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CHINA-PORTUGAL BELT AND ROAD JOINT LABORATORY ON CULTURAL HERITAGE CONSERVATION SCIENCE

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前沿研究 Research Fronts

人工智能与图像：技术在艺术与文化遗产中的应用批判性视角

AI and Image: Critical Perspectives on the Application of Technology on Art and Cultural Heritage

资料来源：

Foka, A., & von Bonsdorff, J. 人工智能与图像：技术在艺术与文化遗产中的应用批判性视角 . 剑桥 , 英国 : 剑桥大学出版社 , 2025.

Source：

Foka, A., & von Bonsdorff, J. (2025). *AI and Image: Critical Perspectives on the Application of Technology on Art and Cultural Heritage.* Cambridge, UK: Cambridge University Press.

在过去三十年间，美术馆、图书馆、档案馆和博物馆（GLAM）经历了深刻的数字化转型。素描、照片、绘画和地图等馆藏正迅速转化为数据集，并辅以结构化的机器可读描述或元数据。同时，全新的数据集也正在以纯数字形式“诞生”，例如网络迷因、合成艺术和漫画。每天都有数以百万计的图像被不同的 GLAM 利益相关方（如阿姆斯特丹的国立博物馆 Rijksmuseum 或 Getty Images）所拥有和分类。过去我们习惯依赖受过训练的专家，凭借其判断力来管理、策展和分类图像及其数据集，但如今机器 —— 即计算机 —— 在辅助甚至执行这些任务方面已日益发挥重要作用。在文化和创意产业中，人工智能（AI）方法的应用正在快速增长，尤其是针对图像和视觉资料的集合。一方面，人工智能作为一个广阔的研究领域，其研究方法和实现路径差异显著，展现出巨大的潜力；另一方面，考虑到人类表征、记忆和文化的多样语境，以及开放获取的复杂性、资金匮乏问题及其对气候变化的潜在影响，人工智能的应用始终保持着谨慎的态度。本书旨在对这种两极化现象进行深入分析，同时强调人工智能如何能有效地协助 GLAM 领域的专业人员。

人工智能已成为一个涵盖广泛技术、工具和方法的总括性术语，这些技术支持并推动了超越人类直接干预的信息处理与决策。机器学

Over the past three decades, galleries, libraries, archives, and museums (GLAM) have undergone profound digital transformation. Collections of sketches, photographs, paintings, and maps are turning rapidly into datasets, enriched with structured machine-readable descriptions or metadata. In the same breath, new datasets are being "born" in entirely digital formats, such as memes, synthetic art, and comics. Millions of images are owned and classified by different GLAM stakeholders every day, such as Amsterdam's Rjksmuseum or Getty Images. While we are used to trained experts, humans are using their best judgement to manage, to curate, and to classify images and image datasets, yet machines, that is, computers in general, have become increasingly influential in assisting or even performing these tasks. Within the cultural and creative sectors, the implementation of artificial intelligence (AI) methods is a rapidly growing area of interest, specifically in relation to images and pictorial collections. On the one hand, as AI is a wide field of inquiry, research methods and implementation may vary significantly and seem to have enormous potential. On the other hand, given the diversity of contexts of human representation, memory, and culture, the complexity of open access, the lack of funding, and its very impact on climate change, AI has been approached with caution. In this Element we hope to provide a thorough analysis of this polarity, while highlighting how AI may be of effective assistance to professionals in the GLAM sector.

习是人工智能的一个子集，其核心是算法能够从数据中学习，在没有明确编程的情况下进行预测或决策（图 1）。换句话说，人工智能可视为一种通过机器学习实现的智能行为。自然地，鉴于本书讨论的主题是人工智能与图像，计算机视觉便成为核心内容。计算机视觉是一门涉及图像处理与理解的科学与技术学科。它作为基础性技术，从总体层面探索并推动计算机能力的提升；而机器视觉则将这些技术专门应用于优化工业操作。在本书中，我们通常使用“计算机视觉”来指代该技术，而“机器视觉”则在更一般的语境下使用（图 2）。机器视觉在需要高度精确和一致性的任务中最为有用，通常见于数字化与保护工作流程中。相比之下，计算机视觉则是文化遗产的诠释性、分析性和公众参与性工作中的关键，提供了提升文化资产理解的工具。本书将重点放在后者，即计算机视觉。生成式人工智能是一类能够创造新内容的人工智能技术，包括文本、图像、视频、音频和合成数据。这类模型通过学习训练数据中的模式与结构，在接收提示后生成具有相似特征的新数据。

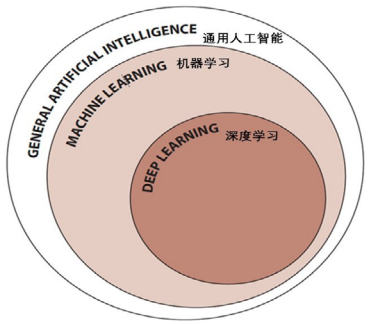

图 1：自 20 世纪 50 年代以来人工智能与机器学习科研投入的估算。该图假设人工智能领域总体上独立于机器学习与深度学习的范畴。此处的“人工智能总体类别”包括早期的 AI 学科（20 世纪 50–80 年代），如专家系统、逻辑编程、机器人学、搜索算法、自然语言处理（深度学习出现之前的技术）、知识表示等。机器学习在 20 世纪 80 年代中期至 2000 年代逐步扩展，而深度学习在约 2010 年兴起，并已成为当前研究的主要方向。插图来源：J. v. Bonsdorff。

Figure 1. Estimate of scientific effort put into AI and machine learning since the 1950s. This figure presupposes a general field of AI outside machine learning and deep learning. This general category includes early AI disciplines (1950s to 1980s) such as expert systems, logic programming, robotics, search algorithms, NLP (pre-deep learning techniques), knowledge representation, and more. Machine learning expands from the mid-1980s to 2000s and deep learning emerges around 2010, now being prominent in research. Illustration: J. v. Bonsdorff.

AI has become a broad term encompassing a variety of technologies, tools, and methods that support and enable information processing and decision-making beyond human intervention. Machine learning is a subset of AI where algorithms learn from data to make predictions or decisions without explicit programming (Figure 1). Another way to describe this is that AI is an intelligent behaviour that can be achieved using machine learning. Naturally, as this is an Element dealing with AI and Image, computer vision is central to this Element. Computer vision is the scientific and technological discipline involving processing and understanding images. Computer vision serves as the foundational technology that explores and advances computer capabilities at a general level, whereas machine vision applies these technologies specifically to optimize industrial operations. Throughout this Element we refer to computer vision to describe the technology, and machine vision is used in a more general context (Figure 2). Machine vision is most beneficial for tasks requiring precision and consistency, typically in the context of digitisation and conservation workflows. In contrast, computer vision is key to the interpretative, analytical, and public-facing aspects of cultural heritage, offering tools to enhance understanding of cultural assets. In this Element, we concentrate on the latter, that is, computer vision. Generative AI is a type of artificial intelligence that creates new content, such as text, images, videos, audio, and synthetic data, using generative models. These models learn patterns and structures from their training data and generate new data with similar characteristics in response to prompts.

Recent research attempts to refine models of practice particularly concerning the application of AI methods and tools in datasets but also the legal parameters such as ownership and copyright, as well as ethics. AI for cultural heritage collections remains a novelty even in countries like our native Sweden, where digitisation has a long tradition and legacy, due to lack of expertise and funding models for lifelong learning education for professionals (Griffin et al., 2023). Yet worldwide it is globally considered a curation management support in creative and effective ways (Ciecko, 2020). There are fewer critical

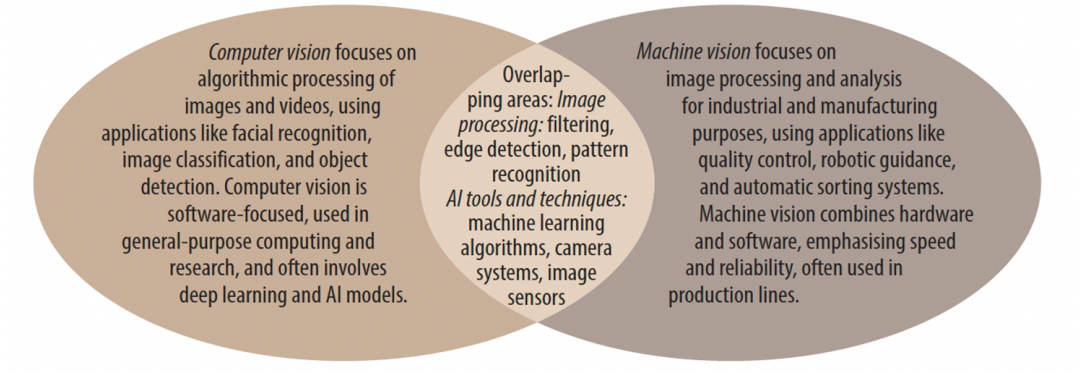

图 2：计算机视觉与机器视觉的区别与交叉。计算机视觉（左）侧重于图像的算法处理，用于人脸识别和目标检测等应用，主要应用于软件驱动的环境中。机器视觉（右）则更多地服务于工业与制造领域。两者的交叉部分强调了共同的技术，例如图像处理和人工智能工具的使用，这些技术在两个领域中都处于核心地位。插图来源：J. v. Bonsdorff。

Figure 2. The distinctions and overlaps between computer vision and machine vision. Computer vision (left) focuses on algorithmic processing of images for applications like facial recognition and object detection, primarily in software driven environments. Machine vision (right) is tailored for industrial and manufacturing purposes. The overlapping area highlights shared techniques such as image processing and the use of AI tools, which are central to both fields. Illustration: J. v. Bonsdorff.

近期研究尝试进一步完善实践模式，特别是涉及人工智能方法与工具在数据集中的应用，同时也涵盖了所有权、版权等法律范畴以及伦理问题。在文化遗产收藏领域，人工智能仍属新兴事物，即便是在我们所在的瑞典这样具有悠久数字化传统与积累的国家，由于缺乏专业人才和为其提供终身学习的经费模式，其发展仍受限制（Griffin 等，2023）。然而，在全球范围内，人工智能已普遍被视为一种创造性且高效的策展管理支持工具（Ciecko, 2020）。不过，针对历史图像馆藏与人工智能的批判性反思仍然不多。一个例外是 Bordoni 等（2016）主编的文集，该书从文化史、语义数字档案、用于支持参观者解读的分析工具、增强现实与机器人等角度探讨了人工智能在文化遗产领域的创新。因此，Bordoni 编辑的著作虽然很有价值，但仅限于 2016 年出版的具体案例研究，而自那时起，技术进步带来了更多可能性，而这正是本研究所欲探讨的问题。类似地，也有一些专门探讨人工智能与图像分析的文章，但往往局限于某些特定案例研究，因此其重点通常是某一类图像（如手写档案、摄影作品、绘画等）的技术应用，并通过成功率统计展开讨论。其他具有理论意义的研究则尝试分析人工智能技术可能带来的潜力与挑战，例如 Bell 关于计算机视觉

reflections on historical image collections and AI. An exception is the edited volume by Bordoni et al. (2016) on AI innovation within the cultural heritage sector from the perspectives of cultural history, semantic digital archives, the use of analytic tools to support visitor interpretation, augmented reality, and robotics. As such, Bordoni's edited volume is valuable yet limited to specific case studies that were published in 2016, and since then, technological progress brings even more possibilities which we hereby seek to address. In a similar vein, there are specific articles that deal with AI and image analysis, but these are limited to certain case studies and, as such, they tend to focus on implementing technology on one type of image (e.g. handwritten archives, photography, paintings, and so on) and then discuss statistics in success rates. Other significant theoretical attempts to analyze the potential and challenges that AI technology brings into the table include Bell's work on computer vision as an art-historical tool (Bell, 2022; Bell & Ommer, 2016). In a similar vein, Wright and Ommer (2021) have discussed uses of generative AI, art history, and machine vision. Thiel and Bernhard's more recent anthology (2023) provides valuable reflections on AI in museums, artistic practice, curation tools, visitor analytics, chatbots, automatic translations, and tailor-made text generation, including critical reflections, practical perspectives, and applications.

