

Approaches to Thoughtful Tangible Interfacing with LLMs for Educational Game Play: “A Mystery for You”

“A Mystery for You” integrates LLMs with a tangible interface to cultivate media literacy, fact-checking skills, and critical thinking in young learners. Through investigative gameplay and an analog-inspired slow media approach, the game pushes the boundaries of human-AI communication, showcasing how generative AI can enhance learning environments thoughtfully.

1. EDUCATIONAL OBJECTIVE

Designed to immerse players in the role of fact-checkers, *A Mystery for You* encourages active investigations that equip young learners with critical skills to analyze and interpret complex information and misinformation. By promoting problem-solving and mindful engagement, the game shapes a unique experience where players' decisions influence the narrative's evolution, making each playthrough distinctive.



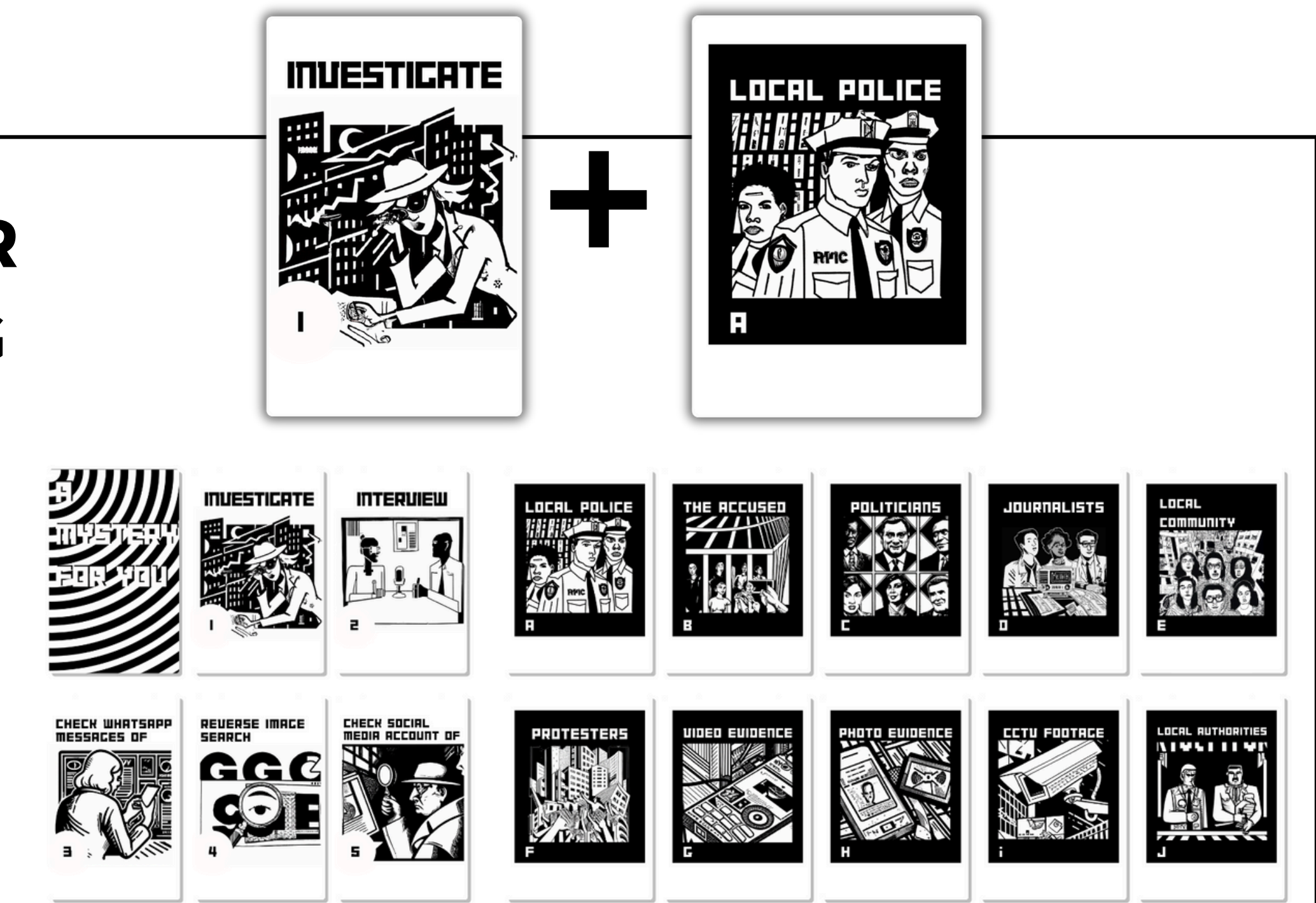
2. TANGIBLE SLOW MEDIA APPROACH: RE-IMAGING THE INTERFACE

In contrast to traditional screen-based media that often encourage mindless scrolling, this game's analog-inspired interface invites slow, deliberate engagement. Through the use of physical cartridges and printed outputs, players experience a more mindful, embodied interaction with news media, fostering a hands-on approach to investigative fact-checking and promoting intentional exploration of content.



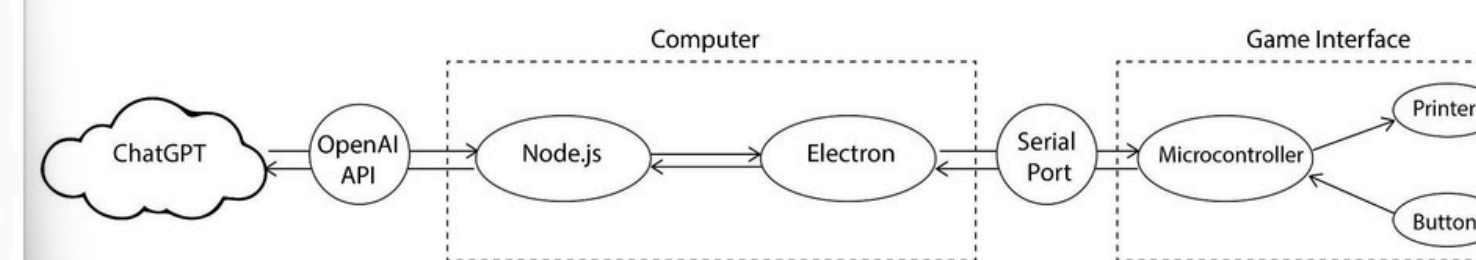
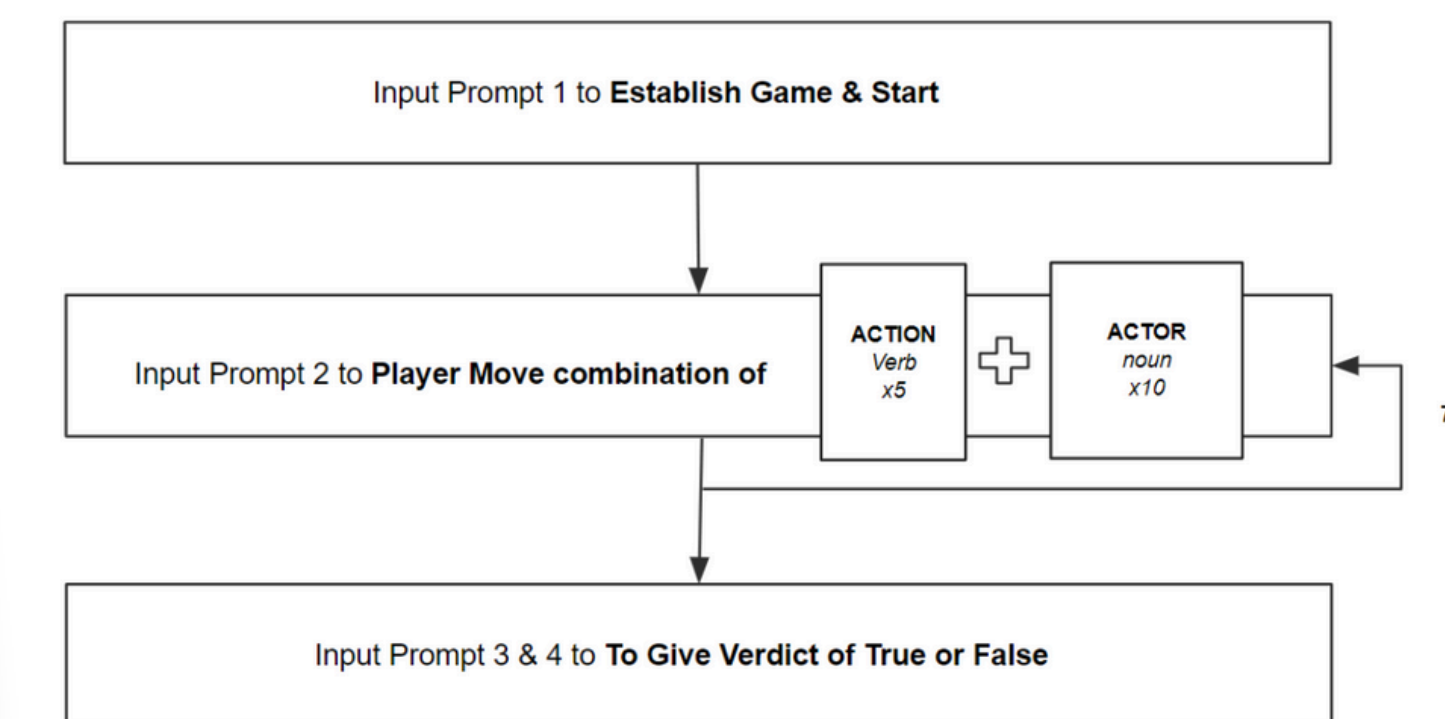
3. GAMEPLAY + MODULAR PROMPT ENGINEERING

