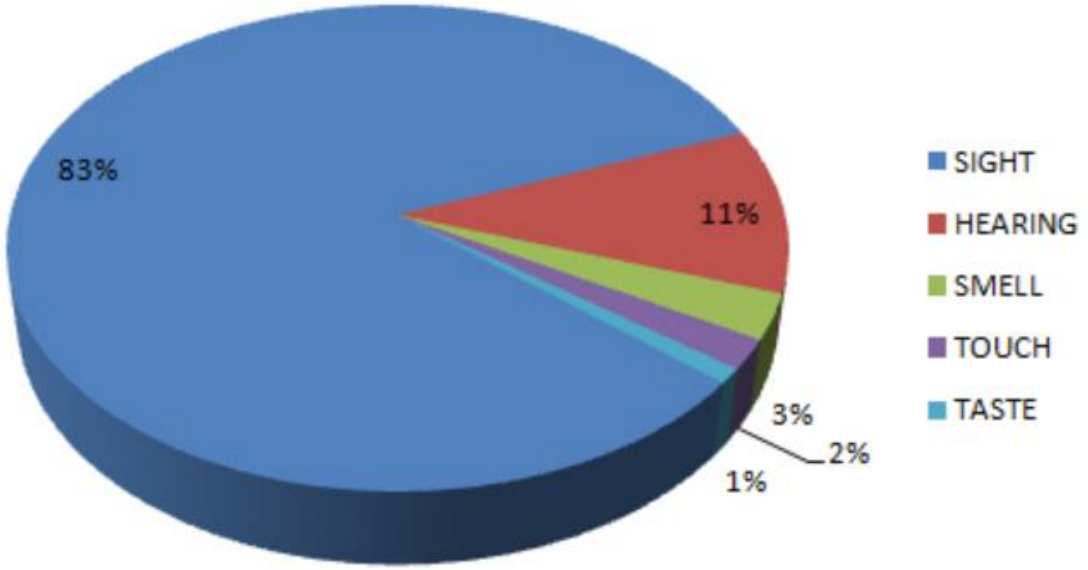
Computer Vision and Computer Graphics

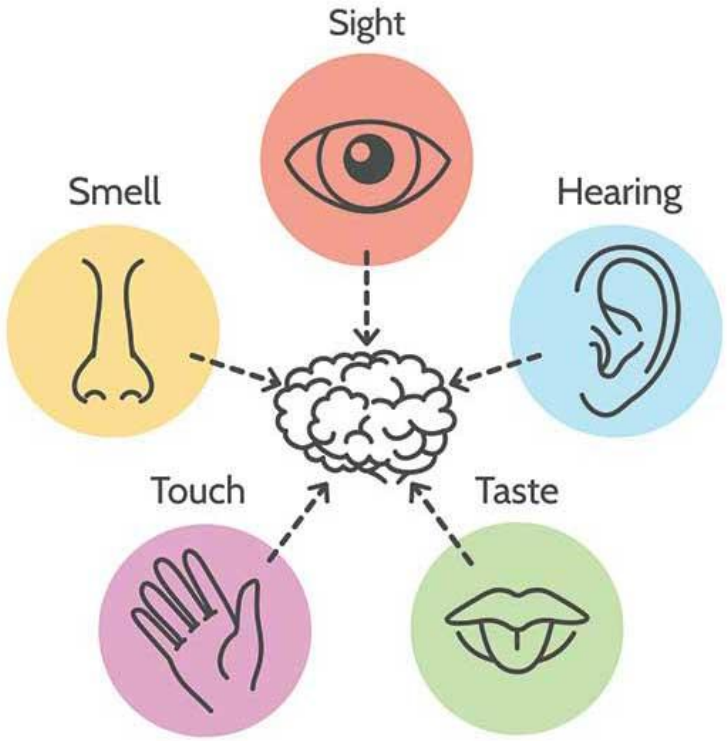
计算机视觉和计算机图形学

陆鸣 https://lu-m13.github.io/

Introduction of Visual Data

- Visual Data



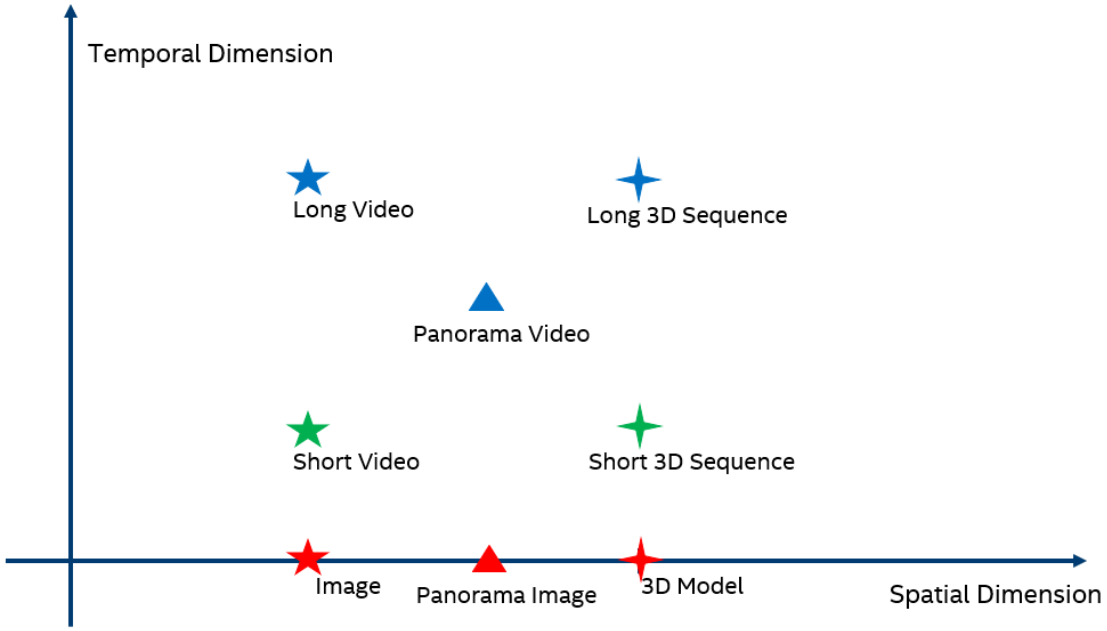


Visual Data is responsible for most of the information from five senses

Cuban L. Oversold and underused[M]. Harvard university press, 2009.

