آيكوم دبي
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When Artifacts Speak

Embodied Immersion through AI-Generated Artifact Storytelling

11-17/2025

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ICOM international council of museums

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THE FUTURE IS HERE

Objective

Although generative AI has been widely applied in art creation and cultural production, its role in museum artifact storytelling remains underexplored. This study seeks to address how AI reshapes the narrative and experiential dimensions of museum communication.

Generative Artificial Intelligence (GAI) is propelling humanity into an era in which machine learning models are deeply integrated into every aspect of social life. In this new era, general-purpose language models represented by ChatGPT have demonstrated capabilities increasingly comparable to, and in certain respects even surpassing, those of the human mind across a wide range of domains, including the arts and humanities. Consequently, the methodological significance of digital humanities has gradually become more prominent.

Different Mediums: Museum1.0→Museum2.0→Museum3.0

What matters is not the place itself, but the memory of what that place represents.

——Pierre Nora

What is happening?

- **The importance of AI in the museum field will deepen further.**

→According to AAM's 2024 Future of Museums Summit, 72% of respondents for a recent study said their museums are actively discussing possible AI uses. 33% said they are using AI daily. 40% are still exploring potential vs seeing concrete benefit. Out of 19 prominent museums in Europe, 42% have adopted AI in some operations(Kiourexidou & Stamou, 2025).

- **What is the public thinking when it comes to museums?**

→In my survey, the public mentioned many things, with a particular emphasis on their desire for immersive, authentic and interactive experiences. People want to engage with artifacts in a way that feels like traveling back in time, personally experiencing the stories they hold.

AI technologies can enhance the visitor experience, but they are not, by themselves, a reason to visit a museum(French&Villaespesa,2019). However, we can also make the most of AI to improve accessibility and inclusivity while also enhancing the overall experience, thereby attracting more people's attention.

The value of a museum lies not in what it owns, but in what it does.

Code	Theme	Subthemes / Keywords	Description
C1	Cultural Heritage and History	Heritage Preservation, Historical Continuity, Cultural Diversity	Public interest in museums' role in cultural heritage preservation and historical education
C2	Education and Learning	Interactive Learning, Academic Value, Public Participation	Public interest in how museums contribute to education and knowledge dissemination
C3	Exhibitions and Artifacts	Exhibit Display, Temporary Exhibitions, Virtual Exhibits	Public interest in the diversity, innovation, and interactivity of exhibits
C4	Innovation and Technology	Virtual Reality, Augmented Reality, Artificial Intelligence, Digital Resources	How museums use technology to enhance visitor experiences
C5	Community and Social Engagement	Public Participation, Cultural Sharing, Social Issues	How museums promote social dialogue and cultural exchange
C6	Art and Aesthetics	Aesthetic Value, Art Creation, Cross-Genre Art	Museums' role in stimulating aesthetic experiences
C7	Environment and Spatial Design	Architectural Design, Spatial Comfort, Exhibit Atmosphere	Public interest in museum space design and comfort
C8	Emotion and Experience	Emotional Connection, Immersive Experience, Personalized Experience	Public desire for emotional connection and immersion in exhibits
C9	Ethics and Social Responsibility	Cultural Ownership, Artifact Ownership, Public Responsibility	Museums' ethical responsibilities in the preservation and presentation of cultural heritage

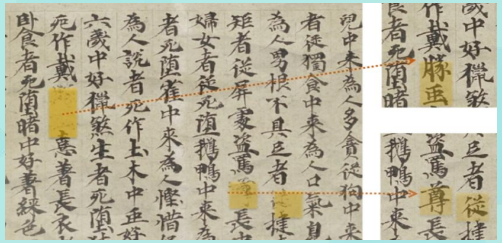
Application scenarios

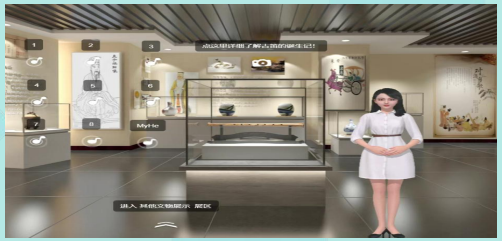
Application scenarios

At present, the application scenarios of artificial intelligence in museums have been increasingly explored, expanding both in scope and in target objects.