作为艺术史研究工具的研究（Bell, 2022；Bell & Ommer, 2016）。同样，Wright 与 Ommer（2021）探讨了生成式人工智能在艺术史与机器视觉中的应用。Thiel 与 Bernhard 较新的论文集（2023）则提供了有关人工智能在博物馆、艺术实践、策展工具、观众数据分析、聊天机器人、自动翻译以及定制化文本生成等方面的有价值反思，涵盖了批判性观点、实践视角与实际应用。

关于人工智能与图像的研究通常依赖于特定数据集作为案例研究，这在一定程度上可以启发后续研究（参见 Karterouli 等，2021）。这些案例研究所涉及的人工智能与机器学习工具和方法包括计算机视觉、自然语言处理（NLP），以及用于个性化参观体验的流程与工具。计算机视觉可通过自动生成描述或标签来提升图像的可检索性（Fontanella, 2020: 23–29）。Giugliano 与 Laudante（2020）认为，技术性的设计为文化遗产领域提供了一个关键机遇，使其能够以超越物理界限的方式将技术与环境联系起来。尽管该研究主要聚焦于用户，但作者进一步提出应扩展到不同的利益相关方。他们指出，这不仅能够促进“日益广泛和多元化的公众”，而且技术还提供了一个实现公共交流的平台，使其围绕可共享、可获取和可查阅的内容进行互动（2020: 7）。现有关于人工智能在艺术与人文学科中的著作，多聚焦于机器学习与计算机视觉，主要与艺术和创造力相关（Manovich 与 Arielli, 2024），艺术、机器学习与“计算形式主义”概念（由 Wasielewski 提出，2023a），或是更为普遍的机器视觉及其应用（Rettberg, 2023）。

从这一简要的研究现状可以看出，人工智能在博物馆和遗产机构中的应用传统存在显著差异，其范围涵盖推理、分类、知识表征、策展、学习与传播等概念，并以图像处理和分析为技术支撑。近期研究对这一领域的实践模式提出了挑战并进行了完善。博物馆对人工智能的使用与兴趣不断增长，博物馆与产业合作伙伴携手，创造性且高效地利用人工智能开展馆藏

Research on AI and image normally relies on specific datasets as case studies, which may help inspire other research (see for example Karterouli et al., 2021). The types of AI and machine learning tools and practices addressed in these case studies as such include computer vision and Natural Language Processing (NLP), and also processes and tools for personalising visitor experiences. Computer vision acts through auto-generating a description or tags to make images more discoverable (Fontanella, 2020: 23–29). Giugliano and Laudante (2020) argue that technological design offers a key opportunity for the cultural heritage sector to connect technology and context in ways that transcend physical boundaries. While Giugliano and Laudante's study is focused on users, the authors argue for an expanded consideration of different stakeholders. Not only could this promote 'an increasingly wide and diversified public', they write, but technology affords opportunities to materialise a common meeting ground, a space that allows for interchange around what is shareable, accessible, and consultable (2020: 7). Existing books about AI in the arts and humanities focus on machine learning and computer vision, primarily in relation to art and creativity (Manovich and Arielli, 2024), art, machine learning and the notion of computational formalism (coined by Wasielewski, 2023a), or machine vision and its applications more generally (Rettberg, 2023).

As it transpires from this short state of the art, traditions for AI implementation in museums and heritage organisations vary greatly, encompassing concepts of reasoning, classification, knowledge representation, curation, or learning and dissemination, utilising image processing and analysis. Recent research has challenged and refined models of practice in this domain. There is a growing use and interest of AI in museums, where they collaborate with industry partners to harness AI for collections management in creative and effective ways. Critical engagement with AI technologies and their potential for museums is a focus of attention of this Element. AI and Image essentially explores how AI may contribute in staging and curating image collections through automated processes and machine learning. Like Gartski (2020), we seek to chart the way professionals and practitioners in the last two decades have

管理。本书的重点之一正是对人工智能技术及其在博物馆中的潜力进行批判性探讨。《AI 与图像》本质上探讨了人工智能如何通过自动化流程与机器学习推动图像馆藏的展示与策展。与 Gartski（2020）的研究类似，我们希望梳理过去二十年来专业人士和实践者整合各种新兴人工智能工具与方法，以提升图像数据集的策展、分析与传播。与考古学领域的情况相似，人工智能方法和工具已经扩展并改变了艺术与文化的整体格局。与此同时，《AI 与图像》也对人工智能进行批判性评估，梳理其在艺术与遗产学科以及文化遗产保护与公众参与实践中的潜力与复杂性。本书在第一章从基础入手，界定何为“图像”，解释视觉素养的相关概念，并讨论计算机视觉；在第二章中，我们梳理了文化与创意产业中已经出现或正在兴起的人工智能技术。

在第三章，《AI 与图像》进一步弥补人工智能研究及其在图像馆藏应用中缺乏批判性视角的不足。人工智能被赋予意义并被不同社会群体使用的实践，往往包含技术所内嵌的本体论与关系性特质，需要予以关注。目前，人工智能的应用似乎正在放大社会偏见，尤其是在诸如 Google Arts & Culture 等艺术与遗产推荐系统中（Kizhner 等，2021: 607–640）。第三章重点讨论人工智能的潜力与挑战：尽管人工智能可能强化偏见，但同样也可能用于减少偏见，并支持文化复兴。借用 Miller 与 Haapio-Kirk 在《Making Things Matter》（2020）中的表述，我们强调图像的语境性与物质性、其人工智能驱动的演变轨迹，同时也关注在快速发展的技术世界中，为何图像仍然对人类具有重要意义。因此，我们的立场是，图像与人工智能的交织关系既非反乌托邦，也非乌托邦，而是可能在不同情境下放大、削弱或压缩现有的社会不平等，其结果取决于其在多样性与包容性层面与人类专业知识和感知力结合的方式。第四章则评估了人工智能在处理此类文化数据集时的法律、监管与伦理问题。在结论部分，我们强调了专业专家在人工智能与图像交织中的关键作用，

worked to integrate a wide range of emerging AI tools and methods to enhance the curation, analysis, and dissemination of image datasets. As with archaeology, AI methods and tools have expanded and altered the landscape of art and culture. At the same time AI and Image critically assesses AI and outlines possibilities and complexity within the disciplines of art and heritage studies as well as in the praxis of cultural heritage preservation and public engagement. We begin in Section 1 from the basics, essentially defining what is an image, explaining concepts of visual literacy, and discussing even computer vision, and then in Section 2, we chart the AI technologies that have been or are currently trending in the cultural and creative sectors.

In Section 3, AI and Image additionally seeks to remedy the lack of critical perspectives in the study of AI and its application to image collections. The practices by which AI is given meaning and used by different segments of society may have both ontological and relational qualities embedded in the technology which need to be addressed. Currently, the application of AI seems to be amplifying societal bias especially in the context of recommender systems for heritage and art such as Google Arts and Culture, for example (Kizhner et al., 2021: 607–640). We aim at focusing on potentials and challenges in Section 3. We discuss that while AI may reinforce bias, it may also be used to reduce bias and to support cultural revitalization. Essentially, to paraphrase the work of Miller and Haapio-Kirk on Making Things Matter (2020) we place emphasis on the contexts and the materiality of images, their AI-driven trajectories but also on understanding why images are important to people in a world of fast-developing technologies. Thus, our approach is that such entanglements of image and AI are neither dystopian nor utopian but may amplify, reduce, or condense existing societal inequalities depending on how they may be implemented in relation to human expertise and sensibility in terms of diversity and inclusion. Section 4 assesses the regulations around the use of AI for such cultural datasets as we touch upon legalities, regulations, and ethics. In the conclusion we emphasise the importance of the professional expert factor in the entanglements of AI and images and

并主张人类与机器之间应建立一种持续的、可协商的专业共生关系。

在超越个案研究或专业视角探讨 GLAM 领域人工智能的基础上，本书旨在提出对未来的愿景，并探讨迈向最佳实践的途径，以展望人工智能 / 机器学习的未来潜力。作为本书作者，我们必须指出，本书所引用的相关文献主要源自欧洲、英国与北美的案例研究和实践经验（Foka 等，2023）。然而，在撰写本书的当下，我们也清楚地认识到，最前沿的人工智能技术正在全球范围内快速发展，中国、新加坡、以色列、韩国、日本和印度等国家均处于领先地位。因此，我们必须强调，本研究所探讨的问题具有全球意义，而不应仅限于我们作者所能阅读语言范围内的研究。

最后但同样重要的是，我们希望能为历史学科数字化转型的学术讨论作出贡献，正如 Milligan (2022) 在 Cambridge Elements 系列中所指出的，技术已经改变了历史学者研究工作流程的各个方面。在我们的语境下，艺术与文化领域的专业人员与学者亦深受技术的重塑。通过《AI 与图像》，我们希望帮助实践者不仅能够尝试这些工具，还能够设想其长远影响。

advocate for a continuous and renegotiating professional symbiosis between human and machines.

Moving beyond case studies or professional approaches to AI in the GLAM sector, in this Element we aim at suggesting visions for the future, as well as ways towards best practice, as we envision the future potential of AI/ML. As the authors of this Element we feel we need to address that the literature mentioned in this Element primarily derives from European, British and North American case studies and practical implementation (Foka et al., 2023). We are aware, at the time of writing this Element, that the most advanced AI technologies are trending globally, with China, Singapore, Israel, South Korea, Japan, and India among the leading countries in the development.We therefore need to stress that this inquiry is relevant at a global scale and should not be limited solely to research in languages that we, authors of this Element, can read.

Last, but certainly not least, we hope to contribute to the discourse of digital transformation in historical disciplines as seen in the Cambridge Elements by Milligan, I. (2022) that all aspects of the historian’s research workflow, and in our case professionals and scholars in arts and culture, have been transformed by technology.With AI and Image we aim at helping practitioners to experiment with these tools as well as to envisage their long-term impact.

实践案例 Case Study

ArchGPT：利用大语言模型支持传统建筑遗产的改造和保护

ArchGPT: Harnessing Large Language Models for Supporting Renovation and Conservation of Traditional Architectural Heritage

资料来源：

Zhang, J., Xiang, R., Kuang, Z. *et al*. ArchGPT: 利用大语言模型支持传统建筑遗产的改造和保护 [J]. 《遗产科学》, 2024, 12: 220. DOI: 10.1186/s40494-024-01334-x.