Introduction of Visual Data

- Visual Data



Visual Data

Pinterest

Image

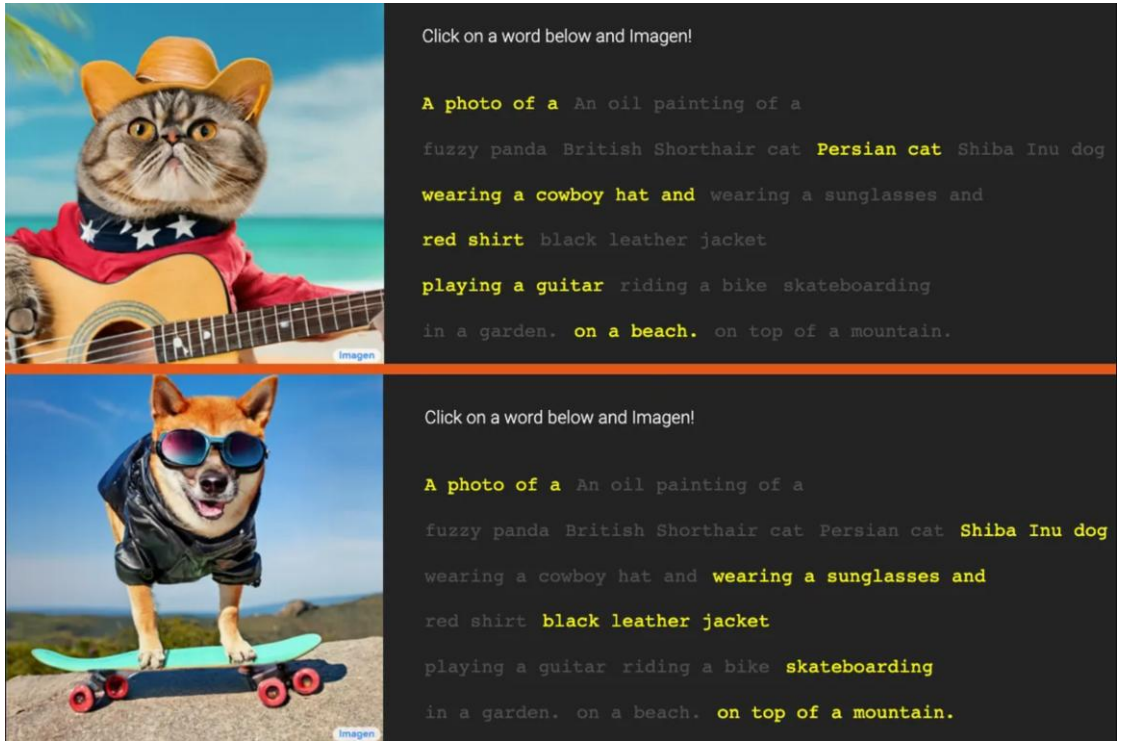
3D Model

YouTube

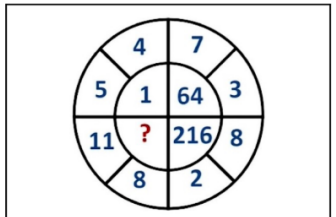
Video

3D Sequence

Introduction of Computer Vision

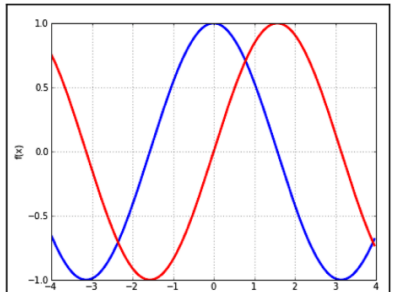


Visual Synthesis



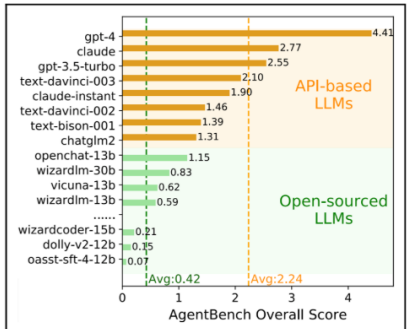
Question: Find the missing value in this math puzzle.
Solution:
$(5 - 4)^3 = 1$
$(7 - 3)^3 = 64$
$(8 - 2)^3 = 216$
