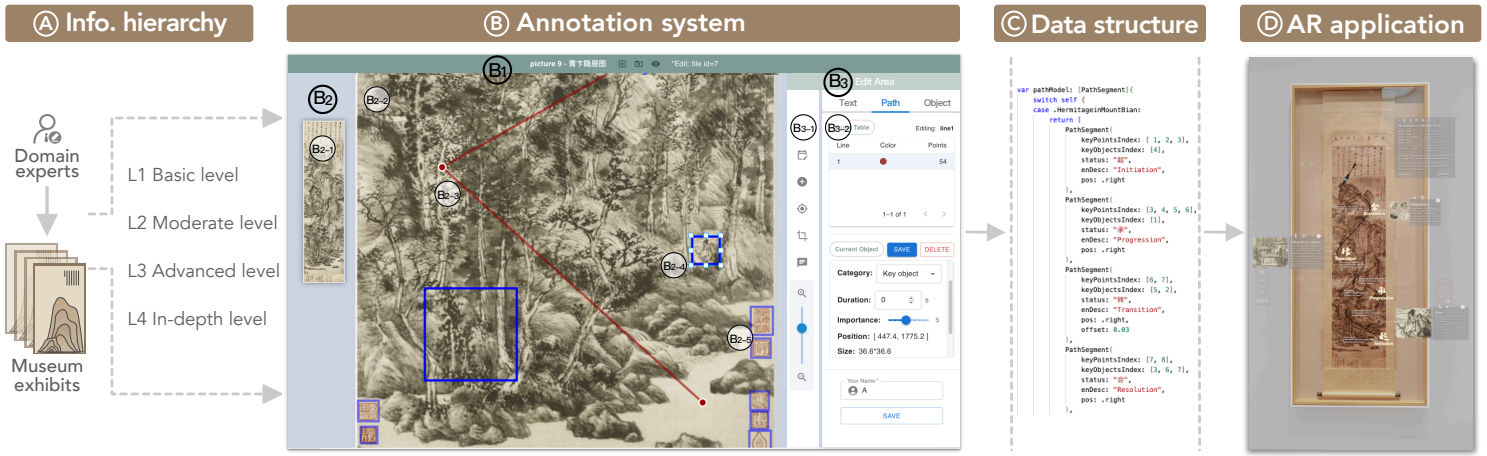
ARtiVision: Bridging Expert Knowledge and Visitor Experience through Gaze-Guided Artifact Interpretation in AR

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Problems & Ideas

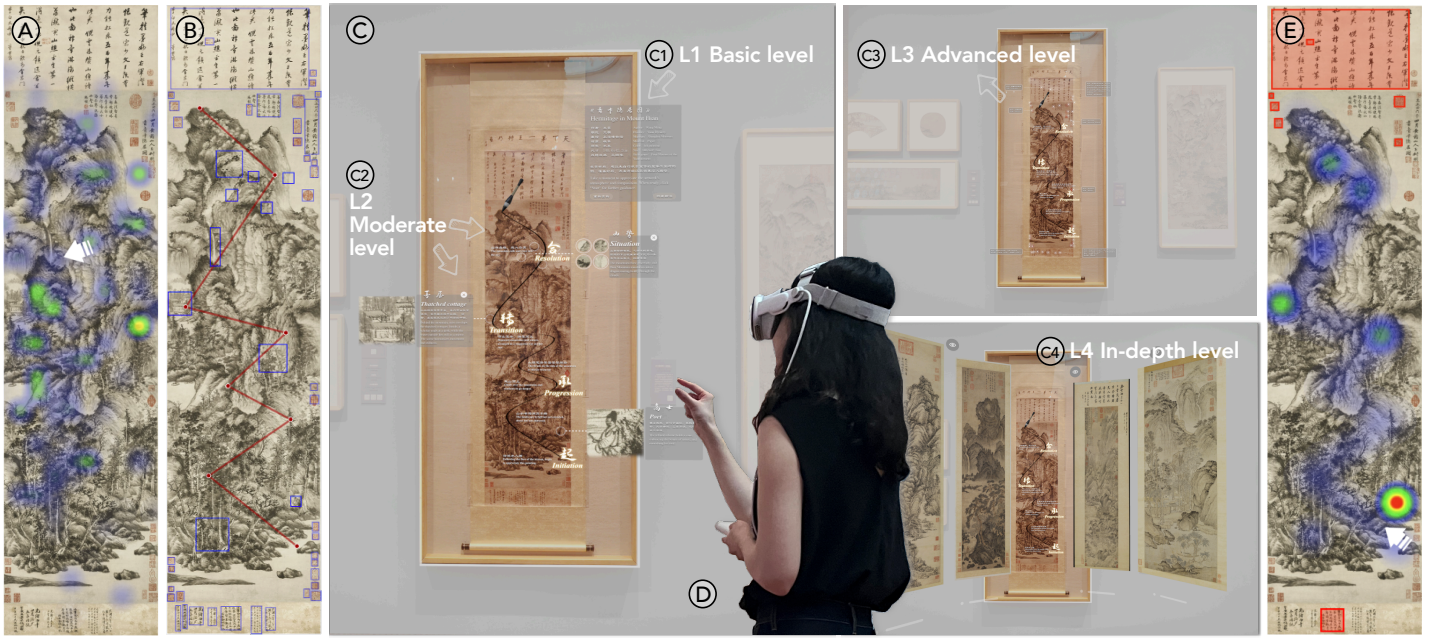
- Problems of conventional museum guidance approaches:
  - Traditional museum guidance methods are often static and weakly interactive. They make it difficult to effectively convey curatorial intent and guide visitors' attention to key visual and cultural details.
  - Visitors' viewing behavior is often scattered, resulting in superficial understanding and limited knowledge retention.
- Ideas: A gaze-guided augmented reality framework that integrates expert-curated interpretation with visitor attention behavior, enabling layered, personalized, and immersive artifact exploration.



ARtiVision framework: (A) Experts define a four-level information hierarchy; (B) artifacts are annotated via a annotation system; (C) annotations are structured into data; (D) AR application renders four-level guidance for visitors.

Main Contributions

- Contributions:
  - A hierarchical artifact appreciation model derived from curator interviews and visitor eye-tracking data, emphasizing the role of guided visual sequencing in art interpretation.
  - A gaze-guided AR framework, ARtiVision, that integrates expert-driven annotation and gaze-responsive visualization to support layered, context-aware interpretation and enhance both visitor experience and curatorial workflows.
  - A user study validating the ARtiVision, showing improvements in artifact interpretation and sustained engagement.



Overview of the ARtiVision framework for gaze-guided artifact interpretation. (A) Visitor viewing heatmap without guidance, showing dispersed attention. (B) Expert annotations with viewing path and focal areas on a traditional Chinese painting. (C) Four appreciation levels: (C1) Basic, (C2) Moderate, (C3) Advanced, (C4) In-depth. (D) Visitor interacting with ARtiVision AR application via Vision Pro. (E) Interaction heatmap showing focused exploration in the AR environment.