Source：

Zhang, J., Xiang, R., Kuang, Z. *et al*. ArchGPT: harnessing large language models for supporting renovation and conservation of traditional architectural heritage. *Herit Sci* 12, 220 (2024). https://doi.org/10.1186/s40494-024-01334-x

ArchGPT 是一种协同交互系统，旨在支持传统建筑立面改造、美学提升及修缮指导。除常规对话功能外，该系统还提供“建筑修缮指导”与“修缮效果生成”等专业模块。该系统架构整合了大型语言模型与机器学习领域的专项工具，包括定制化算法模型与人工规则算法。其工作流包含四个核心阶段：任务解析、工具调用、结果生成与反馈优化。如图 1 所示，当用户提交请求时，ArchGPT 以大型语言模型作为控制中枢，自主调度各

ArchGPT is a collaborative system designed to address traditional architectural facade renovation and aesthetic enhancement and guidance for building repairs. In addition to normal dialogue capabilities, it offers specialized functions such as building repair guidance and repair rendering generation. It is comprised of LLMs and external tools from the ML community, including task-specific models or manually crafted algorithms. The workflow involves four stages: Task Parsing, Tool Utilization, Answer, and Feedback. As illustrated in Fig. 1, given a user request, our ArchGPT

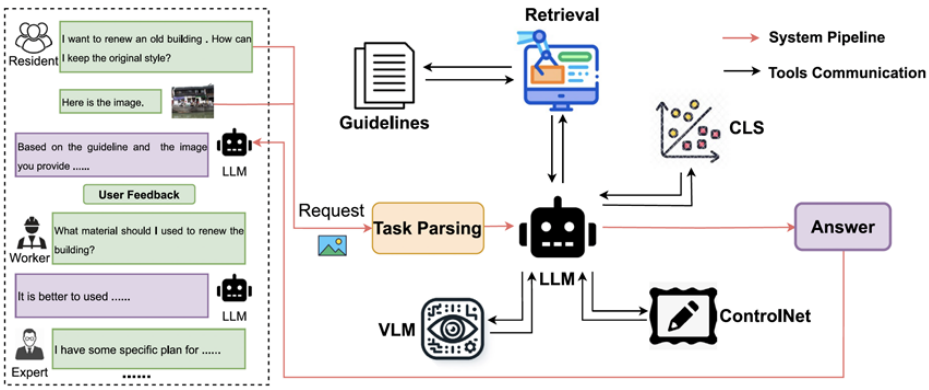

图 1：展示了 ArchGPT 的系统架构 —— 以大语言模型（LLM）为核心控制器响应用户请求。当接收到用户请求时，系统首先进行请求解析以确定任务类型，随后调用相应的外部工具（如视觉语言模型 VLM 与控制生成模型 ControlNet）协同完成任务执行，最终生成响应结果。基于用户反馈，系统可启动多轮对话以实现持续优化。

Figure 1. The architecture of ArchGPT incorporates a LLM as its central controller to respond to user requests. Upon receiving a request, ArchGPT initially parses the request to ascertain the required task. Subsequently, it invokes external tools (such as VLM and ControlNet) to facilitate the completion of this task. Ultimately, a response is generated, and based on the user's feedback, ArchGPT engages in further rounds of conversation.

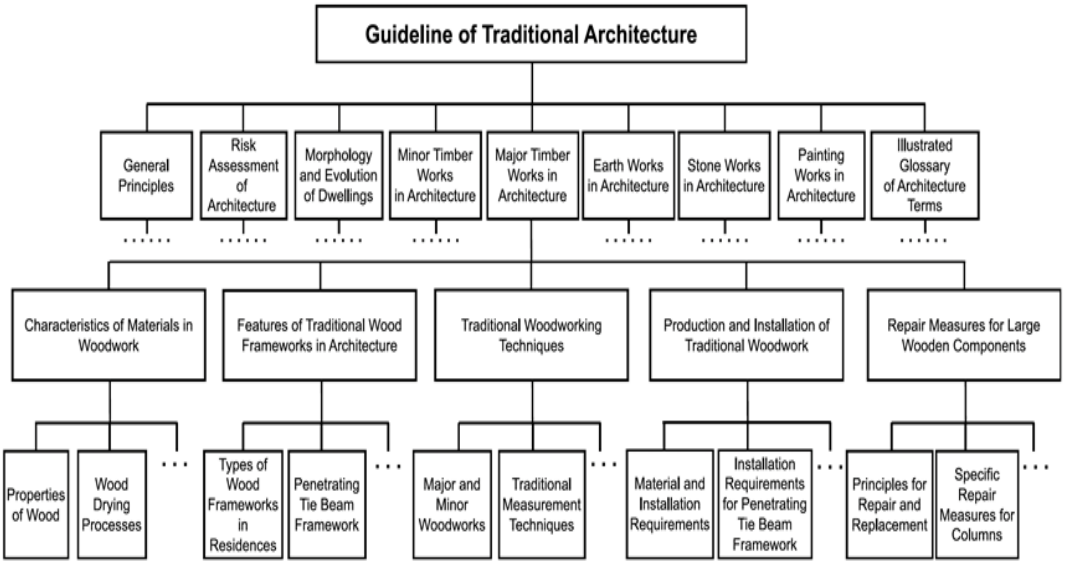

图 2：中国南方传统建筑改造指南结构与内容示意图
Figure 2. Conceptual representation of the structure/content of the guideline for traditional architectural renovation in Southern China

类外部工具完成全流程，最终输出目标成果。

然而，检索型大语言模型可能因专业知识不足而难以准确回应用户咨询。因此，从《传统建筑立面改造与美学提升指南》等专业文献中进行知识检索显得至关重要。本研究提出一种融合 BM25 检索技术与 BERT 语义嵌入的双层文本检索方法，分别对指南文档的章节标题 (It) 与正文内容 (Ic) 进行检索。以福州传统建筑改造指南部分内容为例（图 2），系统根据用户输入查询，通过检索算法从文档中获取最相关的条目 I=(It+Ic)。需要说明的是，在检索执行前，我们首先使用大语言模型对用户输入信息进行关键要素提炼，以生成标准化查询。

BM25 算法：首先，我们采用 Okapi BM25 检索函数作为检索系统的核心基础。BM25 是一种基于概率模型的经典信息检索排序算法，其核心原理是根据查询词项在文档中的出现频率及分布位置，对候选条目 I 进行相关性排序，使最相关条目优先呈现。该算法能对特定文档集中可能相关的条目 I 进行快速初步筛选。具体而言，对于给定查询，我们首先将查询语句进行词元解析，随后通过 BM25 排序函数计算每个条目 I 的匹配得分 BERT 语义

uses an LLM as the controller to autonomously call upon various external tools to complete the workflow, ultimately producing the desired outcome.

Retrieval LLMs may lack professional knowledge to answer the user's question. Thus, retrieving existing knowledge from traditional architectural renovation guidelines is necessary. In this part, we propose a method that combines BM25-based information retrieval techniques with BERT-basedsemantic embedding techniques to perform text retrieval in two layers: the title It and the content Ic. Our aim is to execute effective information retrieval within architectural guideline documents like "Traditional Architectural Facade Renovation and Aesthetic Enhancement Guidelines"5. As shown in Fig. 2, we demonstrate the structure of the guideline for traditional architectural renovation in Fuzhou, China (only a part of the guideline is demonstrated). Based on user-input queries, the Retrieval algorithm obtains the most relevant item I = (It + Ic) from the document. Note that prior to retrieval, we use an LLM to summarize key information from the user's input to generate the query.

BM25: First, we employ the Okapi BM25 retrieval function as the foundation of our retrieval system. BM25 is a classic

嵌入：尽管 BM25 在多数场景下表现良好，但其无法捕捉词汇间的深层语义关联。为此，我们引入基于预训练深度学习模型 BERT 的解决方案，通过生成蕴含丰富语义信息的词向量来突破这一局限。采用 BERT 编码器分别对查询语句与条目 I 进行向量化处理，获得其分布式向量表示。这些语义嵌入向量为我们提供了衡量查询与条目间语义相关性的新维度 —— 具体通过计算归一化后向量的余弦相似度来评估二者语义匹配程度。最终，我们通过加权融合两种方法的得分得到综合检索评分，计算公式如下：

$$Score(I,Q,\alpha)=\alpha\cdot BM25(I,Q)+(1-\alpha)\cdot S(E(Q),E(I)), \quad (1)$$

其中，I 表示从叶节点到根节点的所有标题 It 与叶节点下具体内容 Ic 的组合，Q 代表查询语句，α 是用于平衡 BM25 与语义相似度权重的超参数，BM25 代表 BM25 评分函数，S 表示归一化向量的余弦相似度评分函数，E 为 BERTbase 模型。检索过程将返回得分最高的 I 作为最终结果。完整检索公式定义如下：

$$Retrieve=MAX(Score(I,Q,\alpha),1) \quad (2)$$

其中 MAX 为选取最高分条目的筛选操作，α 取值为 0.4。检索所得结果将与用户原始输入拼接后，输入大语言模型生成最终回复。图像分类模型 (CLS) 鉴于《建筑修缮指南》中不同建筑类型对应不同的改造导则，我们需要通过建筑图像分类模型来匹配适用的改造导则。当系统需要时，这些导则将作为知识补充助力 ArchGPT 回应用户需求。ArchGPT 采用基于 CLIP 微调的 Vision Transformer（ViT）模型，对用户上传的建筑图像进行智能分类。该模型能够准确识别五大类建筑图像：保护类建筑、改造类建筑、提升类建筑、保留类建筑及更新类建筑，每个类别均配有专属的改造技术导则。

视觉语言模型（VLM）：当用户输入

information retrieval ranking function based on a probabilistic model. Its main objective is to rank I with the highest relevance at the forefront based on the frequency and location of query terms within documents. BM25 allows for the rapid and rough filtering of I likely relevant to the query within specific documents. Specifically, for a given query, we start by breaking down the query into tokens and calculating each I's score through the BM25 ranking function. BERT Embeddings: Although BM25 performs well in many scenarios, it cannot capture the deep semantic relationships between words. Therefore, we decided to utilize BERT, a pre-trained deep learning model, to create richer word embeddings that capture semantic information. We encode each query and I with BERT to obtain their vector representations. These embeddings provide us with a method to measure the semantic relevance between query and I. Specifically, we evaluate their semantic similarity by calculating the cosine similarity between the normalized embeddings of the query and the I. We combine the scores from both methods, weighted, to arrive at the final retrieval score, as follows:

$$Score(I,Q,\alpha)=\alpha\cdot BM25(I,Q)+(1-\alpha)\cdot S(E(Q),E(I)), \quad (1)$$

where I is the combination of all titles from a leaf node to the root node It and the specific content under a leaf node Ic , Q is the query, α is weight hyper-parameter used to balance the contribution of BM25 and Similarity, BM25 represents the BM25 scoring function, S represents the cosine similarity score function for normalized embeddings, and E is BERTbase model. The I with the highest score will be returned as the final result of the retrieval process. The final search formula is defined as follows:

$$Retrieve=MAX(Score(I,Q,\alpha),1) \quad (2)$$

where MAX is the selection operation for top-1 item and α is 0.4. The retrieved output will then concatenated with user's origin input for the final answer from LLMs. Classification Model (CLS) Since different types of buildings correspond to different architectural renovation guidelines in the 'Building Repair Guide', we need an architectural image classification model to select the appropriate architectural renovation guidelines. When necessary, these guidelines supplement ArchGPT's knowledge in response to user requests.