Players assume the role of fact-checkers, investigating AI-generated news alerts using “Action + Actor” cartridge combinations that prompt unique narrative updates. This modular prompt engineering approach enables dynamic, scenario-driven gameplay that requires players to engage critically with evolving stories, reflecting the dual challenges of ambiguity and misinformation in modern media.

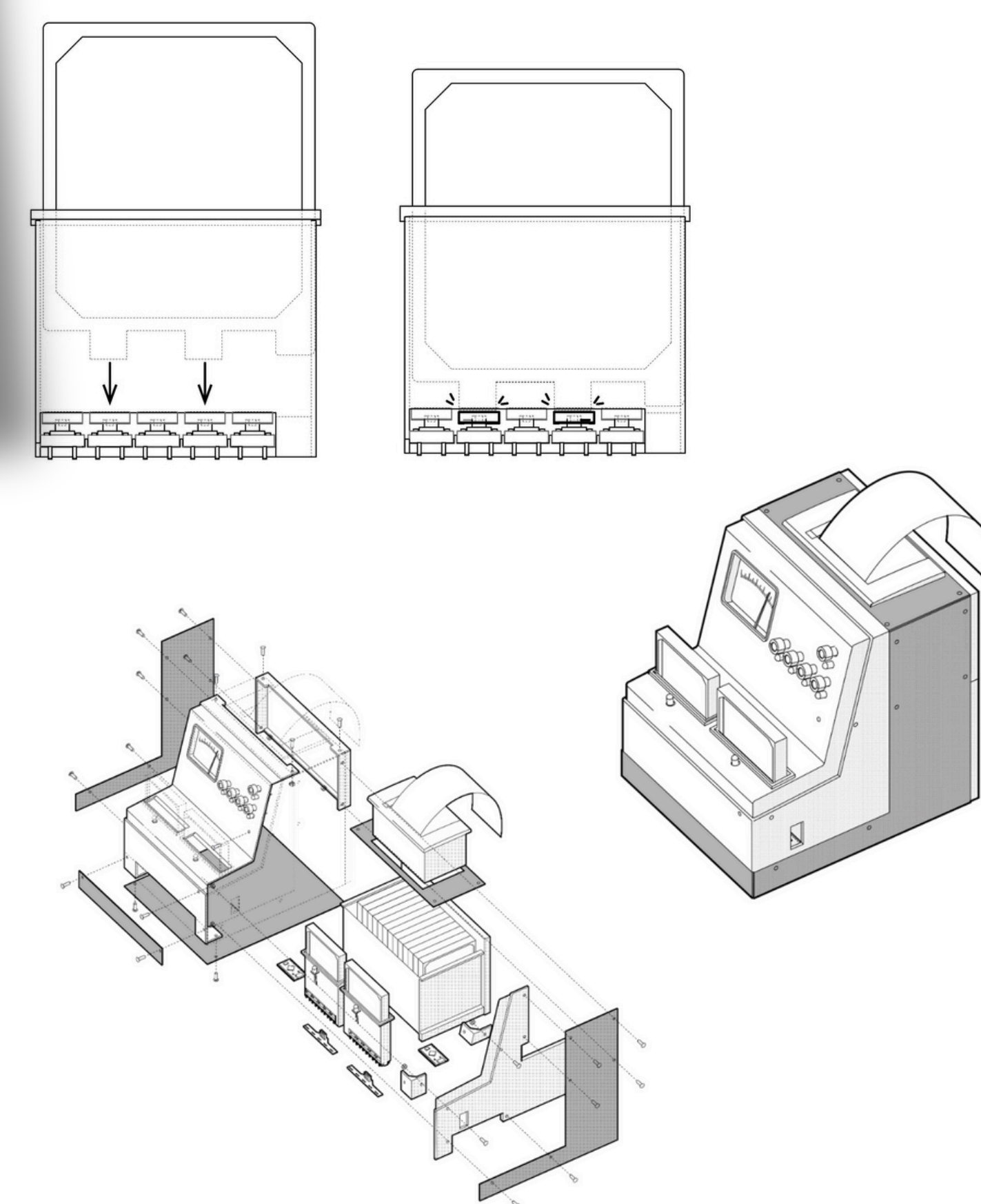


4.

Underlying Prompt Engineering



Alert
 Breaking news: A video circulating on social media shows a group of protesters vandalizing a local government building in the city. The video has sparked outrage among the community, with many blaming a specific political group for instigating the violence. Local police have launched an investigation into the incident, but conflicting reports from witnesses and international news agencies have raised doubts about the true nature of the event.
 How would you like to start your investigation?



KEY TAKEAWAYS FOR TANGIBLE AI AGENTS IN EDUCATIONAL GAMES

- **Leveraging Physical Interaction and Multi-Modality for Active Learning:** Physical elements foster intentional engagement, making abstract concepts more accessible and encouraging more thoughtful, layered interaction with AI content.
- **Balance Generative Flexibility with Structural Guardrails:** While AI provides flexible, scenario-driven gameplay, structured tangible actions act as guardrails, guiding players and ensuring the AI model remains within safe and meaningful boundaries.
