

# Yungang Grottoes Thesaurus

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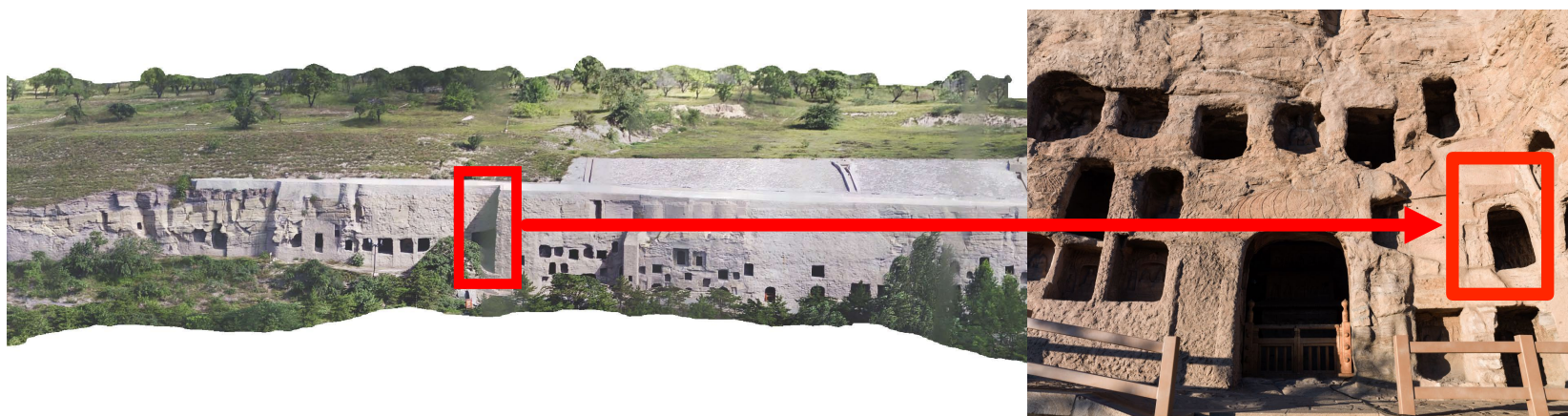
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YUNGANG GROTTOES

# Yungang Grottoes: A Typical Representation of Pingcheng Model



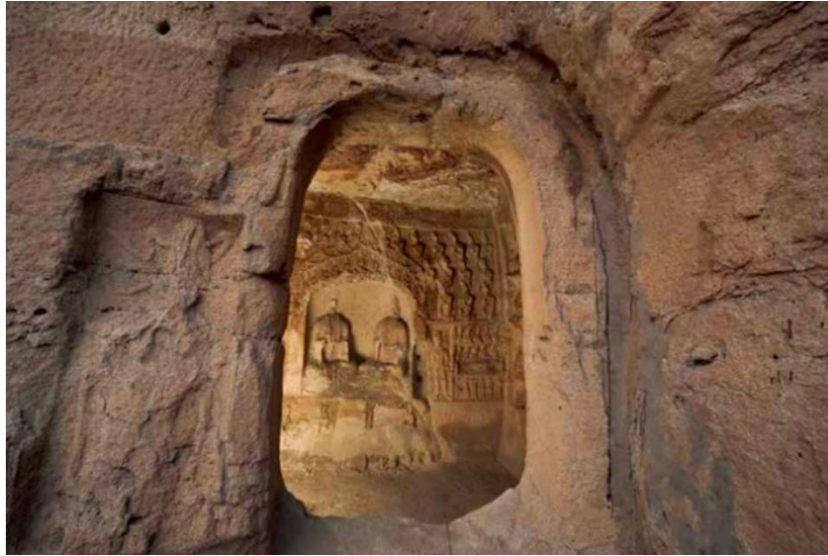
**Pingcheng Model,** Pingcheng was the capital during the early period of the Northern Wei dynasty.