建筑图像时，ArchGPT 调用 BLIP 模型自动生成图像描述文本，将视觉信息转化为可供大语言模型理解的语义信息。该机制确保大语言模型能够有效“读取”图像内容，准确理解用户意图并制定相应任务规划。ControlNet 控制网络为实现基于用户建议的既有建筑图像编辑，ArchGPT 采用控制生成式图像编辑模型，实现根据文本提示生成建筑修缮效果图的功能。系统将用户的修缮建议与原始建筑图像共同输入 ControlNet 模型，自动生成建筑修缮后的效果图示。本项目采用当前最先进的图像编辑模型 ControlNet：一种能够基于修缮建议与原始图像生成效果图的强效图像编辑工具，其输出成果可供用户参考并用于优化最终的建筑修缮方案图纸。

ArchGPT 核心任务模块主要承担常规对话、建筑修缮指导与修缮效果图生成三大功能，要求大语言模型具备处理文本与图像多模态提示的能力。为提升任务解析精度，除预设任务解析提示词外，ArchGPT 在接收到图像输入时会自动调用视觉语言模型生成图像描述文本，补充提示信息，并指令大语言模型遵循标准化格式（如 JSON）进行任务解析。我们为此设计了标准化任务模板，要求大语言模型通过结构化字段解析任务。如图 2 所示，该模板参照 HuggingGPT 架构设立四个核心字段："task"（任务类型）、"id"（唯一标识）、"prompt"（用户指令）、"feedback"（用户反馈），共同构成任务解析字典。通过解析该字典结构，ArchGPT 能自动调用大语言模型分析用户需求并分解任务流程。系统同时为模型提供 [示例参考集]，并通过任务解析字典列表维护 _ 对话日志 _。该机制使大语言模型能够追溯用户提及的上下文资源，并将其动态纳入任务规划体系。

当用户输入被仅解析为普通对话时，大语言模型会直接响应用户的提示 (若有图像输入，则会调用视觉语言模型（VLM）来获取图像描

ArchGPT utilizes a fine-tuned Vision Transformer (ViT) model based on CLIP to classify user-uploaded architectural images. It is capable of recognizing five types of architectural categories, including preserved, renovated, improvement, retained, and transformed buildings. Each category has its specific renovation guidelines.

Visual Language Model (VLM): As long as the user inputs an image, ArchGPT utilizes BLIP to generate captions for images to provide the LLM with detailed image information in text form as much as possible, ensuring that the LLM can “read” the image, understand user intent, and make accurate task planning. ControlNet To edit old architectural images based on user suggestions, ArchGPT employs an image editing model to implement the functionality of rendering old building restorations based on prompts. ArchGPT inputs the user’s renovation suggestions along with the original architectural image into the image editing model to generate effect images of the renovated building. In this project, we utilize the latest image editing model, ControlNet a powerful image editing mode capable of generating effect images based on renovation suggestions and the original image, helping users reference and improve the final renovation architectural drawings.

ArchGPT’s primary tasks include Normal Dialogue, Building Repair Guidance, and Repair Rendering Generation, which means the LLM needs to handle prompts of two types: language and image. To help the LLMs better parse user prompts, in addition to setting the Task Parsing Prompt6 for ArchGPT, ArchGPT also automatically use VLM to obtain image descriptions to supplement the text prompt when there is image as input, and instruct the LLM to adhere to specific standards (e.g., JSON format) for parsing prompts. Therefore, we designed a standardized task template that requires the LLM to parse tasks through fields. As shown in the task parsing illustration in Fig. 2, similar to HuggingGPT, the task parsing template includes four fields (“task”, “id”, “prompt”, “feedback”) to represent the task name, unique identifier, user prompt, and user feedback. By parsing the task parsing dictionary, ArchGPT can automatically use the LLMs to analyze user requests and parse tasks accordingly. We also provide {Demonstrations} for LLM’s reference, and maintain a _ChatLogs_ using

述，以补充文本提示）。当用户输入被解析为建筑修复指导时，系统会使用检索模块在建筑文档中搜索最相关的内容来补充用户的文本提示（若有图像输入，则调用分类模型（CLS），用相应的建筑翻新指南来补充文本提示），然后将必要的专业知识提供给大语言模型，以确保其能准确回复。当用户输入被解析为修复效果渲染生成时，由 CLS 和 VLM 模型补充后的文本提示，连同原始图像，会一同输入到 ControlNet 中，以获得编辑后的图像。上述 ArchGPT 的工作流程可被形式化地表述为：

$$Answer = LLMs(Parse(Request), Tool) \quad (3)$$

其中，Request（用户请求）与 Answer（系统响应）分别代表用户输入和 ArchGPT 的反馈结果，其形式可为文本或图像。Parse（任务解析）指大语言模型对用户输入进行结构化解析，生成标准化任务指令的过程。Tool（工具调用）表示根据标准化指令需调用的外部工具，LLMs（大语言模型执行端）则代表通过调用工具集与提示词引擎，依照解析结果完整执行工作流程的核心处理模块。

反馈机制指用户接收系统响应后提供的评估反馈。所有反馈数据均存储于任务解析字典的 "feedback" 字段，并持久化保存至 _ 对话日志 _ 系统。当用户提供积极确认反馈时，ArchGPT 响应流程终止；若用户提出修改需求或负面反馈，系统将基于反馈内容重新启动完整工作流，循环迭代直至用户满意。

本文深入探讨了 ArchGPT 在建筑领域的广泛应用及其对传统建筑改造与保护实践的深远影响。通过分析多个实际应用场景，研究表明：ArchGPT 为建筑设计与规划带来了前所未有的创新效能，采用强大语言模型作为系统控制核心对精准完成用户需求具有必要性。此外，该技术在传统建筑保护、公众教育及可持续建筑实践推广等方面亦发挥着关键作用。

a task parsing dictionary list, where LLM can track the resources mentioned by users and incorporate them into task planning.

When a user input is solely parsed as Normal Dialogue, the LLM directly responds to the user's prompt (When there is an image input, a VLM is called to obtain image captions to supplement the text prompt.). When user input is parsed as Building Repair Guidance, the retrieval module is used to search the architectural documents for the most relevant items to supplement the user's text prompt (When there is image input, call the CLS model to supplement the text prompt with the corresponding architectural renovation guidelines), and then necessary expertise is provided to the LLM to accurately reply. When user input is parsed for Repair Rendering Generation, the text prompts supplemented by CLS and VLM model, along with the image, are input into ControlNet to obtain the edited image. The aforementioned workflow of ArchGPT can be formalized as:

$$Answer = LLMs(Parse(Request), Tool) \quad (3)$$

where Request and Answer respectively represent the user input and the response result of ArchGPT, which can be in the form of text or image. Parse represents the LLM's formatting analysis of user input to obtain standardized task instructions. Tool represents the tools that need to be called for the standardized task instructions, and LLMs represents the execution of the entire workflow by calling tools and prompt according to the parsed instructions.

Feedback is the evaluative feedback from a user after receiving the Answer. All feedbacks are stored under the feedback field in the task parsing dictionary, which is then saved in the _ChatLogs_ . When a user provides positive affirmative feedback, it signifies the end of the ArchGPT response. If the user provides unsatisfied or negative feedback requiring modifications, ArchGPT will execute the complete workflow from the beginning again based on the content of the feedback, until the user is satisfied.

In this paper, we delve deeply into the extensive applications of ArchGPT in the field of architecture and its profound impact on traditional architectural renovation and preservation practice. Through the analysis of various real-world usage scenarios, we conclude that ArchGPT has brought unprecedented innovation and efficiency to

另一个关键点在于，居民、遗产保护人员与专家之间的沟通至关重要。通过改善沟通机制，各方利益相关者能够更有效地开展协作，确保所采取的措施既及时又符合最佳保护实践。如图 1 所示，ArchGPT 显著促进了知识的多维动态交互。未来我们计划构建在线协作平台，既促进专业讨论，又持续收集数据以优化 ArchGPT 的问题解决能力。

此外，本研究深入探索了 ArchGPT 在城市传统建筑遗产更新与保护设计中的潜在应用。图 3 展示了该系统如何从既有建筑影像中提取信息，并生成不同建筑立面的修复与更新方案。具体而言，ArchGPT 通过其视觉语言模块 (VLM) 与图像分类模块 (CLS) 精准界定修复任务类型，在此基础上动态调取并适配知识库中的修复导则，生成定制化修复策略。借助 ControlNet 技术，ArchGPT 将修复方案转化为直观的可视化成果，为所有利益相关方提供具体可行的视觉参照。应用结果表明，ArchGPT 能对建筑的历史沿革、结构特征及现状损毁进

architectural design and planning, and that the powerful LLM as an ArchGPT controller is necessary to accurately complete user requests. Additionally, it plays a vital role in traditional architectural preservation, public education, and the promotion of sustainable building practices.

Another important point is that communication among residents, heritage conservation personnel, and experts emerges as a critical factor. By improving communication, stakeholders can collaborate more effectively, ensuring that the actions taken are both timely and in line with the best preservation practices. As shown in Fig.1, ArchGPT facilitates a more dynamic exchange of knowledge. In the future, we plan to create an online platform to facilitate discussions and collect more data to continually optimize ArchGPT's problem-solving capabilities.