Similarly, $(11 - 8)^3 = 27$.
So the missing value is 27.
Answer: 27

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

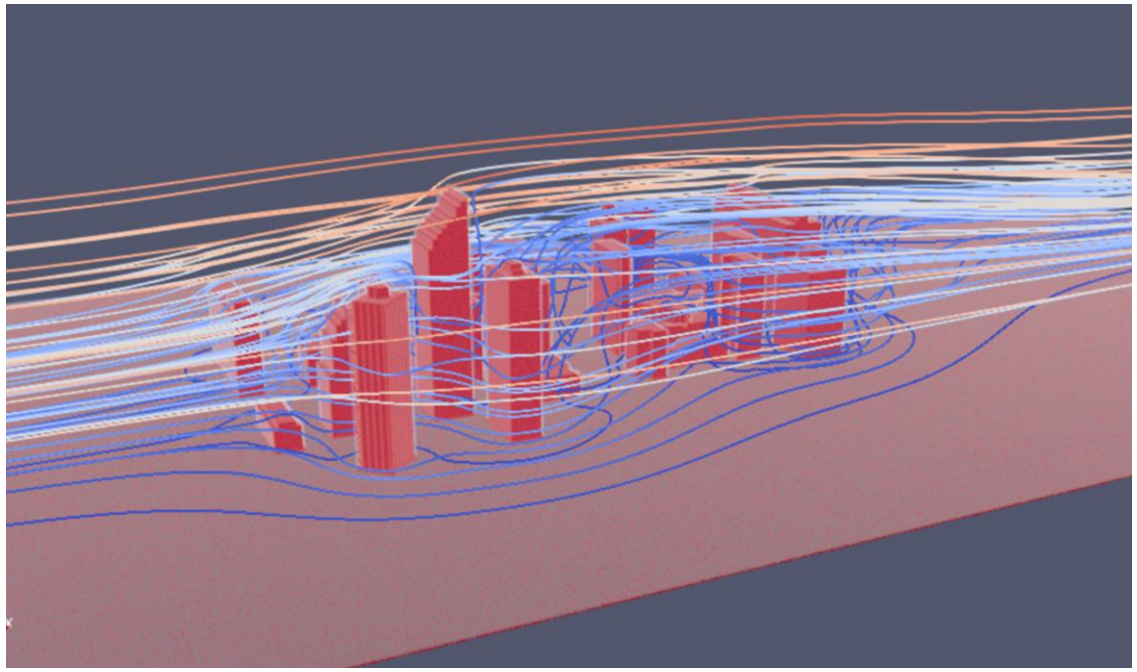


Question: What is the performance gap in the AgentBench Overall Score between the worst API-based LLM and the best open-sourced LLM?
Answer: 0.16

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

Visual Understanding

Introduction of Computer Graphics



Numerical Simulation

3D Rendering