- **Embrace Ambiguity as an Educational Tool while Critically Addressing Ethics and Biases:** Incorporating ambiguity in AI interactions simulates the complexity of real-world misinformation, fostering critical analysis and resilience, while also highlighting ethical considerations around AI biases and the importance of navigating content responsibly.
- **Promote Slow Media for Reflective Interaction:** Analog-inspired, slow media interfaces encourage learners to pause and reflect, enhancing sustained attention and fostering a deeper connection to the learning experience.
- **Consider Game Interface as a Diagnostic Tool:** Games like ours provide a unique platform to analyze biases in both AI and human decision-making, offering insights to develop healthier, more balanced generative AI systems for improving AI transparency, reliability, and alignment with user expectations.
- **Explore New Applications for AI and Tangible Media:** This approach holds great potential for a range of educational topics including environmental science, ethics, and social studies, creating immersive learning experiences that enhance media literacy and critical thinking.

RELATED LITERATURE

• H. Tang and M. Singha, “A mystery for you: A fact-checking game enhanced by large language models (LLMs) and a tangible interface,” in *Extended Abstracts of the ACM CHI '24*.
 • Coelho, Marcelo, and Jean-Baptiste Labrune. “Large Language Objects: The Design of Physical AI and Generative Experiences.” *Interactions* 31.4 (2024): 43-48.