In addition, we explore the potential applications of ArchGPT in the renewal and preservation design of urban traditional architectural heritage. Figure 3 illustrates how ArchGPT extracts information from existing architectural photographs and generates restoration and renewal plans for different building facades. Specifically,

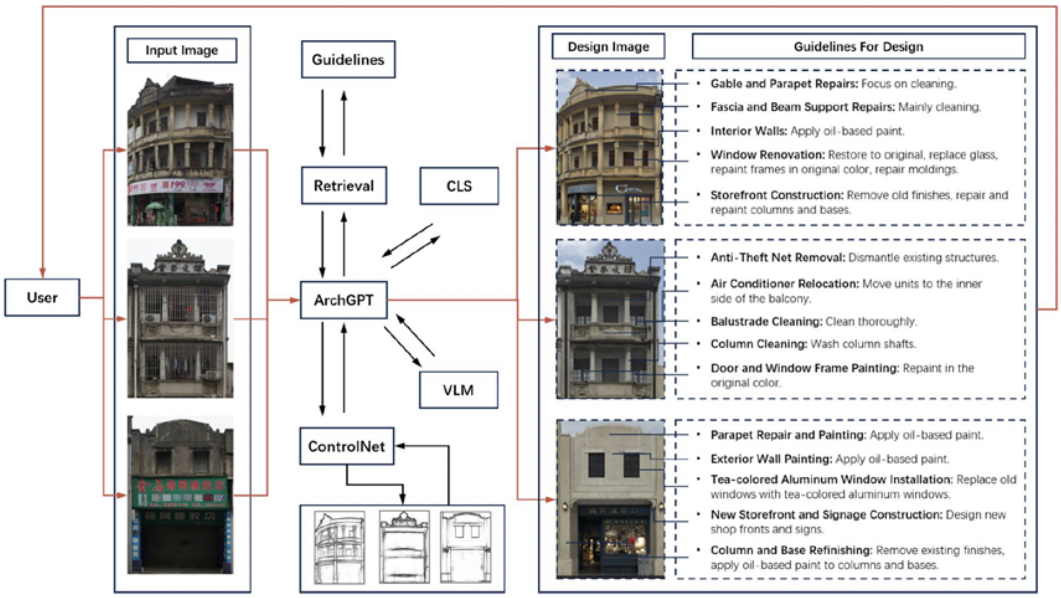

图 3：ArchGPT 在传统建筑遗产更新与保护中的应用
Figure 3. ArchGPT application in traditional architectural heritage renovation and conservation

行系统分析，确保修复方案遵循以下原则：尊重并保护建筑的历史价值，满足现代使用需求，采用适宜修复技术保障长期稳定性。具体实施措施如图 3 所示，包括拆除防盗网等非原构件，恢复门窗框体原始色调，调整空调机位至隐蔽位置以维护建筑外观完整性。值得关注的是，窗户改造采用与原始风格相协调的茶色铝合金窗框，体现了传统材料与现代工艺的融合。此外，立面清洗、修补与涂装工作既旨在恢复建筑原始风貌，又为其提供抵御环境侵蚀的附加保护层。

总体而言，本研究展示了 ArchGPT 在传统建筑遗产更新与保护实践中的具体应用成果，证明了该系统不仅对历史建筑细部特征具有深度理解能力，更实现了保护性修复在现代城市环境中的技术可行性。通过此类精细化、个性化的修复方案，我们能够有效协调各方需求，推动建筑遗产的保护与活化传承。

当前 ArchGPT 的局限在于外部工具集的覆盖范围。系统现有四大核心工具虽能有效提升任务解决能力，我们仍计划通过引入三维渲染引擎、网络搜索模块等扩展工具库来增强系统功能。此外，我们拟突破现有三大应用场景的框架，设计更丰富的任务范式，以拓展系统在真实世界的应用广度。

此外，以 GPT-4 为代表的多模态模型最新进展揭示了一个重要发展方向：通过减少对外部模块的依赖，可显著简化系统架构设计与实施流程。尽管这类集成化模型在降低操作复杂性方面具有明显优势，但也面临计算资源需求激增及运营成本上升等挑战。未来研究将重点探索部署高性能开源多模态模型的可行性，在保持同等功能的前提下，不仅有望降低多工具协同管理的技术负荷，更顺应了模型效能持续提升的行业趋势。然而，必须审慎评估其中的平衡关系 —— 特别是在成本效益与用户可及性方面 —— 以确保该技术能在建筑保护与

ArchGPT precisely delineates the types of restoration tasks through its VLM and CLS modules. Based on this, it dynamically extracts and adjusts restoration guidelines from its knowledge base, producing customized restoration strategies. With the aid of ControlNet technology, ArchGPT translates restoration plans into intuitive visualizations, providing concrete and feasible visual references for all stakeholders. The application results demonstrate that ArchGPT conducts thorough analyses of the buildings' historical context, structural characteristics, and current damages, ensuring that the restoration plans adhere to the following principles: respect and preserve the building's historical value, accommodate modern functional requirements, and employ appropriate restoration techniques for long-term stability. Specific actions, as shown in Fig. 3, include removing non-original structures such as anti-theft nets, restoring the original color of door and window frames, and relocating air conditioning units to more concealed positions to avoid disrupting the building's appearance. Notably, the window renovation includes tea-colored aluminum frames that harmonize with the original style, exemplifying the integration of traditional materials with modern technology. Furthermore, facade cleaning, repair, and painting are aimed at restoring the building's original visual effect while providing an additional protective layer against future environmental degradation.

Overall, this study showcases the practical application of ArchGPT in the renewal and conservation projects of traditional architectural heritage, demonstrating both its deep understanding of historical architectural details and the feasibility of implementing conservation-oriented restorations in modern urban environments. Through such refined and personalized restoration plans, we can align the needs of all stakeholders, further advancing the protection and revitalization of architectural heritage.

One limitation of ArchGPT is the scope of its external tools. Currently, it incorporates four tools designed to enhance task-solving capabilities. We plan to expand this toolkit by introducing additional resources, such as 3D rendering and internet searching, to enhance our system's functionality. Additionally, we intend to design a broader range of task

修复领域实现广泛普及。

总而言之，作为革命性技术工具，ArchGPT 在传统建筑保护与适应性再生中的应用，成功打破了专业知识壁垒，通过人机交互促进了跨学科协作。这既提升了项目执行效率，又凝聚了不同背景利益相关方的共识，助力制定更全面多元的保护更新策略。最重要的是，ArchGPT 推动建成既延续历史传统、又满足当代需求的城市建筑改造作品，为传统建筑遗产的创新性保护提供了全新可能。

scenarios beyond the existing three, aiming to achieve wider real-world applicability.

Moreover, recent advancements in multimodal models, exemplified by GPT-4, indicate a promising direction where the dependence on external modules might be significantly reduced, thereby streamlining the architecture design and implementation processes. While these integrated models offer the allure of simplification and potentially lower operational complexities, they come with their own set of challenges, primarily related to higher computational demands and associated costs. Future research will explore the feasibility of deploying high-performance open-source multimodal models that can provide similar capabilities. This approach not only promises a reduction in the logistical and technical overhead of managing multiple external tools but also aligns with the ongoing trends of increasing model efficiency and effectiveness. However, it is crucial to evaluate the trade-offs involved, particularly in terms of cost-effectiveness and accessibility for users, ensuring widely adopted within the field of architectural conservation and restoration.

In summary, as a revolutionary technological tool, ArchGPT's application in the preservation and adaptive reuse of traditional architecture has broken down the barriers of professional knowledge, facilitating interdisciplinary communication and collaboration through human-computer interaction. This not only enhances the efficiency of project implementation but also fosters consensus among stakeholders from diverse backgrounds, contributing to the development of more comprehensive and diverse conservation and renewal strategies. Most importantly, ArchGPT helps to renovate urban renovation architectural works that reflect historical traditions, while meeting the needs of contemporary society and providing new possibilities for innovative protection of traditional architectural heritage.

平台动态 Platform Dynamics

方志城图中的城市规划经验及其保护传承实践——以陕西榆林古城为例

The Urban Planning Experience and Its Protection and Inheritance Practice in the Fangzhi City Map—Taking Yulin Ancient City in Shaanxi Province as an Example

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摘要

随着历史城市保护更新工作不断向纵深推进，构建中国历史城市保护更新的本土化理论体系与技术方法迫在眉睫。本文以榆林方志城图作为研究对象，在榆林地方历史文献与实地踏勘测绘的基础上，通过对榆林相关方志城图的梳理与归纳，分别从自然山水格局、人文空间营造、地方八景营建和军事防御系统四个方面研究，总结其城市的发展演变历程及其规划营造的历史经验，探讨并提出如何在当代城市规划中进行应用与传承的实践策略。

1 方志城图中蕴含的城市规划智慧

中国古代方志城图蕴含着丰富的城市规划智慧，其内容涵盖城池、山川、建筑等要素，通过刻画形态与布局点位，体现城市与自然的关系、人文空间秩序及景观造景手法。通过方志城图资料收集与挖掘、图纸构成要素提取、要素解构判别、方志城图中蕴含的空间营建智慧及规律分析、城市规划经验总结与反思解构中国方志城图，有助于挖掘传统营城经验，推动其在当代城市规划中的创新应用（图 1）。

2 榆林古城及历史城图概况

陕西北部的榆林市作为中国西北地区重要

Abstract

With the continuous advancement of historical city protection and renewal work, it is urgent to construct a localized theoretical system and technical methods for the protection and renewal of Chinese historical cities. This article takes the Yulin Fangzhi City Map as the research object. Based on the local historical literature and on-site surveying and mapping of Yulin, by sorting and summarizing the relevant Fangzhi City Maps of Yulin, it studies the natural landscape pattern, cultural space creation, local eight scenic construction, and military defense system from four aspects, summarizes the development and evolution process of its city and the historical experience of planning and construction, Explore and propose practical strategies for application and inheritance in contemporary urban planning.

1 The urban planning wisdom contained in the Fangzhi City Map

Ancient Chinese Fangzhi city maps contain rich urban planning wisdom, covering elements such as cities, mountains, rivers and buildings, and reflecting the relationship between the city and nature, the humanistic spatial order, and the landscape creation methods through the carving of the form and the layout of the points. Through the collection and excavation of Fangzhi city maps, extraction of the constituent elements of the drawings,

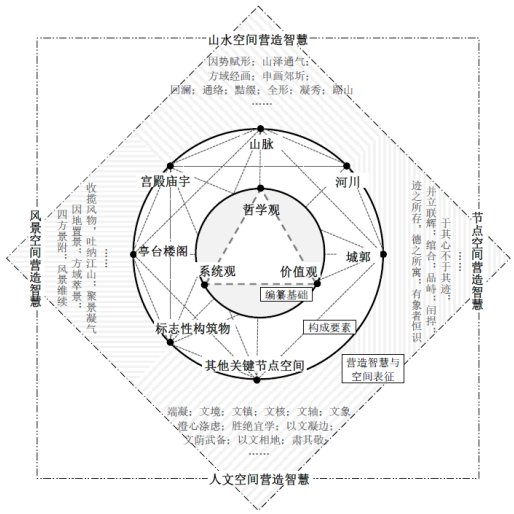

图 1：方志城图的构成逻辑及其蕴含的城市营造智慧 - 作者自绘
Figure 1. The composition logic of Fangzhi City Map and the urban construction wisdom it contains - Self drawn by the author

的边塞城市和军事重地，区域空间格局的战略意义重大，其城市规划建设蕴含了诸多宝贵的营建经验。本文通过对《陕西通志》、《榆林府志》、《延绥镇志》、《榆林县志》等史志文献进行梳理归纳，从中整理出关于榆林的舆图，为我们研究榆林历史城图规划概况提供宝贵的信息，也为我们探讨陕西方志舆图、解释中国古代地图制作的相关问题提供案例。

3 榆林城图中的规划经验

3.1 大尺度自然山水格局

榆林自古即为“边陲冲要，全陕藩篱，北临沙漠，巍然雄镇”，由于特殊的城市职能，于驼山西麓，红山、黑山、王墓山三山环卫，

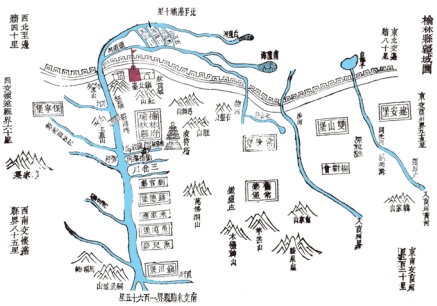

图 2：榆林山水空间格局 - 改绘自道光二十一年（1841）《榆林府志》榆林县疆域图
Figure 2. Yulin Landscape Spatial Pattern - Adapted from the Yulin County Territory Map in the Yulin Fuzhi of the 21st year of the Daoguang reign (1841)

deconstruction and identification of the elements, analysis of the spatial construction wisdom and laws contained in the Fangzhi city maps, and summary and reflection on urban planning experience, the deconstruction of Chinese Fangzhi city maps will help to excavate the traditional experience of city construction and promote its innovative application in contemporary urban planning(Figure 1).

