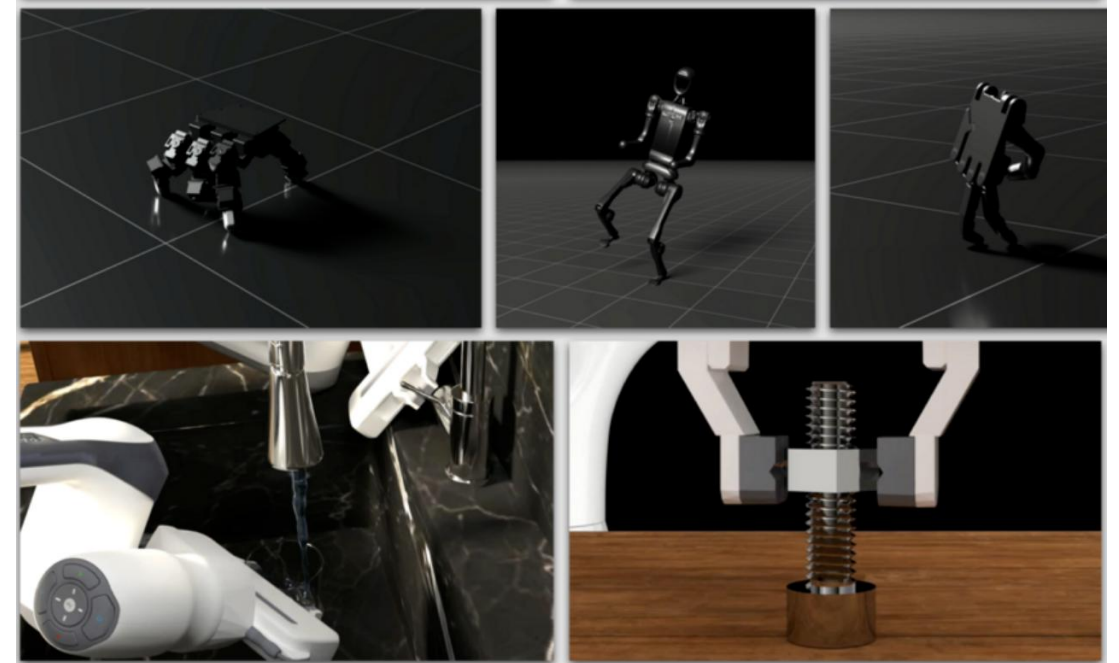


3D Rendering

The Intersection of AI and Graphics (AIG)



VLM + CAD



Neural Field + Embodied AI Simulation