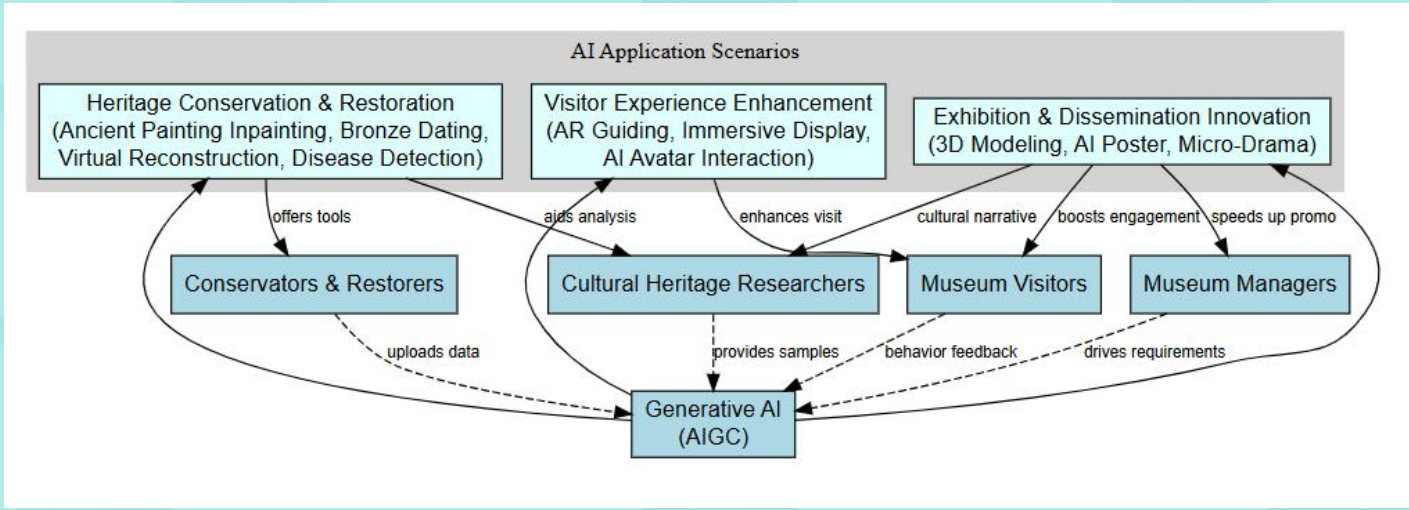
Main Goal: Breaking away from traditional one-way narratives, audiences become the constructors and experiencers of stories, taking on a more active role in both storytelling and engagement.

The development of artificial intelligence has transformed the way we encounter cultural artifacts.







Methodlogy consideration

Let scenes speak.

Let artifacts speak.

Let history speak.

From the traditional era to the digital age, and now to the new era marked by Generative Artificial Intelligence (GAI), each epoch calls for the establishment of a new “method of understanding and storytelling” .Traditional media allow us to **record reality**; digital media enable us to **recreate** it in the cyber world; while generative media empower us to **reconstitute reality itself**.

As noted in OpenAI’s report, applications such as Sora signify a transition of AI from static generation like text and image to dynamic generation (**world simulation**), which means that AI is no longer merely an auxiliary narrator but is becoming a constructor of contexts and a generator of worlds.

For museums, the technological shift carries profound significance. **Stories, memories and emotions** embedded within ancient texts and artifacts can now be digitized and structurally transformed into the “corpus and nourishment” of AI-driven narratives, allowing “silent artifacts” to “speak once more”.

The museum experience has never been purely cognitive, and it is filled with emotion, presence, absence and flow. It is a cultural experience in which empathy emerges through “distance”. Therefore, within the context of generative artificial intelligence, how can we enable AI to generate “stories that belong to us”?

02

SAY A STORY WITH GAI

GAI and its storytelling

AI Applications such as text-to-text, text-to-image, text-to-music and text-to-video are constantly improving, with expanded narrative details and content length.

GAI is also playing an emerging role in game development.(game+museum is possible)

Narrative framework: When generating artifact stories, a clear narrative structure is needed. This includes the historical background, cultural context, plot development, emotional direction and so on.

Narrative structures: linear narrative, nonlinear narrative, interactive narrative.

Narrative Context, motifs, script

Multimodal

All we need is prompts and our patience

GAI and its storytelling

Generative AI models, such as ChatGPT, typically exhibit capacities for **data memory, advanced reasoning and information retrieval from the web.**

Prompts, LLMs, AIGC... (**Characteristic of GAI:** massive data scalability+creative content generation+cross-modal integration+cognitive interactivity)

As the scientific paradigm of AI4S matures, human–AI collaboration has become the key to both the present and the future.

In the context of real-world museums in China, we often observe the public's strong pursuit of knowledge. This pursuit is reflected not only in the acquisition of information about exhibits but also in the active exploration of their historical contexts and cultural meanings. Visitors are no longer content with merely "seeing artifacts", rather they aspire to "understand artifacts" and to enter historical situations through narrative forms of engagement.

Innovation is not a departure from or subversion of traditional culture, but a means of bringing it closer to people's everyday lives in ways that align with contemporary aesthetic sensibilities.