2 Overview of Yulin Ancient City and Historical City Map

As an important border city and military center in Northwest China, Yulin City in northern Shaanxi is of great strategic significance in terms of regional spatial pattern, and its urban planning and construction contains many valuable construction experiences. In this paper, through combing and summarizing the historical documents such as Shaanxi Tongzhi, Yulin Fuzhi, Yansui Zhenzhi, and Yulin Xianzhi, we have compiled the public opinion maps about Yulin, which provide valuable information for us to study the overview of Yulin’s historical city map planning, and also provide us with a case study for exploring the public opinion maps of Shaanxi’s Fangzhi, and explaining the related problems of map making in ancient China.

3 Planning Experience in Yulin City Map

3.1 Large-scale natural landscape pattern

Yulin since ancient times, that is, “the frontier key, the whole of Shaanxi fence, north of the desert, towering town”, due to the special functions of the city, in the foothills of Camel Hill West, Red Mountain, Black Mountain, Wang Tomb Hill, three mountains surrounded by the Yuxi River, Yuyang River, the two rivers blocked the place where the site of building a city, but also have celery, Willow two river ditch to the west, the Hongshixia Reservoir and Youjiagou Reservoir distributed in the countryside north and south. Mountains surrounded by water, constituting the natural landscape scenery within the countryside around the city of Yulin. Yulin city and the surrounding natural landscape relationship (Figure 2).

3.2 Urban humanistic spatial pattern

榆溪河、榆阳河两河阻隔之处选址筑城，亦有芹、柳二河沟通向西、红石峡水库与尤家沟水库分布于郊野南北。山环水绕，构成榆林城市周边郊野范围内的自然山水形胜。榆林城市与周边自然山水关系 (图 2)。

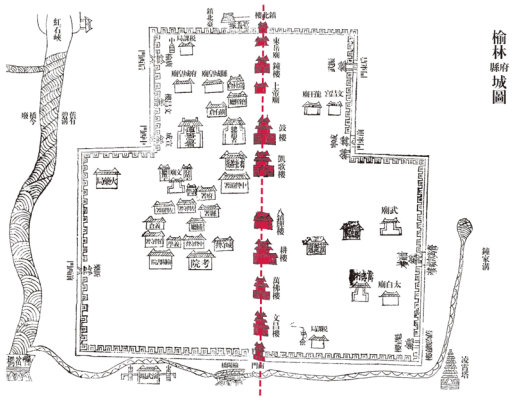

图 3：榆林古城“中轴线” - 改绘自道光二十一年（1841）《榆林府志》榆林县府城图
Figure 3. “Central Axis” of Yulin Ancient City- Adapted from the Yulin County City Map in the Yulin Fuzhi of the 21st year of the Daoguang reign (1841)

3.2 城市人文空间格局

榆林古城城内一条纵贯南北长达 6.8 公里的轴线，形成了“北台南塔，六楼骑街”的城市空间特色，明中期以来的榆林号称“小北京”。在榆林历史城市空间的传承过程中，中轴线蕴含了榆林历史城市传统文化的精髓，因此榆林亦有“六楼骑街天下名”的美誉（图 3）。

3.3 城市风景体系营建

明清时期，文人墨客遍观榆林古城山水胜迹，演化凝练形成反映人文与自然景观的“榆林八景”。一定意义上，对榆林八景的研究，就是对榆林城市风景体系中的核心要素的探究。榆林八景有康熙《延绥镇志》与道光《榆林府志》记载的两个版本，历经调整，在内容及空间分布上均产生了一定的变化。两版“八景”的风景类型均以自然景观类为主，“八景”的分布由郊野尺度偏向城市尺度，与城市的结合更为紧密（图 4）。

4 榆林历史文化名城保护规划实践

Yulin ancient city of a longitudinal north-south axis up to 6.8 kilometers, the formation of the “North Terrace and South Tower, six floors and riding streets” of the urban spatial characteristics of Yulin since the middle of the Ming Dynasty, known as the “Little Beijing”. In the inheritance process of Yulin’s historical urban space, the central axis contains the essence of the traditional culture of Yulin’s historical city, which is why Yulin has the reputation of “six floors and riding streets” (Figure 3).

3.3 Yulin city map in the planning experience

During the Ming and Qing Dynasties, literati and ink masters visited the landscapes of the ancient city of Yulin, and evolved and condensed to form the “Eight Scenes of Yulin” reflecting the humanities and natural landscapes. In a certain sense, the study of Yulin eight scenes is to explore the core elements of the Yulin urban landscape system. The Eight Scenic Spots of Yulin have two versions recorded in Kangxi’s Yansui Zhenzhi and Daoguang’s Yulin Fuzhi, through the adjustment, in the content and spatial distribution have produced certain changes. Both versions of the “Eight Scenic Spots” are mainly natural landscape types, and the distribution of the “Eight Scenic Spots” is skewed from the countryside scale to the urban scale, which is more closely integrated with the city (Figure 4).

4 Yulin Historical and Cultural City Protection Planning Practice

Since the reform and opening up, with the rapid development of Yulin City, part of the historical and cultural heritage has been damaged and destroyed, which has formed the real contradiction of Yulin’s “historical and cultural richness, but the cultural heritage is relatively barren, the disappearance of the cultural environment, and the lack of network coherence”. Therefore, it is necessary to re-recognize the wisdom of landscape and humanities in the traditional city construction, inherit the spirit of landscape and humanities, continue the historical lineage, and awaken the soul of the ancient city.

4.1 Restoration of the overall landscape city pattern

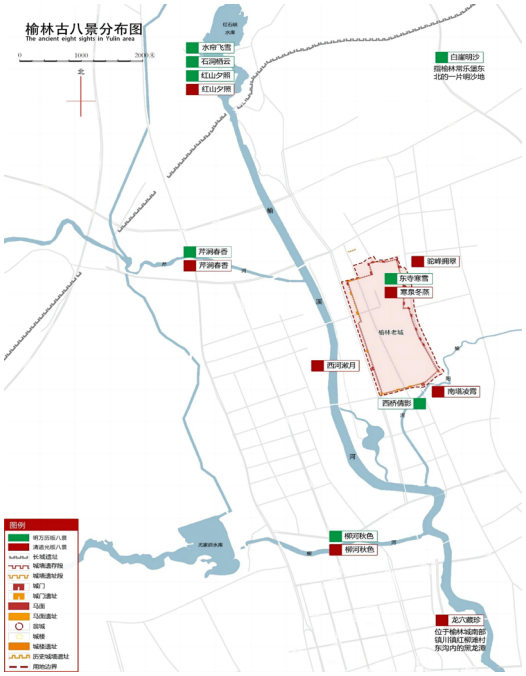

图 4：榆林古代八景分布图 - 作者自绘
Figure 4. Distribution Map of the Eight Ancient Scenic Spots in Yulin - self drawn by the author

改革开放以来，随着榆林市的快速发展，部分历史文化遗产遭到破坏、损毁，由此形成了榆林“历史文化富集，但文化遗存相对贫瘠，文化环境消失，且缺乏网络连贯性”的现实矛盾。因此，需要重新认识传统营城中的山水人文智慧，传承山水人文精神，延续历史文脉，唤醒古城灵魂。

4.1 山水城市整体格局修复

4.1.1 “四山环拱”——山城格局修复

榆林古城东依驼峰山，顺山势起伏，黄土色泽赋予其苍凉雄浑之势，虽外表残破却更具历史感，契合其古代边塞军事重镇特征。“山与城”格局修复参照“四山环拱”秩序与层次，提出“远山目可览，近山行可达”思路：远山作生态屏障控周边建设；近山营造郊野游憩空间。针对古城高低起伏地势，强调视线景观系统设计，寻重要观景点及制高点，打造视线通廊与城市界面，优化景观环境，展现古城形体秩序与空间关系。

4.1.2 “两水绕城”——水城格局修复

4.1.1 “Four mountains around the arch” - Mountain city pattern restoration

Yulin ancient city east of Hunchback Mountain, along the undulation of the mountains, loess color gives its cool and majestic momentum, although the appearance of the dilapidated but more sense of history, fit its ancient border military town characteristics. The restoration of the “mountain and city” pattern refers to the order and hierarchy of the “four mountains”, and proposes the idea of “distant mountains can be seen, and the near mountains can be reached”: the distant mountains are used as ecological barriers to control the construction of the surrounding area; Nearby mountains create countryside open space. In view of the undulating terrain of the ancient city, the design of sightline landscape system is emphasized, and important viewpoints and high points are sought to create sightline corridors and urban interfaces, optimize the landscape environment, and show the order of the ancient city form and spatial relationships.

4.1.2 “Two waters surrounding the city” - Restoration of Water City Pattern

With the ecological corridors of the Wuding River, the Bald Tail River and the Yuxi River as the skeleton, and the important lakes and wetlands, nature reserves, water reserves and important cultural relics as the mosaic of “Three corridors - three belts - many pieces” ecological protection pattern, so that the city and the mountains and water blend to form a landscape of mountains and water in the city. Yulin “water and city” restoration should highlight the ecological theme, highlight the ecological qualities of the Yuxi River, retain and repair the green space on both sides of the river, connecting the Hongshixia Reservoir and Youjiaxuan Reservoir to form a riverside landscape zone, creating a landscape corridor in the center of the city to show the characteristics of the waterfront. It creates gradual space at the change of water trend, shows the natural wild interest and creates a pleasant place for recreation.

4.1.3 “Mountain and water as the shape, the ancient city as the core, the central axis connecting” - Water corridor organization

以无定河、秃尾河和榆溪河生态廊道为骨架，以重要湖泊湿地、自然保护区、水源保护区和重要文物古迹为镶嵌的“三廊——三带——多片”生态保护格局，使城市与山水交融，形成山水融城景观。榆林“水与城”修复应突出生态主题，凸显榆溪河生态特质，保留并修复两岸绿地，连接红石峡水库和尤家峁水库形成滨河景观带，打造城市中心景观通廊，展示滨水特色。于水体走势变化处营造渐变空间，展现自然野趣，打造宜人休闲场所。

图 5：榆林古城“视线通廊”空间格局分析 - 作者自绘
Figure 5. Spatial Pattern Analysis of the “Vision Corridor” in Yulin Ancient City - Self drawn by the author

4.1.3 “山水为形，古城为核，中轴串接”——山水廊道组织

山水廊道组织引导是“山—水—城”格局修复的主要手段。“山水为形，古城为核，中轴串接”统领榆林山水意象。基于历史城图研究，依视线通畅、占地势高点原则，打造 5 处观景点构建古城视线体系，挖掘完善视线系统。依托古城五大视点，控制引导各观景点视域景观，保障视线廊道通达，形成古城至高点至榆溪河、凌霄塔至镇北台视线通廊并重点控制引导（图 5）。

4.2 古城空间网络与风貌修补

4.2.1 榆林城市空间网络“点”的保护传承

榆林历史城市的大发展始于明代初期，并保留下大量古建筑诸如八政牌楼、关帝庙等，这些城市空间以“点”形式存在，并在很大程度上影响了榆林历史城市的格局和风貌。榆林历史城市空间与周边的环境是不可分割的，以

Landscape corridor organization is the main means to guide the restoration of the “mountain - water - city” pattern. “Mountains and water as a shape, the ancient city as the core, the central axis connecting” leading Yulin landscape imagery. Based on the research of historical city map, according to the principle of smooth sight line and high point of terrain, we build 5 viewpoints to construct the sight line system of the ancient city, and excavate and perfect the sight line system. Relying on the five major viewpoints of the ancient city, control and guide the view of each viewpoint landscape, to ensure the accessibility of the view corridor, the formation of the ancient city to the high point to the Yuxi River, the Lingxiao Pagoda to the Zhenbei Terrace view corridor and focus on the control and guidance (Figure 5).