The Spread of Grottoe Temples: **The Migration of Buddhism:** Buddhism originated in India and spread eastward through Pakistan and Afghanistan, reaching China's Western Regions. From there, it traveled through Xinjiang and the Hexi Corridor, entering the Central Plains of China. The **Yungang Grottoes** stand as **a quintessential representation of the Pingcheng model.**



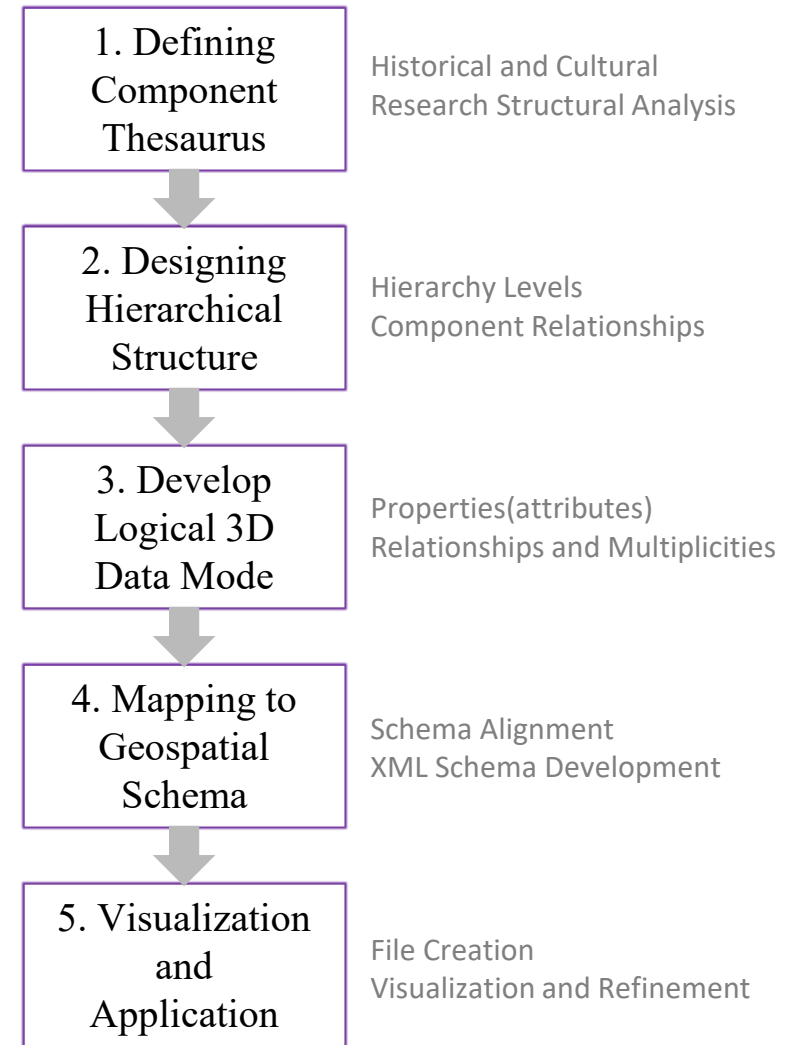
Yungang Grottoes Cave No.38 (Phase III, 494-524 C.E., Northern Wei Dynasty)