我十六岁在汴京朱雀门外摆纸笔摊时，总见个穿青布长衫的先生蹲在汴河岸边，手里攥着片炭条，在麻纸上飞快勾着什么。他画得入神，有时商船驶过溅起水花，打湿了纸角，他也只伸手抹抹，眼神仍粘在河面上的帆影里。

"小子，你这藤黄磨得细不细？"那日他终于起身朝我走来，指了指我摊上的颜料。我赶紧取来砚台，把藤黄块研成粉，兑了温水搅成稠汁——他接过瓷碟，转身就往画稿上涂，那抹明黄竟成了船头插的酒旗，风一吹似要从纸上飘起来。

后来我便常跟着他。先生姓张，名择端，总说"画市井要贴着地走"。每日天不亮，我们就揣着炭条和空白纸，去虹桥下候着。他教我看：桥堍下卖炊饼的王二，胳膊肘总往左边拐；撑船的李老栓，掌舵时左脚会轻轻点船板；还有那挑着货担的小贩，扁担压得弯，腰却挺得直。"这些不是瞎画的，是日子的模样。"他边说边在纸上勾出挑夫的肩线，炭条划过纸面，沙沙声混着虹桥上的吆喝，倒像奏起了曲。

有次暴雨前，我们在汴河码头躲雨，见艘粮船卡在桥墩下，船夫们急得直跺脚。先生却拉着我蹲在茶肆屋檐下，飞快记录：有的船夫脱了上衣拽缆绳，脊背的筋肉绷得像拉满的弓；有的站在船头喊号子，嘴张得老大；还有个老船夫，正往船底塞木楔，手指关节泛着白。雨停后，他把画稿铺在茶桌上，添了几笔水汽，那艘被困的粮船竟像要从纸里晃起来，连船夫额头的汗都透着急。

入了冬，先生被召进翰林图画院，却仍常拉着我去市井转。院里给的宣纸细腻，他却偏要我去城外买粗麻纸——"汴京的烟火气，粗纸才兜得住。"有回我们在州桥旁的脚店歇脚，他盯着店里的酒坛看了半宿，连酒保擦坛子的手势都记在纸上。回院后，他让我磨墨，自己调了赭石和墨汁，在纸上画酒坛，坛口的釉色竟泛着光，像刚从窑里烧出来的新坛。

画了三年，先生的稿纸堆得比我人还高。那年清明，他把所有画稿铺在院里的长桌上，从晨雾未散画到暮色染红汴河。我帮他把调好的花青汁递过去，他蘸了些画河水，那水竟透着凉，连河底的细沙都隐约可见；又蘸了朱砂点桥上行人的衣襟，瞬间添了几分活气。画到虹桥时，他停了笔，让我去桥边找卖糖葫芦的小儿——"少了那串红，桥就少了暖意。"

定稿那日，院里的人都来瞧。先生站在画前，手指轻轻拂过虹桥上的人群，忽然转头把支狼毫笔塞给我："这笔给你。往后看市井，别只看热闹，要看热闹里的人，人心里的日子。"

后来我再没见过先生。听说他把画呈给了徽宗，御笔题了"清明上河图"五个字。我常揣着那支笔，去汴河岸边蹲坐，像当年那样在纸上勾帆影、画桥墩。有时风卷起河面的柳絮，落在纸上，我总觉得先生还在身旁，指着远处的商船说："你看，那船帆的弧度，是被汴京的风揉出来的。"

如今汴京的繁华早成了旧梦，可每当我展开临摹的画稿，总见虹桥下的炊饼摊还冒着热气，船夫的号子还在河面飘着，连州桥旁的酒坛，都似还盛着当年的酒香——那是先生用三年时光，把汴京的烟火，都锁进了画里。

When I was sixteen, I ran a stall selling paper and writing brushes outside Zhuque Gate in Bianjing—the capital of China's Northern Song Dynasty (960–1127). Almost every day, I'd see a scholar in a indigo linen robe squatting by the Bian River. He clutched a charcoal stick, sketching furiously on a sheet of hemp paper. He was so absorbed in his work that once, a passing merchant ship splashed water onto his paper, but he only brushed it off, his eyes still fixed on the sails gliding across the river.

"Young man, is your gamboge ground finely?" One day, he finally walked over to my stall, gesturing at the pigments I sold. I hurried to fetch an inkstone, ground the gamboge into a fine powder, and mixed it with warm water to make a thick paste. He took the porcelain dish, turned, and brushed the yellow onto his sketch—and in an instant, it became a wine flag fluttering from a boat's bow, seeming ready to dance off the paper as the wind blew.

After that, I often followed him. The scholar was Zhang Zeduan, a renowned painter who always said, "To capture the bustle of the marketplace, you must stay close to the earth—close to real life." Every dawn, we'd tuck charcoal sticks and blank paper into our sleeves and wait by Hongqiao ("Rainbow Bridge"), the iconic wooden arch bridge over the Bian River. He taught me to observe: Wang Er, the flatbread vendor at the bridge's base, always bent his elbow to the left; Uncle Li, the boatman, tapped his left foot lightly when steering; and the peddler with a load on his shoulder—his carrying pole curved under the weight, but his back stayed straight. "These details aren't random," he'd say, sketching the porter's shoulder line. The scratch of charcoal on paper mingled with the shouts from Hongqiao, like an impromptu melody.