4.2 Spatial network and landscape repair of the ancient city

4.2.1 Protection and inheritance of “point” of Yulin urban space network

The great development of Yulin historical city began in the early Ming Dynasty, and a large number of ancient buildings such as Bazheng Paiulou and Guandi Temple are preserved. These urban spaces exist in the form of “dots”, and to a large extent influence the pattern and appearance of the historical city of Yulin. Yulin historical urban space is inseparable from the surrounding environment. Take the Bell Tower for example, as an important landscape node on the central axis, the Bell Tower is coordinated with the surrounding environment through the architectural spatial scale (microscopic), the regional visual scale (mesoscopic), and the urban scale profile line-of-sight analysis (determination of the building height limit), reflecting the continuity of the life around the ancient building in the historical period (Figure. 6).

4.2.2 Protection and inheritance of Yulin urban space network “line”

The historical urban space of Yulin is not only point-like space, but also a large number of “linear” urban space, which is an important part of the pattern of the ancient city, mainly including streets and alleys, city walls, axes and so on. Protect the

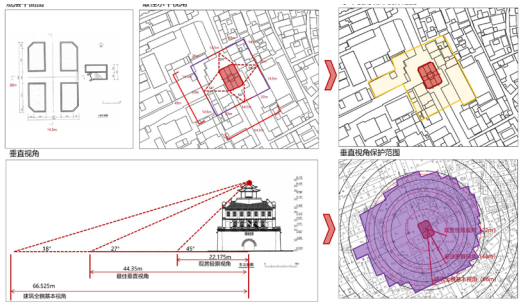

图 6：钟楼空间规划保护格局修复 - 作者自绘
Figure 6. Restoration of spatial planning and protection pattern of the clock tower - Self drawn by the author

钟楼为例，钟楼作为中轴线上的重要的景观节点，通过建筑空间尺度（微观）、区域视景尺度（中观）、城市尺度剖面视线分析（建筑限高确定）等对其周围环境进行协调，体现历史时期古楼周围生活的延续性（图 6）

4.2.2 对榆林城市空间网络“线”的保护传承

榆林历史城市空间不仅有点状空间，也有大量的“线性”城市空间，他们是古城格局的重要组成部分，主要包括街巷、城墙、轴线等。保护好古城井田式道路骨架和历史上形成的街巷格局，以及现有街巷的空间尺度，规划重点保护这条古城南北主轴线；规划保护好古城“刀币”型轮廓的平面，逐步修复现较为残破的城段，恢复南北城墙，使其形成一个完整的城墙（图 7、图 8）；并对中轴线上的建筑进行分类保护（图 9）。

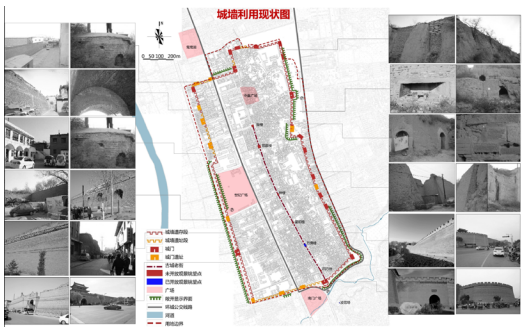

图 7：城墙遗产本体风貌修复 - 作者自绘
Figure 7. Restoration of the Original Appearance of the City Wall Heritage - Self drawn by the author

4.2.3 对榆林城市空间网络“面”的保护传承

ancient city’s well-field road skeleton and the historically formed street pattern, as well as the spatial scale of the existing streets and lanes, and plan to focus on the protection of the main north-south axis of

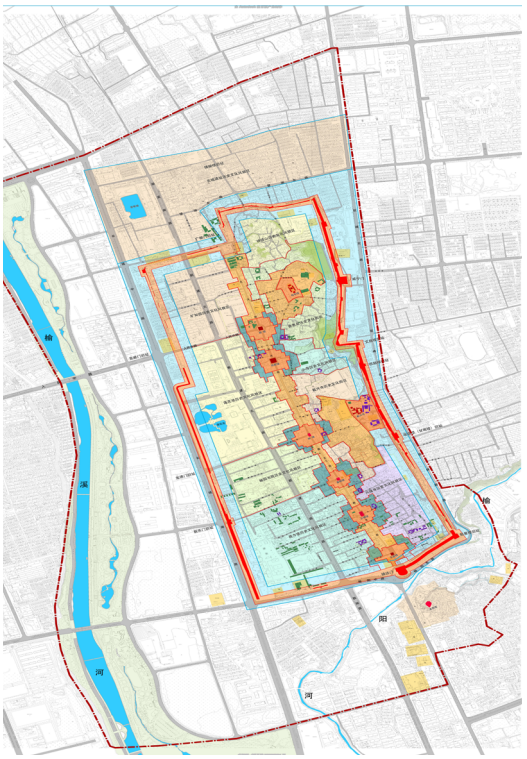

图 8：榆林历史文化名城保护区划图 - 作者自绘
Figure 8. Yulin Historical and Cultural City Protection Zone Map - Self drawn by the author

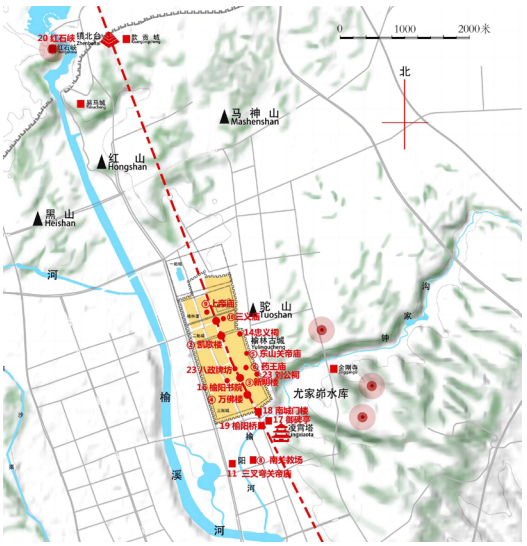

图 9：榆林“中轴线”空间格局 - 作者自绘
Figure 9. Spatial pattern of Yulin's “central axis” - Self drawn by the author

榆林古城中的众多城市空间遗存紧密联系，共同构成了具有鲜明地域特色的榆林历史城市空间。镇北台和红石峡虽建造于不同时代，在特征上也不尽相同，但是由于特殊的地理环境和因地制宜的精心设计，使它们在空间布局上达到高度统一。关帝庙曾与周边宗教空间形成“四寺夹一庙”格局，而今古城寺庙所剩无几，但现存戴兴寺寺庙群延续了此格局，通过保护宗教建筑本体及提升周边环境，可实现对古城格局的保护与展示。

the ancient city; plan to protect the plane of the ancient city's "knife-coin" outline, gradually repair the more dilapidated sections of the city, and restore the north-south wall, so that it can form a complete wall (Figure 7 Figure 8); and classify and protect the buildings on the central axis (Figure 9).

4.2.3 Protection and inheritance of the "face" of Yulin urban space network

Many urban space remains in the ancient city of Yulin are closely connected, and together they constitute the historical urban space of Yulin with distinctive regional characteristics. Although Zhenbeitai and Hongshixia were built in different times and have different characteristics, they have achieved a high degree of unity in spatial layout due to the special geographic environment and careful design tailored to local conditions. Guandi Temple used to form a pattern of "four temples interspersed with one temple" with the surrounding religious space, but nowadays there are few temples left in the ancient city, but the existing Daixing Temple Temple Group continues this pattern, and the protection and display of the pattern of the ancient city can be realized through the protection of the religious buildings and the enhancement of the surrounding environment.

活动报道 Latest Events

联合国教科文组织“世界文化政策与可持续发展大会”在巴塞罗那举行

Barcelona Hosts UNESCO MONDIACULT 2025

资料来源 Source：
https://wiobs.com/104000-2/

图 1：大会海报
Figure 1. The poster of the conference

在全球地缘政治分野加剧与技术急剧变迁之际，文化正日益凸显为凝聚共识的纽带。2025 年 9 月 29 日至 10 月 1 日，巴塞罗那成为联合国教科文组织“世界文化政策与可持续发展大会”（Mondiacult 2025）的举办地，由此跃升为全球文化对话的核心场域。来自 160 余个国家的代表与数百位文化界领袖齐聚一堂，并在会议闭幕时达成具有里程碑意义的承诺：重申文化作为全球公共事物的地位，并以坚实的文化政策强化国际合作。

为期三天的会期中，各国文化部长们与文化专家围绕《2022 宣言》六大优先领域展开深入探讨 —— 从遗产保护到文化创意产业推进，议题广泛而紧迫。会议另设两项专题焦点：确保文化政策的包容性，以及谋划文化融入“后 2030”全球发展框架的路径。

会议闭幕式上，194 个会员国一致通过成果文件，重申共同愿景 —— 文化并非边缘，而是构建可持续社会的核心。该路线图列明强化文化合作、完善公共文化政策，并为政府配备更

In a world marked by geopolitical divides and rapid technological change, culture is emerging as a unifying thread. From September 29 to October 1, Barcelona became the center of global dialogue on culture as it hosted UNESCO's World Conference on Cultural Policies and Sustainable Development (Mondiacult 2025). More than 160 countries and hundreds of cultural leaders participated, with the event concluding in a landmark commitment: to reaffirm culture as a global public good and strengthen international cooperation through robust cultural policies.

Over the three days, ministers and cultural experts examined pressing issues spanning six priority areas of the 2022 Declaration—ranging from heritage protection to advancing cultural and creative industries. Discussions were also enriched by two specific focus areas: ensuring inclusivity in cultural policy and charting the pathway to integrate culture into the post-2030 global development framework.

The climax came with the adoption of an outcome document at the closing ceremony. Here, 194 Member States reaffirmed their shared vision: culture is not peripheral but central to building sustainable societies. This roadmap outlines steps to strengthen cultural cooperation, improve public cultural policies, and equip governments with better cultural information systems.

