GenAI Evaluation metrics

1.Summary

This report applies what we studied of evaluation metrics on two leading Generative AI models—**ChatGPT (Model A)** and **Gemini (Model B)**—across both text and image modalities. The evaluation employs classical Natural Language Processing (NLP) metrics for text tasks and state-of-the-art Computer Vision metrics for image generation, providing a quantitative framework for comparing model efficacy, alignment, and realism.

2. Text Performance

- Translation: Both models scored 0.0 on BLEU and ROUGE-L, but Gemini demonstrated slightly better fluency with a lower Perplexity score (**9.05** vs. ChatGPT's **9.51**).

- Summarization: ChatGPT clearly outperformed Gemini here, achieving higher reference overlap (ROUGE-L: **0.346** vs. **0.214**) and better Perplexity (**80.30** vs. **104.67**).
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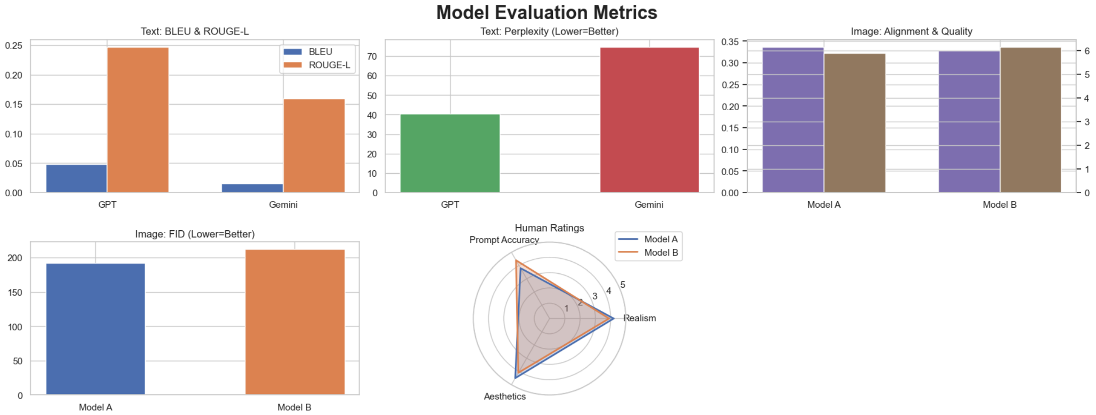
3. Image Performance

- Alignment & Realism**:** ChatGPT (Model A) generated images with better text-prompt alignment (Avg CLIPScore: **0.3367**) and higher realism compared to real photos (FID: **191.79** vs. Gemini's **211.83**).
- Quality & Diversity**:** Gemini (Model B) achieved a higher Inception Score (**6.15** vs. ChatGPT's **5.88**), indicating stronger visual diversity and standalone image quality.

4. Results visualization

(Chatgpt:model A ,Gemini:modelB)



Task	**Metric**	**ChatGPT (GPT)**	**Gemini**
Translation	BLEU	**0.0**	**0.0**
	ROUGE-L	**0.0**	**0.0**
	Perplexity (↓)	**9.51**	**9.05**

Task	Metric	ChatGPT (GPT)	Gemini
Summarization	BLEU	**0.219**	**0.0**
	ROUGE-L	**0.346**	**0.214**
	Perplexity (↓)	**80.30**	**104.67**