Once, just before a heavy downpour, we took shelter under the eaves of a teahouse by the river dock. A grain ship had gotten stuck under the bridge pier, and the boatmen were stamping their feet in panic. But Master Zhang pulled me down to squat, sketching rapidly: one boatman had stripped off his tunic to haul a cable, his back muscles taut like a drawn bow; another stood at the bow, yelling commands with his mouth wide open; an elderly boatman was wedging wooden blocks under the hull, his knuckles white with effort. After the rain stopped, he spread the sketch on the teahouse table and added a few strokes to depict mist—suddenly, the stranded ship seemed to sway on the paper, even the sweat on the boatmen's foreheads conveying their urgency.

When winter came, Master Zhang was summoned to the Hanlin Imperial Academy of Painting (the imperial art institution of the Song Dynasty). Yet he still took me to wander

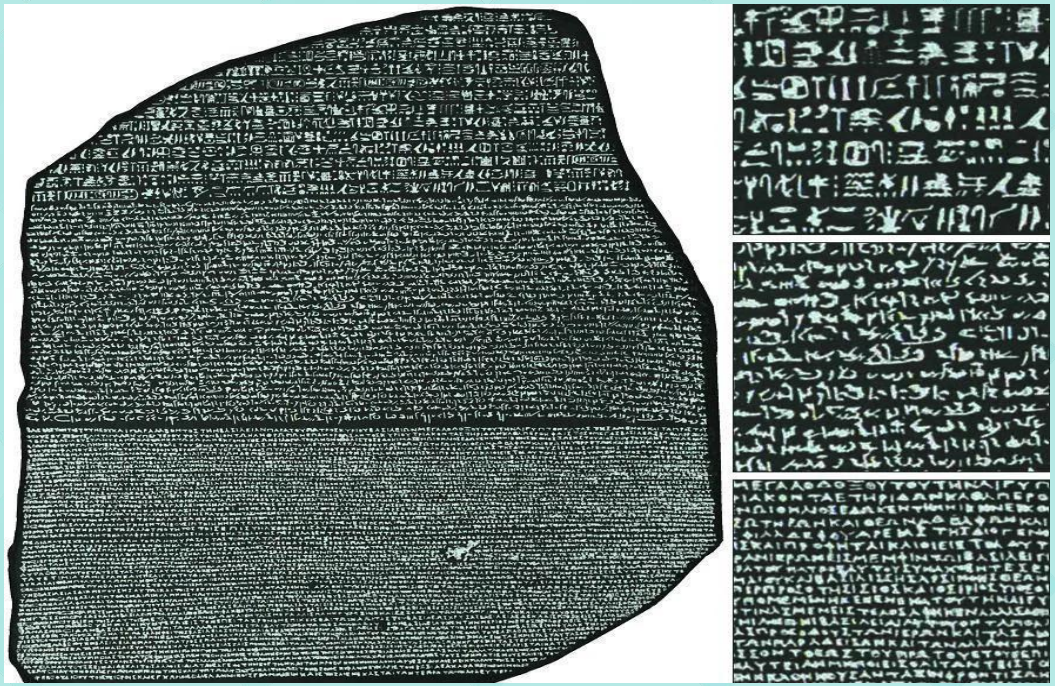
different prompts, different styles

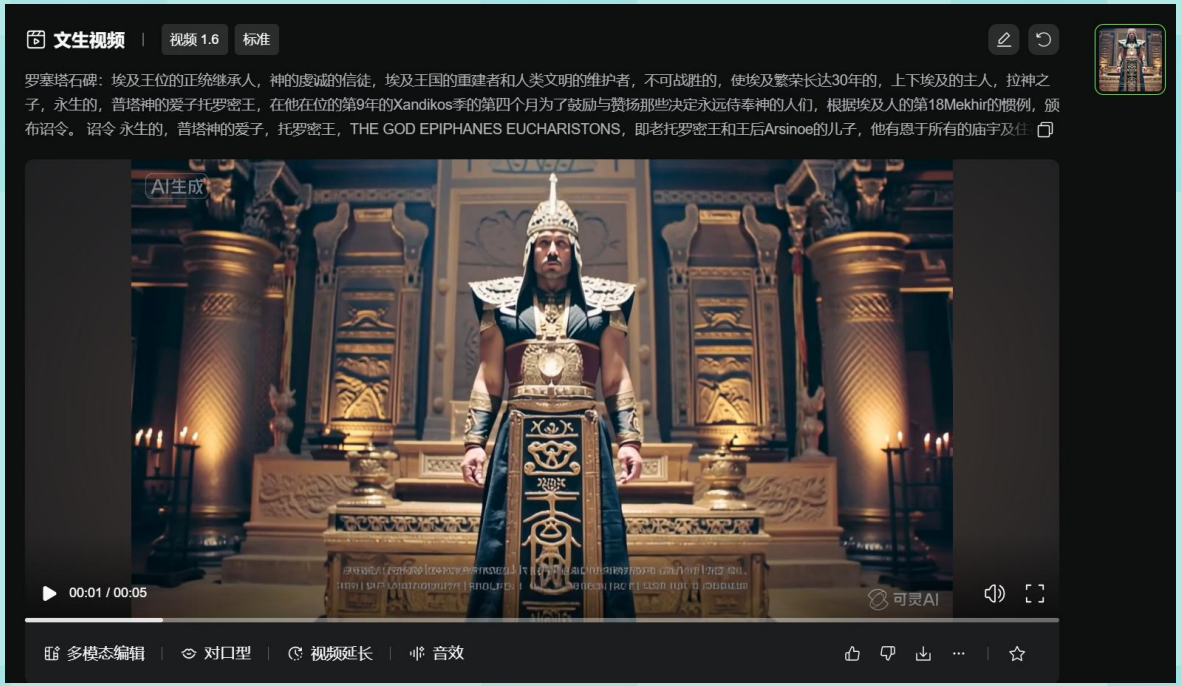
GAI and its storytelling

Sora, Sora2, Kling(可灵), Dreamina(即梦) and so on→text to video/ picture to video→**all we need is data and prompts**

Research and narrative can be intergrated/ AI-generated video's time span will be longer in the future.

Starting from the development of a generative AI-based narrative system, with the process involving users interacting with the machine through natural language to generate story scripts, and resulting in the presentation of diverse narrative discourses, this approach establishes a new model for cultural story creation(Li et al,2025).