Experts hailed the event as a critical milestone in cementing culture's place in global governance. "Mondiacult 2025 demonstrates that even in times of political discord, culture offers a resilient foundation for cooperation," noted Dr. Elena Torres, a

的文化信息系统。

学界普遍认为，此次会议是确立文化在全球治理中地位的关键节点。欧洲文化政策分析师埃莱娜·托雷斯博士指出："此次会议召开表明，即便在政治分歧加剧之际，文化仍可为合作提供坚韧基石。"她强调，全球文化经济已占世界 GDP 的 3.39%，其尚未充分释放的潜能足以进一步驱动对话、激发创造力并增进社会凝聚力。

巴塞罗那达成的决议影响将远超西班牙本土。会议生成的《成果路线图》预期将成为各国文化政策的参照框架，推动政府把文化纳入可持续发展的核心要素。随着联合国启动"后 2030 议程"关于文化独立目标的磋商，本届大会的成果将直接介入相关谈判，并对未来艺术、遗产保护、教育及创意产业等领域的全球倡议产生深远影响。

展望未来，沙特阿拉伯将于 2029 年主办下一届 Mondiacult 大会，继续就巴塞罗那 2025 以来各项承诺的落实情况进行对话与评估，确保全球文化治理进程的持续性与可问责性。

European cultural policy analyst. She emphasized that the global cultural economy—already contributing 3.39% of world GDP—has untapped potential to drive dialogue, creativity, and social cohesion.

The decisions made in Barcelona will reverberate far beyond Spain. The outcome roadmap is likely to influence cultural policies globally, ensuring that governments integrate culture as a vital element of sustainable development. As work begins toward drafting a stand-alone goal for culture in the post-2030 agenda, outcomes from this conference will shape negotiations at the UN and impact future initiatives across the arts, heritage preservation, education, and creative industries.

Looking ahead, Saudi Arabia will host Mondiacult 2029, setting the stage for continued dialogue and accountability on the progress achieved since Barcelona 2025.

苏州园林保护实践亮相联合国 MONDIACULT 2025 线上边会

Suzhou Garden Conservation Practices Presented at the MONDIACULT 2025 Online Side Event

资料来源 Source：
https://www.whitr-ap.org/index.php?classid=1518&newsid=3874&t=show

9 月 19 日至 30 日，由联合国教科文组织亚太地区世界遗产培训与研究中心苏州分中心主办的《文化赋能城市可持续发展 —— 苏州园林群体保护的启示》线上主题展（观展请点击：https://www.sinowh.org.cn/zt/whfn/）率先拉开帷幕，向全球展示中国古典园林活态传承的实践成果，为全球文化遗产保护与城市可持续发展提供"苏州方案"。

作为世界文化遗产，苏州园林不仅是东方美学的典范，更成为文化赋能城市可持续发展的生动样本。自 20 世纪 50 年代启动抢救性保护以来，苏州园林保护历经"单体修复—古城

From 19 to 30 September 2025, the online thematic exhibition "Culture-Enabled Sustainable Urban Development: Insights from the Cluster Conservation of Suzhou Gardens"—organized by the UNESCO World Heritage Training and Research Centre for the Asia-Pacific Region (Suzhou Office)—was officially launched. Accessible at https://www.sinowh.org.cn/zt/whfn/, the exhibition disseminates worldwide the results of living heritage transmission in China's classical gardens and offers a replicable "Suzhou Model" for integrating cultural heritage conservation into sustainable urban development.

As a World Heritage property, the

图 2：活动海报
Figure 2. The poster of the event

整体保护 — 预防性监测 — 群体活态传承 ” 四个阶段，构建了 “ 政策保障 — 科技赋能 — 社区参与 — 产业融合 ” 的全链条保护体系。截至 2025 年，全市 108 座园林被纳入《苏州园林名录》，通过 “ 免费开放 + 预约共享 ” 机制惠及年均超 3000 万市民游客，实现文化遗产从 “ 保护 ” 到 “ 共享 ” 的跨越。

苏州园林在社区参与、文化惠民、数字传播、公众教育、经济推动各方面都有出色的成果。针对会议重点关注的气候行动议题，苏州的 “ 园林之城 ” 建设将园林营造智慧融入城市整体规划，以园林串联城市生态廊道，缓解城市热岛效应，提升人居环境质量。这一传统生态智慧与现代技术的融合实践，为全球城市热岛效应缓解、生物多样性保护提供了低成本可复制方案。

此次参会是苏州园林保护实践再一次登上联合国舞台。自 1997 年列入《世界遗产名录》以来，苏州始终以 “ 保护为先、活化利用 ” 为原则，先后获 “ 亚洲都市景观奖 ”“ 亚太遗产保护杰出奖 ” 等荣誉。未来，苏州将持续深化 “ 园林之城 ” 建设，让千年园林在新时代焕发更大的全球价值。

正如 Mondiacult 2025 会议主题所倡导，苏州园林的保护实践正以 “ 小而美 ” 的东方智慧，为全球文化遗产保护与城市可持续发展贡献可操作、可复制的中国经验，让古典园林成为连接传统与未来、中国与世界的文化纽带。

Classical Gardens of Suzhou exemplify East-Asian aesthetics and function as an empirical case of culture-driven urban sustainability. Since emergency rescue began in the 1950s, conservation practice has evolved through four sequential stages: (i) individual garden restoration, (ii) integrated old-city safeguarding, (iii) preventive monitoring, and (iv) cluster-based living transmission. A full-chain governance system—combining statutory guarantees, technological empowerment, community participation, and industry integration—has been institutionalized. By 2025, 108 gardens are inscribed in the Suzhou Garden Inventory; an “open access + timed reservation” scheme receives more than 30 million residents and visitors annually, converting heritage protection into public cultural entitlement.

Suzhou’s approach has yielded measurable gains in community engagement, cultural welfare, digital dissemination, public education, and local economic growth. Responding to MONDIACULT’s priority theme of climate action, the “Garden City” initiative embeds traditional garden-craft wisdom in city-wide planning, deploying gardens as ecological corridors that mitigate the urban-heat-island effect and enhance living conditions. This low-cost, traditional-knowledge-plus-technology formula provides a transferable solution for global cities confronting biodiversity loss and rising temperatures.

Participation in MONDIACULT 2025 marks Suzhou’s latest appearance on the UN stage. Since inscription in 1997, the city has adhered to the principle “conservation first, adaptive use,” earning accolades such as the Asian Townscape Award and the UNESCO Asia-Pacific Heritage Award for Outstanding Achievement. Going forward, Suzhou will deepen the Garden City programme, ensuring that millennium-old landscapes continue to generate global value in the new era.

Echoing Mondiacult 2025’s central tenet, Suzhou’s experience demonstrates that “small yet beautiful” Oriental wisdom can deliver operational, replicable Chinese solutions for heritage conservation and sustainable urban development, positioning the classical garden as a cultural bridge linking tradition with the future and China with the world.

2025 年 ICOMOS · 中国 · 文化遗产大学论坛在天津举办

2025 ICOMOS University Forum for Cultural Heritage in China Held in Tianjin

资料来源 Source:
https://www.icomos.org/actualite/second-icomos-university-forum-for-cultural-heritage-in-china/

图 3：2025 年 ICOMOS · 中国 · 文化遗产大学论坛集体照
Figure 3. Group photo of the 2025 ICOMOS University Forum for Cultural Heritage in China

9 月 20 日，天津大学联合中国古迹遗址保护协会（ICOMOS China）、尼泊尔古迹遗址保护协会（ICOMOS Nepal）共同主办第二届 ICOMOS 中国大学文化遗产论坛。来自中国、法国、尼泊尔、意大利、英国、日本、韩国、比利时及印度尼西亚等 9 个国家的百余位专家、学者与研究生参会。本届论坛以“文化遗产 · 交叉创新”为主题，集中探讨遗产保护、研究与教育的新路径。

开幕式上，国际古迹遗址理事会副主席莱昂纳多 · 卡斯特里奥塔（Leonardo Castriota）致贺辞，强调论坛对全球遗产领域合作与知识共享的重要意义；中国古迹遗址保护协会理事长宋新潮指出，“跨学科创新”是应对遗产问题日益复杂化并推动可持续发展的关键方法；尼泊尔古迹遗址保护协会副主席伊努 · 普拉丹 · 萨利克（Inu Pradhan Salike）表达了对区域深度合作的热切期待；天津大学副校长王天友教授致欢迎辞，并介绍学校推进学科交叉融合的系列举措。

论坛设三场主题研讨：

· 文化遗产保护的政策制定与管理

· 遗产研究与保护实践的跨学科创新

· 全球视野下文化遗产教育体系的重建

On 20 September, Tianjin University hosted the Second ICOMOS University Forum for Cultural Heritage, in collaboration with ICOMOS China and ICOMOS Nepal. More than 100 experts, scholars, and students from 9 countries (China, France, Nepal, Italy, the UK, Japan, Republic of Korea, Belgium, and Indonesia) participated in the event. Structured around the theme “Cultural Heritage – Interdisciplinary Innovation,” it provided an opportunity for attendees to explore new approaches for heritage protection, research, and education.

The event opened with congratulatory remarks by ICOMOS Vice President Leonardo Castriota, who brought attention to the forum’s importance for global cooperation and knowledge-sharing in the heritage sector. Song Xinchao, President of ICOMOS China, then discussed “interdisciplinary innovation” as a key method for addressing the growing complexity of heritage issues and encouraging sustainable development. Inu Pradhan Salike, Vice President of ICOMOS Nepal, expressed her hopes for deepened regional collaboration. Finally, Professor Wang Tianyou, Vice President of Tianjin University, extended a warm welcome to all guests and highlighted the university’s commitment to promoting interdisciplinary integration.

The programme featured three sessions on the following themes:

· Policy making and management for cultural heritage conservation

· Interdisciplinary innovation for heritage research and conservation practices

· Reconstruction of the cultural heritage education system from a global perspective

Among the speakers were leading academics, heritage managers, and international experts. They presented case studies on topics ranging from landscape-

来自高校、管理机构与国际组织的代表围绕景观管理策略、创新保护技术、保护教育未来与国际合作等议题分享案例。法国古迹遗址保护协会主任伊莎贝尔 · 帕尔米（Isabelle Palmi）介绍了法国以综合景观管理促进生态与社会转型的经验；印度尼西亚古迹遗址保护协会主席苏哈迪 · 哈托诺（Soehardi Hartono）展示了运用“历史城市景观”（HUL）方法复兴历史市政广场的创新策略。政府代表、遗产管理者与学者在圆桌环节展开深入对话。

次日，与会者考察天津广东会馆、五大道历史街区与庆王府，实地了解天津在修缮修复、适应性再利用及历史街区管理方面的最新成果。论坛主席张春彦教授总结会议成果，并将会旗交予 2026 年第三届论坛承办方 —— 同济大学。

based management strategies and innovative conservation technologies, to the future of conservation education and international cooperation. ICOMOS France Director Isabelle Palmi gave examples of integrated landscape management used as a tool for ecological and social transformation in France. Soehardi Hartono, President of ICOMOS Indonesia, presented innovative strategies for reviving historic civic squares, applying the Historic Urban Landscape (HUL) approach. Government representatives, heritage managers and scholars engaged in lively roundtable discussions.

The day following the forum, participants visited the Guangdong Guild Hall, the Wudadao Historic Area, and Prince Qing’s Mansion to learn about Tianjin’s achievements in restoration, adaptive reuse, and historic district management. Forum Chair Professor Zhang Chunyan concluded the event by summarising its outcomes and passing the forum flag to Tongji University, which will host the 3rd University Forum in 2026.

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