# Phase One (Cave No.38) of the Yungang Grottoes Thesaurus Project



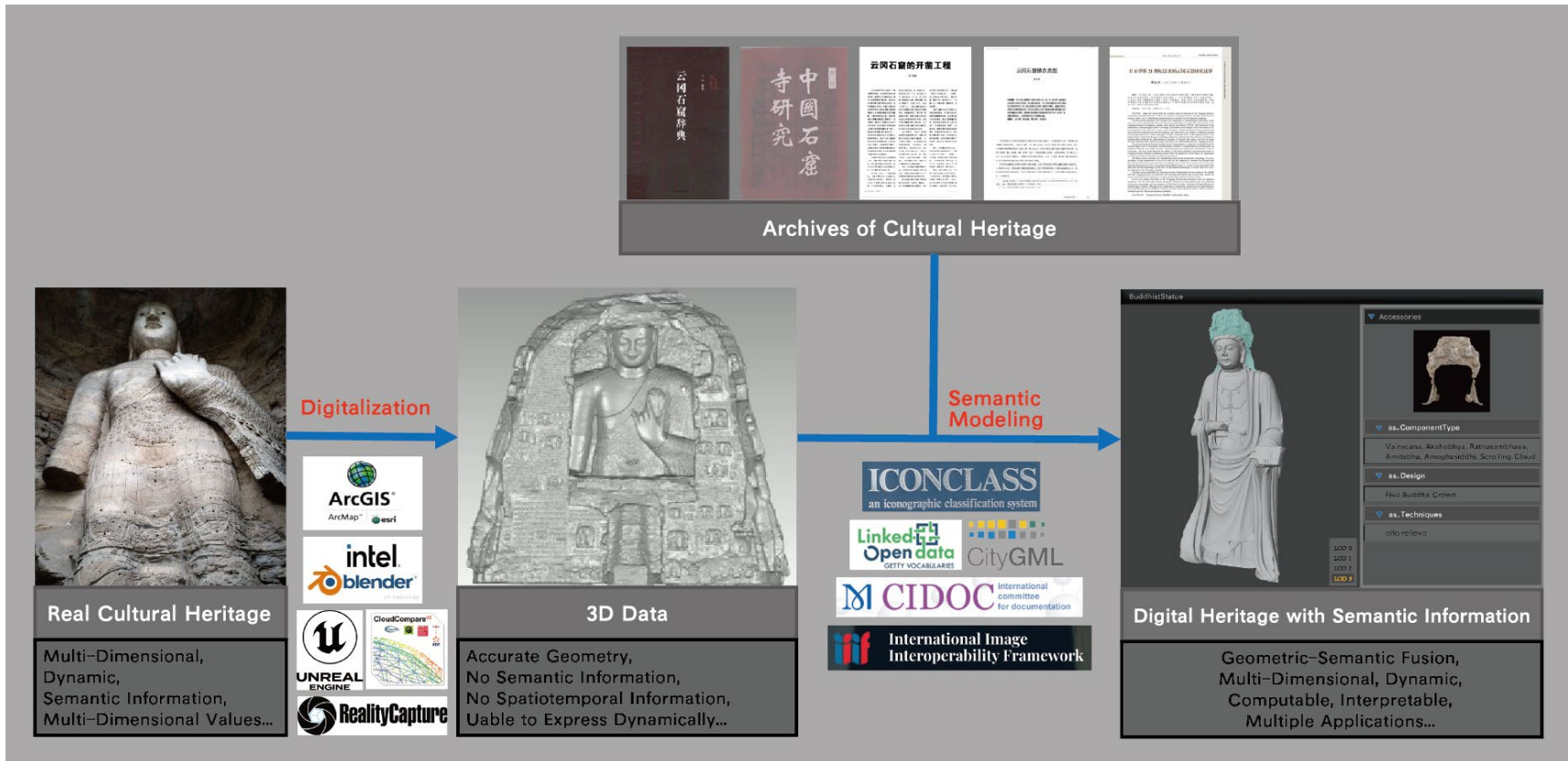
Cave No.38 is a typical representation of Yungang Grottoes phase III, all walls of cave No.38 featuring rich narrative elements.