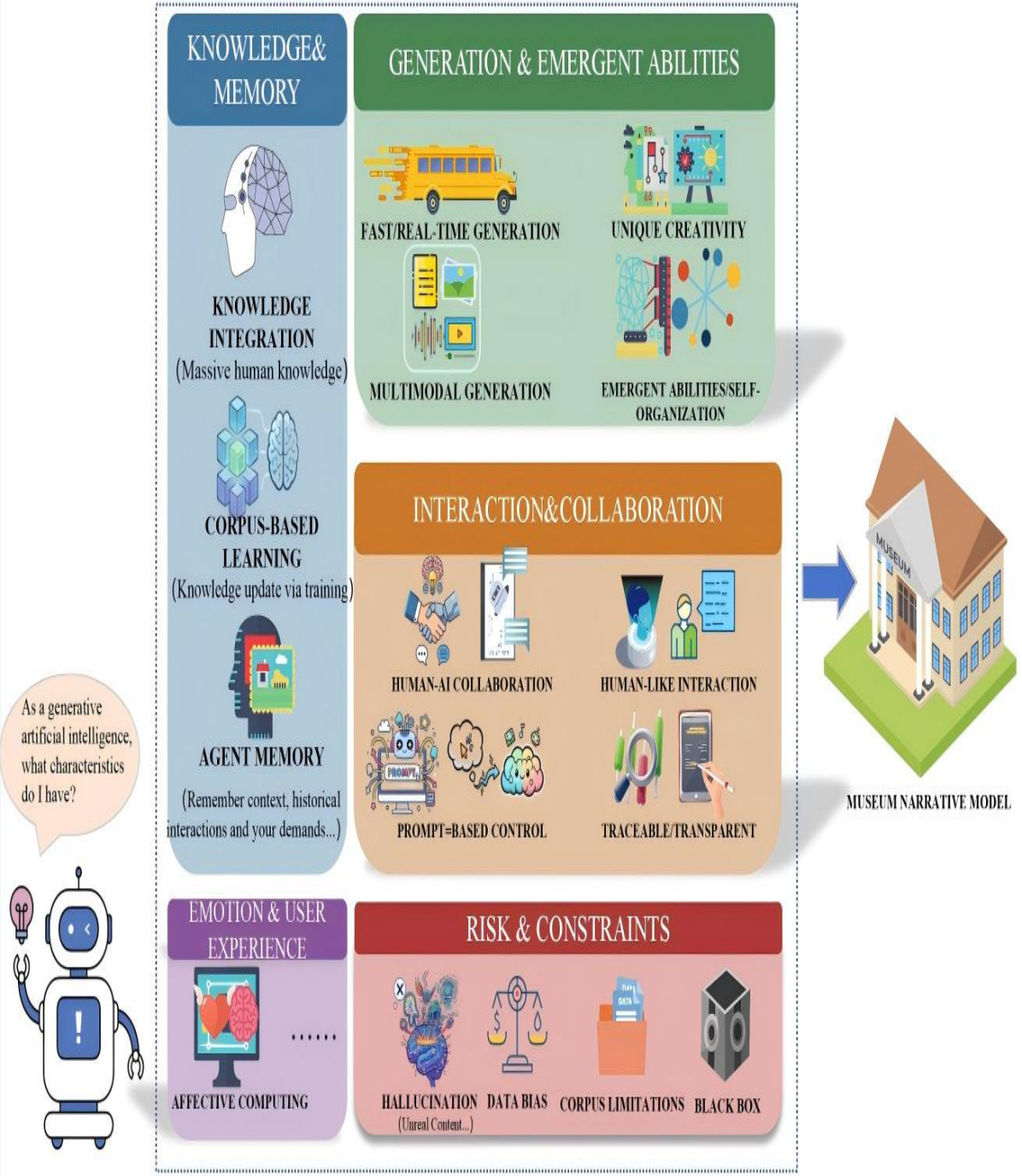
GAI and its storytelling

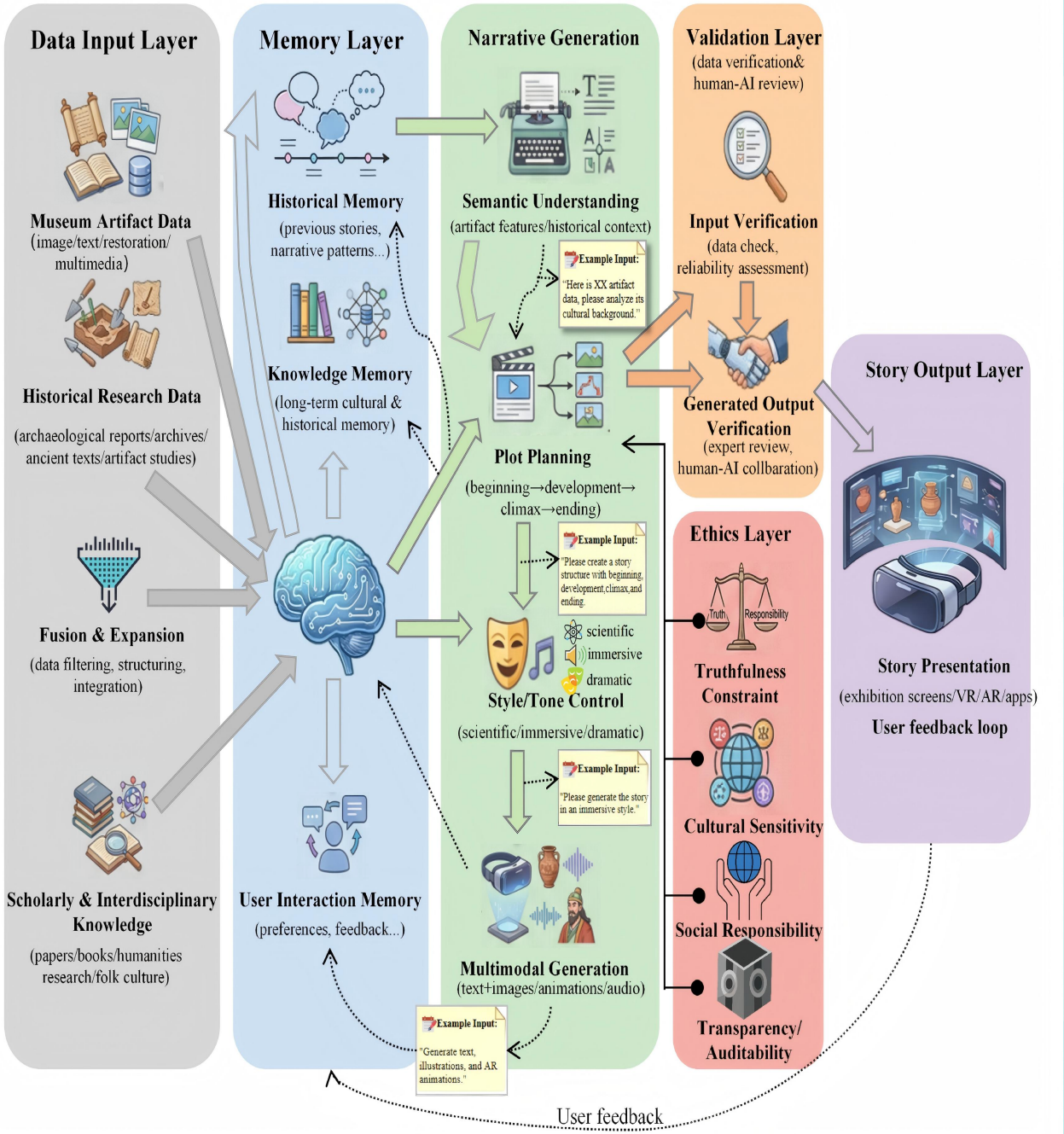
Knowledge production, free creation, collaborative experience.

- 68% of visitors expressed interest in the application of GAI in museums, especially in providing personalized stories and interactive narratives.
- After experiencing AI-driven storytelling, 62% of visitors reported a deeper understanding of the historical background and cultural value of the exhibits.
- 73% of visitors stated that AI storytelling showcased the immense potential of museums in information dissemination and interactive experiences, not only displaying items but also offering an emotional connection with history.

The empirical findings demonstrate that the introduction of GAI fundamentally augments the museum's narrative capacity. Traditionally, museum narration has been limited to the curator's voice, which is linear, didactic and constrained by material representation and the specific spaces. By contrast, GAI enables museums to generate vivid and adaptive narrative styles and stuctures, where textual and visual elements are co-produced in response to audience engagement. This generativity transforms the museum from a medium of representation into a medium of re-creation.

