Towards spatial computing: recent advances in multimodal natural interaction for XR headsets

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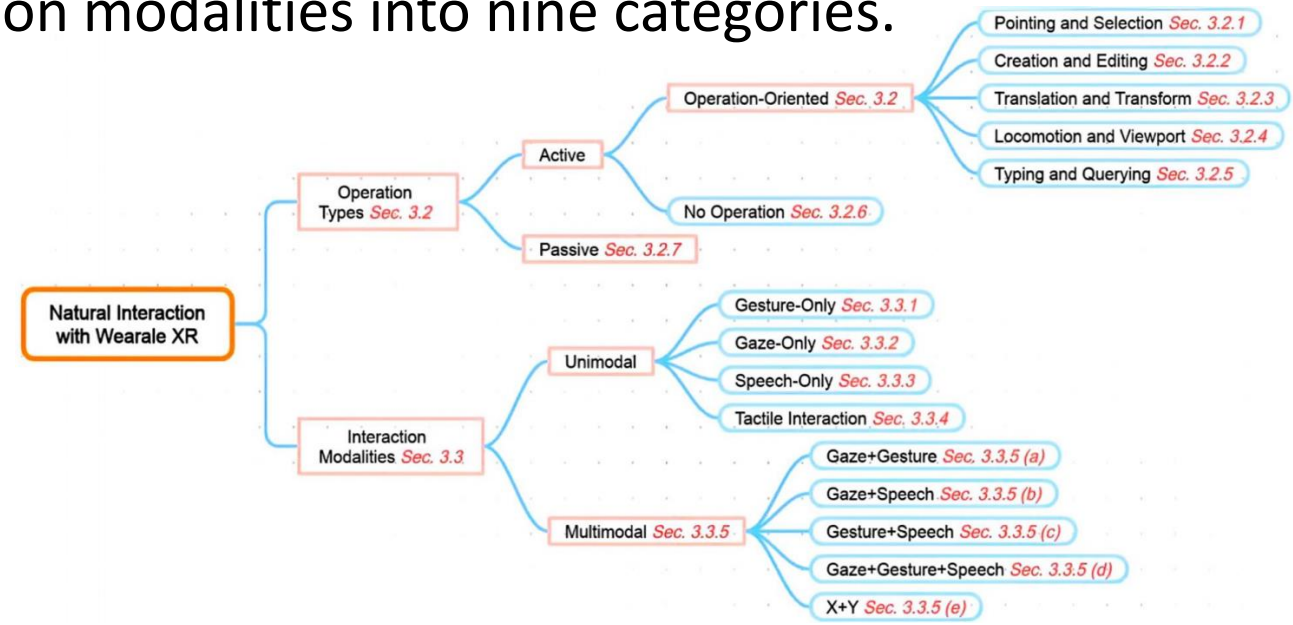
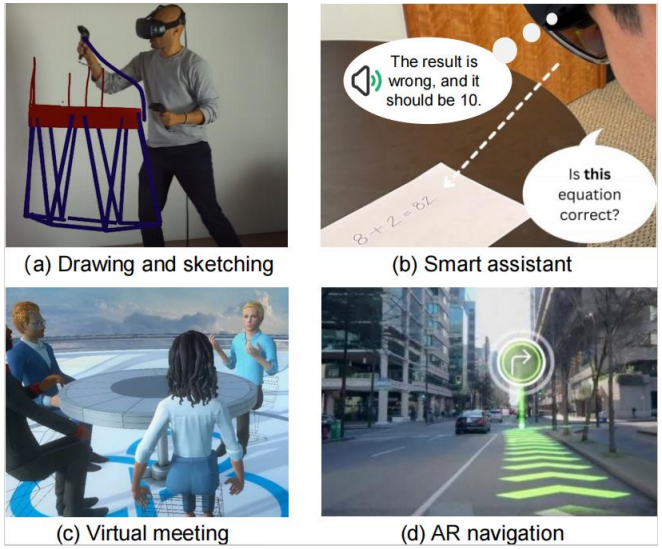
Review Topic

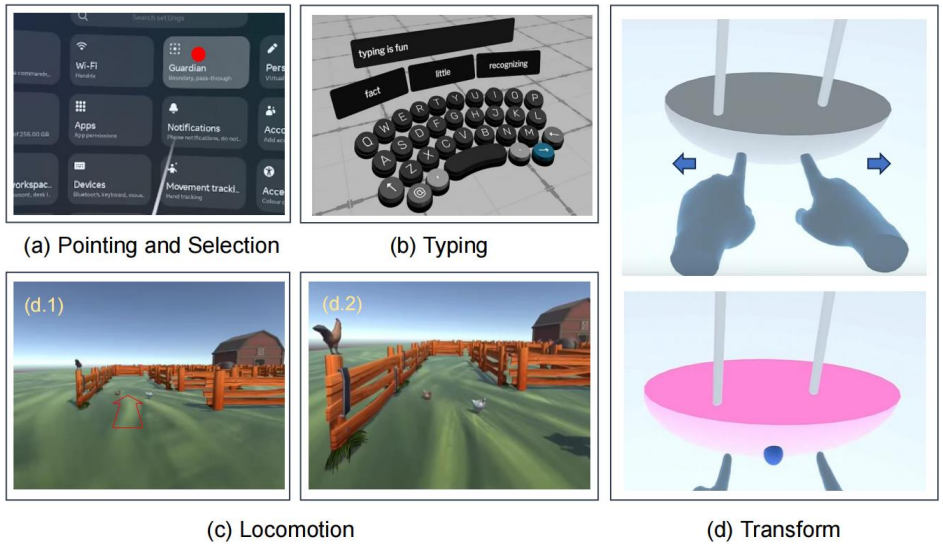
- The research questions of our review:
  - What novel interaction paradigms and techniques have emerged?
  - What are the evolving trends of multimodal natural interaction in XR?
  - How have recent advancements in AI and LLMs been leveraged to enhance natural interaction in XR environments?
- Ideas: we review research on natural interaction for wearable XR, focusing on papers published since 2022 in six top venues. We classify operation types into seven categories and divide interaction modalities into nine categories.



Main Contributions

- Contributions:
  - We discuss the application of multimodal natural interaction in nine areas, seven primary types of XR operations, and nine interaction modalities.
  - This analysis establishes a framework for understanding advanced XR natural interaction design. We identify key challenges and propose future research directions, offering valuable insights for researchers developing efficient XR interaction systems.





Left: the illustrations of XR application scenarios. Right: the illustrations of operation types.