## Overview of the Proposed Method for Establishing Yungang Grottoes Thesaurus



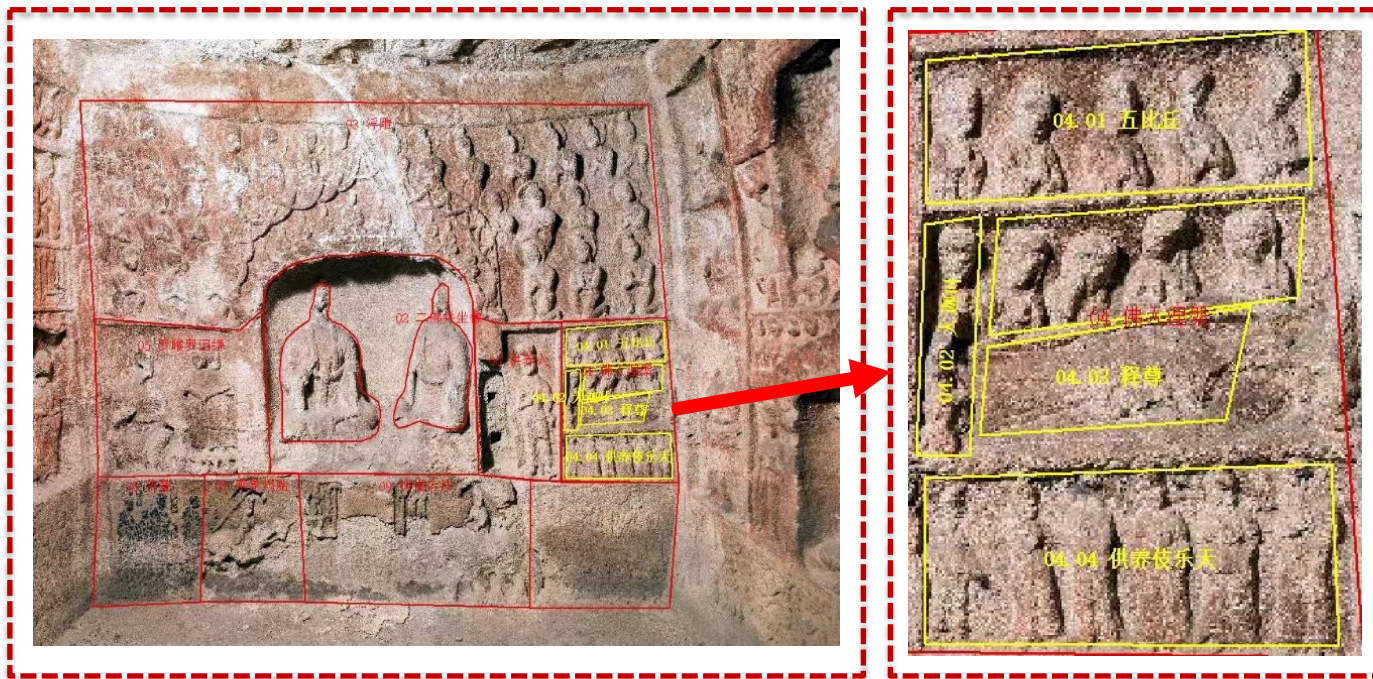
# Digital Heritage with Semantic Information

The digitalization efforts for the Yungang Grottoes have been ongoing for over twenty years, with 60% of the data collection completed. By 2030, the goal is to achieve full digital coverage and transition **from digital preservation to digital application**.



Most existing 3D cultural heritage models emphasize visualization, providing accurate geometry but lacking semantic and spatiotemporal information, and are incapable of dynamic representation. In contrast, semantic **modeling integrates archival information into the 3D data**, facilitating both **interpretation and computation**.

## Defining Components and Attributes



Cave No.38 North Wall

04: The Buddha Enters Nirvana

- 04.01: The Five Bhikkhus
- 04.02: Kāśyapa  
(One of the Buddha's ten chief disciples)
- 04.03: The Honorable One  
(Shakyamuni)
- 04.04: Celestial Musicians Offering Music

### The Buddha Enters Nirvana

Description from "Selected Papers on Yungang Over a Century II," P. 270:

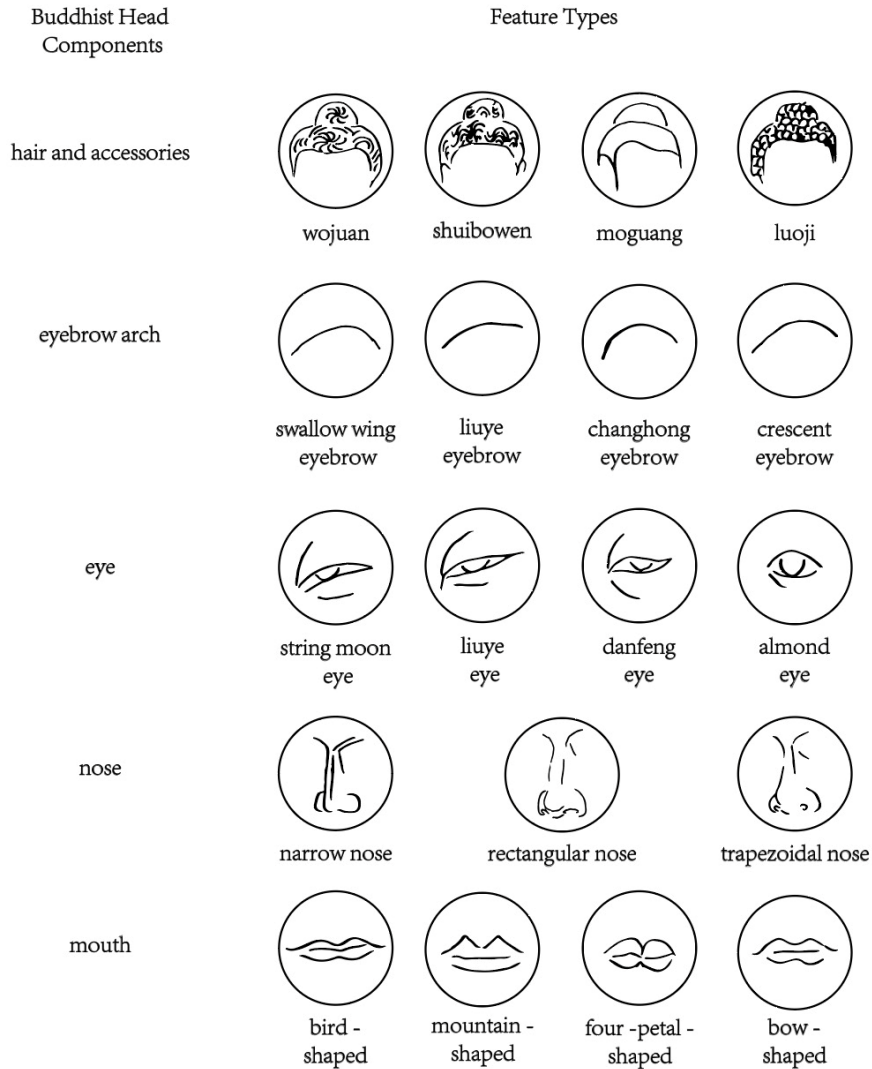
The scene is divided into three tiers:

**Upper Tier:** Five bhikkhus (monks).

**Middle Tier:** Shakyamuni Buddha lies horizontally on a couch, with his head to the east and feet to the west. One disciple kneels, supporting the Buddha's head, while another kneels at the foot of the Buddha. Above them, five grieving disciples, with disheveled hair, express profound sorrow.

**Lower Tier:** Six celestial musicians, each holding musical instruments, perform a musical offering.

# In Greater Detail: The Semantic and Topological Hierarchies within Buddhist Heads



1. Hair and accessories
2. Forehead
3. Eyebrow arch
4. Nose
5. Mouth
6. Chin
7. Left eyeball
8. Right eyeball
9. Left chin
10. Right chin
11. Left cheek
12. Right cheek

Painted Wooden Head of Avolokitesvara Bodhisattva,  
Song Dynasty(960-1279),  
National Museum of China

Drawing on modern medical anatomy, art history, and Buddhist iconography to design a **hierarchical structure for the components of the Buddhist head.**