Moreover, the affective and participatory dimensions of AI-generated storytelling significantly enhance the communicative vitality of artifacts. Through personalized narrative voices and multimodal generation, artifacts acquire expressive agency, allowing visitors to experience them not as static exhibits but as active narrators of history. Thus, the application of GAI does not merely digitize museum interpretation, it reshapes the way museum stories are told.

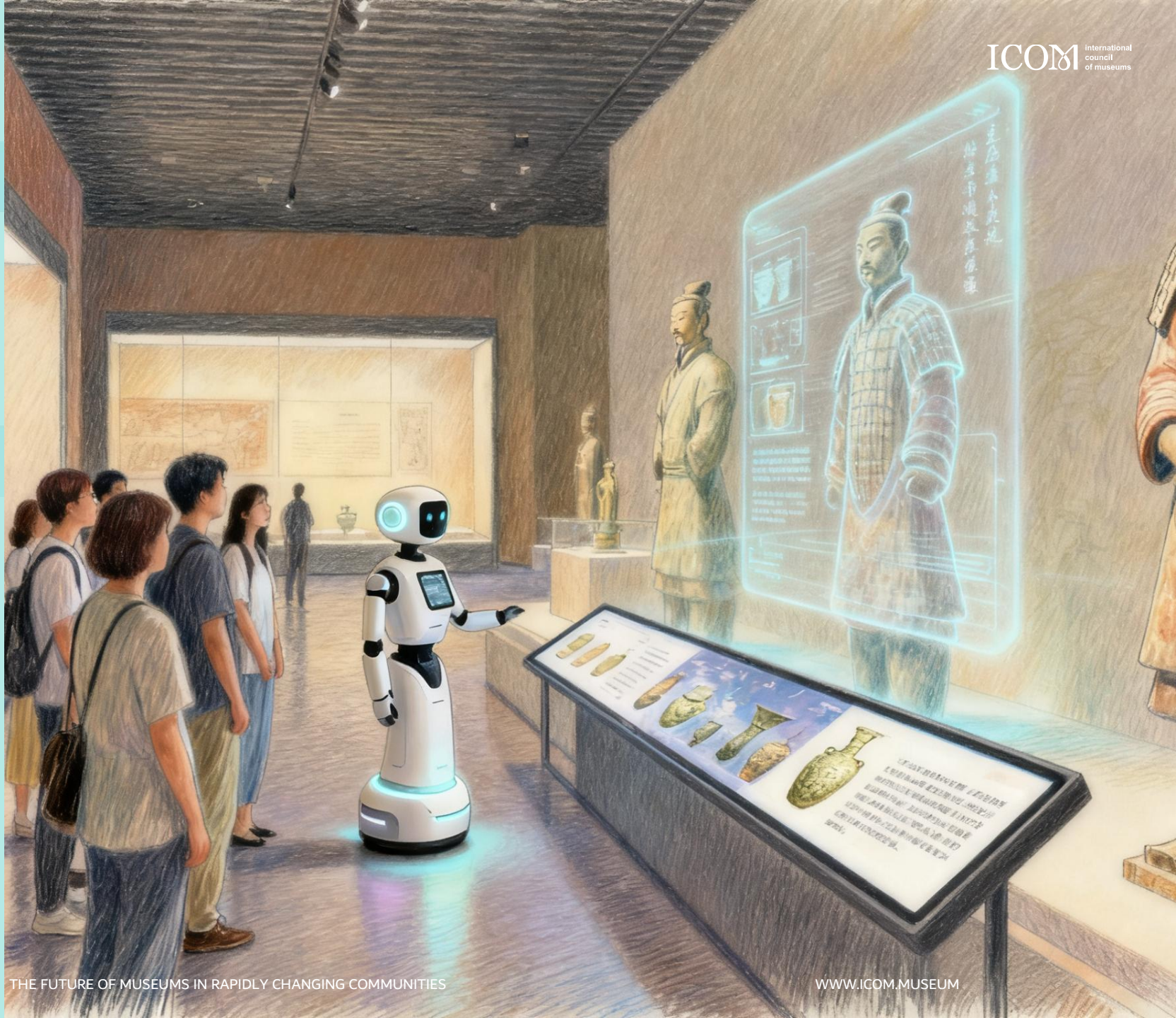

KNOWLEDGE& MEMORY
KNOWLEDGE INTEGRATION
(Massive human knowledge)
CORPUS-BASED LEARNING
(Knowledge update via training)
AGENT MEMORY
(Remember context, historical interactions and your demands...)
GENERATION & EMERGENT ABILITIES
FAST/REAL-TIME GENERATION
UNIQUE CREATIVITY
MULTIMODAL GENERATION
EMERGENT ABILITIES/SELF-ORGANIZATION
INTERACTION&COLLABORATION
HUMAN-AI COLLABORATION
HUMAN-LIKE INTERACTION
PROMPT=BASED CONTROL
TRACEABLE/TRANSPARENT
EMOTION & USER EXPERIENCE
AFFECTIVE COMPUTING
.....
RISK & CONSTRAINTS
HALLUCINATION
(Unreal Content...)
DATA BIAS
CORPUS LIMITATIONS
BLACK BOX
As a generative artificial intelligence, what characteristics do I have?
MUSEUM
MUSEUM NARRATIVE MODEL


