

## Appendix

### A Data Availability Statement

This project is intended solely for non-commercial academic research. Some visual materials (2D images and video clips) were sourced from publicly available television adaptations of *Journey to the West* and used only within the AI-based interaction reconstruction module. All media were functionally transformed for visualization purposes and fall within the scope of fair use as defined by Article 24 of the Copyright Law of the People's Republic of China.

### B Artifact and Interaction

#### B.1 Interactive Classification

We reviewed the original work and TV series of *Journey to the West*, and summarized the interactive classification of 20 artifacts, which demonstrated premodern HCI modes. The boxes with different colors represent Voice Interaction (red), Spatial Interaction (purple), Wearable Interaction (pink), Gesture Interaction (blue), Throwing Interaction (orange), Handheld Interaction (yellow), Visual Recognition Interaction (brown), and Non-Interaction (grey).

| Character                           | Artifact  | Interaction Method |
|-------------------------------------|---|--------------------|
| Lute Heavenly King                  | A1 Anti fire Cover (Bihuo zhao)                       | Grey               |
| Bodhisattva Manjusri                | A2 Demon revealing Mirror (Zhaoyao Jin)               | Grey               |
| Zhu Bajie                           | A3 Demon-quelling Pole (Jiuchi Dinpa)                 | Red                |
| Dragon King of the Well             | A4 Face preserving Pearl (Dinyan Zhu)                 | Grey               |
| Lao Jun                             | A5 Diamond Jade (Jingang Zhuo)                        | Grey               |
|                                     | A6 Wind settling Pill (Dinfeng Dan)                   | Grey               |
| Lingji Bodhisattva                  | A7 Flying Dragon Staff (Feilong Baozhang)             | Red                |
| Yellow Eyebrow Ancestor             | A8 Gold cymbals (Jin Nao)                             | Purple             |
|                                     | A9 Human seed bag (Renzhong Dai)                      | Grey               |
| Sai Tai Sui                         | A10 Golden Bells (Zijin Lin)                          | Grey               |
| Princess Iron Fan                   | A11 Plantain leaf Fan (Bajiao Shan)                   | Red                |
| Golden Horn King & Silver Horn King | A12 Red gourd (Zijin Hong Hulu)                       | Purple             |
|                                     | A13 Rope (Huangjin Sheng)                             | Red                |
| Red Boy                             | A14 Jade Vase (Yangzhiyu Jinpin)                      | Purple             |
| Sun Wukong                          | A15 Gold Band (Jin Gu)                                | Red                |
|                                     | A16 Somersault Cloud (Jindou Yun)                     | Purple             |
| King of Wuji Kingdom                | A17 Gold Banded Cudgel (Ruyi Jingu Bang)              | Red                |
| The Three Great Kings of Shituoling | A18 Tight Band (Jingu Er)                             | Red                |
|                                     | A19 White Jade Bowl (Baiyu Yu'er)                     | Purple             |
|                                     | A20 Yin-yang Vital Principles Jar (Yinyang Erqi Ping) | Purple             |

#### B.2 3D Artifacts Models



Figure 1: The 3D models of the 20 selected artifacts

### B.3 Supplementary Interface Visuals



Figure 2: Free exploration on the character-artifact interaction network. Users can explore the system freely before and after activation.

## C Evaluation Instruments

### C.1 Questionnaire Overview

A concise list of post-experience survey questions covering multiple aspects of the system.

| Section                              | No.        | Question  |
|--------------------------------------|------------|---|
| <b>Demographics</b>                  | <b>Q1</b>  | Age Group   |
|                                      | <b>Q2</b>  | Gender  |
|                                      | <b>Q3</b>  | Educational Background  |
|                                      | <b>Q4</b>  | Previous knowledge about JttW   |
|                                      | <b>Q5</b>  | Previous knowledge about HCI methods  |
| <b>Interactive Device Experience</b> | <b>Q6</b>  | What interactive devices have you used?   |
|                                      | <b>Q7</b>  | Which interaction types do you prefer?  |
|                                      | <b>Q8</b>  | What features do you want in future devices?  |
|                                      | <b>Q9</b>  | Are you willing to try new devices?   |
| <b>Interest in JttW</b>              | <b>Q10</b> | What are you most interested in? (Interest areas)                                   |
|                                      | <b>Q11</b> | How would you like to explore JttW? (Learning formats)                              |
|                                      | <b>Q12</b> | Want to explore JttW via interaction? (Willingness)                                 |
| <b>Project Module Feedback</b>       | <b>Q13</b> | Satisfaction with facial recognition and character matching                         |
|                                      | <b>Q14</b> | Satisfaction with interaction mode hypothesis classification                        |
|                                      | <b>Q15</b> | Satisfaction with multimodal display (original text, video, 3D model, donut chart). |
|                                      | <b>Q16</b> | Satisfaction with network exploration (through the character–artifact semantic map) |
|                                      | <b>Q17</b> | The most engaging part of the experience  |
| <b>Overall Experience</b>            | <b>Q18</b> | Easy to use   |
|                                      | <b>Q19</b> | Interestingness   |
|                                      | <b>Q20</b> | Enhance immersion   |
|                                      | <b>Q21</b> | Intention to continue using   |
|                                      | <b>Q22</b> | Recommendation intention  |
|                                      | <b>Q23</b> | Overall satisfaction  |
|                                      | <b>Q24</b> | Knowledge enhancement   |

## C.2 Interview Outline

A semi-structured interview guide conducted after the interactive experience, focusing on users' first impressions, sense of immersion, multimodal engagement, and interaction reasoning processes.

| Section                       | Question   |
|-------------------------------|--|
| <b>First Impressions</b>      | What was your overall first impression of the system?<br>Which feature caught your attention first, and why?<br>What novelty did the AI face-matching add to your experience?  |
| <b>Interaction Reasoning</b>  | How did you guess the artifact's interaction method?<br>Did the "guess-then-reveal" flow enhance engagement or recall?<br>Which artifact stood out most, and for what reason?<br>Did you want to explore more artifacts/roles? What motivated you?<br>Did you feel immersed? Which part contributed most?<br>Is this format more memorable than reading or watching? |
| <b>3D/Multimodal Content</b>  | Was the artifact info (text/image/diagram) clear and helpful?<br>How was the 3D interaction (rotate, zoom in, zoom out, lift, click)?<br>How did 3D models help compared to 2D or text?  |
| <b>Cultural Understanding</b> | For non-Chinese users: Did it help cultural understanding?<br>Would you recommend this system to others? Why?<br>Would you want similar systems for other cultures or myths?<br>Summarize your overall impression and imagined future use.   |
| <b>Usability Feedback</b>     | Did you face any usability issues (e.g., unclear buttons)?<br>Was the interface layout clear? Any overload or gaps?<br>What features would you like to add in future versions?<br>How do you evaluate the system's visual and color design?  |

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