Generative AI Museum Storytelling System
Data Input Layer
Museum Artifact Data
(image/text/restoration/ multimedia)
Historical Research Data
(archaeological reports/archives/ ancient texts/artifact studies)
Fusion & Expansion
(data filtering, structuring, integration)
Scholarly & Interdisciplinary Knowledge
(papers/books/humanities research/folk culture)
Memory Layer
Historical Memory
(previous stories, narrative patterns...)
Knowledge Memory
(long-term cultural & historical memory)
User Interaction Memory
(preferences, feedback...)
Narrative Generation
Semantic Understanding
(artifact features/historical context)
Example Input:
"Here is XX artifact data, please analyze its cultural background."
Plot Planning
(beginning→development→ climax→ending)
Example Input:
"Please create a story structure with beginning, development, climax, and ending."
scientific
immersive
dramatic
Style/Tone Control
(scientific/immersive/dramatic)
Example Input:
"Please generate the story in an immersive style."
Multimodal Generation
(text+images/animations/audio)
Example Input:
"Generate text, illustrations, and AR animations."
Validation Layer
(data verification& human-AI review)
Input Verification
(data check, reliability assessment)
Generated Output Verification
(expert review, human-AI collbaration)
Ethics Layer
Truth
Responsibility
Truthfulness Constraint
Cultural Sensitivity
Social Responsibility
Transparency/ Auditability
Story Output Layer
Story Presentation
(exhibition screens/VR/AR/apps)
User feedback loop
User feedback

Changin

03

ETHICAL CONSIDERATIONS AND LESSONS



Ethical considerations

1.There is a risk of data leakage during both the experiential and generative processes.

2.Issues of cultural authenticity, accuracy, completeness and transparency→blurring the line between falsehood and truth (the requirement for accuracy and fidelity in cultural communication).

3.AI's replaceability of human practitioners→value conflicts among professionals+the relinquishment of human autonomy and control may lead to a dilemma of cultural innovation and creative impoverishment.

4.Non-localized and non-minority perspectives in interpretation→covert embedding of bias and injustice (the "human" attributes of training data and algorithms).

5.Loss and redefinition of responsibility.

6.Infringement and controversies over the re-creation of cultural artifacts.

7.Benjamin's aura.

8.Is it to be treated as a method or merely as a gimmick?

.....

Historical Accuracy & Authenticity

Cultural Sensitivity & Bias

Audience Autonomy & Psychological Impact

Intellectual Property & Cultural Ethics

Accountability & Governance

The principles we need to follow

Principle	Implementation
1. Principle of Historical Authenticity	**AI-generated narratives must be grounded in verifiable historical evidence and scholarly sources.** Establish content review committees; clearly label AI-generated materials;Improve the ethical self-check mechanism of GAI museum storytelling....
2. Principle of Cultural Respect	**AIGC must respect cultural diversity and avoid reinforcing stereotypes or cultural bias.** Diversify training datasets; include expert review for sensitive themes; respect interpretive rights of minority communities...
3. Principle of Transparency and Human-led	**The sources, logic and processes of AI generation should remain transparent, with human experts retaining interpretive authority.** Disclose model origins; mark AI-generated sections in exhibitions; maintain human editing and approval rights...
4. Principle of Accountability and Traceability	**Clarify the responsibilities of all stakeholders in the design, production and communication of AI-generated narratives.** Develop internal ethical standards; document content provenance; establish institutional-level supervision systems...
5. Principle of Human-Centered	**AI applications should enhance, not replace, human emotional and cognitive engagement in cultural experience.** Retain human narrators or curators; encourage visitor interaction and critical reflection...

Museums are spaces for human reflection and empathy, not technological dominance.

Conclusion:we call for more chances

The emergence of generative artificial intelligence has not only sounded the bell of the singularity moment but also transformed the way museums tell stories. At present, under the influence of GenAI, historical artifacts possess greater interactivity and accessibility for audiences. Technological advancements have enriched our sense of immersion and enhanced the flow experience. Humans are inherently drawn to stories, and visitors yearn to understand the imaginative and emotionally resonant histories behind artifacts. The generative capabilities of AI embody extraordinary potential for creativity, reinforcing deeper emotional connections with humans through affective computing and improving the retention and memorization of cultural knowledge, allowing previously overlooked or marginalized voices to return. Although GenAI offers new possibilities for innovating museum narratives and methods of dissemination, it still faces challenges such as AI hallucinations and data biases, making ethical governance crucial to ensure responsible implementation, so that GenAI can become a powerful tool for reimagining museum experiences while remaining creative and inclusive.

It’s time for us to take actions

THANKS FOR YOUR ATTENTION

When Artifacts Speak: Embodied Immersion through AI-Generated Artifact Storytelling

11-17/2025

YiFan Zhao