



Spring 2025 PUBLIC VISITS

Open Hours:

2025

February 14 - May 25
Friday, Saturday, Sunday
2:00 - 5:00 PM

Location:

CAMLab Cave
Lower Level, 485 Broadway
Harvard University
Cambridge 02138

Admission Fee: \$15 per person

Free for research and pedagogical purposes. Email us at camlab@fas.harvard.edu
in advance to schedule a visit tailored to your needs.



CAMLab
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Department of
History of Art + Architecture

Welcome to CAMLab Cave

As the physical hub of Harvard FAS CAMLab, the Cave fosters innovative forms of knowledge production, pedagogy, and sensorial media practice.

For CAMLab, the term “cave” summons multiple moments across human history. Within the history of art, caves serve as a starting point. Cave paintings are among the earliest forms of artistic production; examples in Spain, Indonesia, and elsewhere date back to the paleolithic period. More broadly, throughout global intellectual history, caves have served as transcendental spaces that set the stage for contemplation and immersion within the inner world of cognition. In European philosophy, Plato crafted the allegory of the cave as a microcosm of metaphysical understanding. For Buddhism, caves across Asia have served as key sites of ritual practice and meditation for over a millennium. A more recent milestone in the history of cave-making occurred in 1992 at the University of Illinois. There, the C.A.V.E. (Cave Automatic Virtual Environment) displayed projections across its three walls and established an early prototype of immersive projection space.

Carrying this history forward into the 21st century, CAMLab Cave opened in 2022 as an experimental stage for instantiating enduring questions of human consciousness within digital, multisensorial media. The Cave transports visitors beyond the here and now, in ways that facilitate immersive-spiritual experiences of cultural history and open new dimensions of knowledge and understanding.





Dunhuang and Beyond

A major milestone and world-renowned heritage site within Silk Road networks, Dunhuang preserves more than 400 embellished Buddhist cave shrines in present-day northwest China.

Dunhuang's cave shrines date from the fifth to fourteenth centuries. Each encloses visitors within murals and carved figures that depict Buddhist legends and paradises. Chronicling innumerable exemplary works of Buddhist artmaking over centuries, Dunhuang forms the largest encyclopedia art collection in situ. More significant than these artistic achievements, the caves offer a glimpse into a universe that rests beyond our known physical reality. Much like the shadowy illusions of Plato's allegorical cave, the pictorial programs across Dunhuang's caves reveal higher truths about life, death, and spiritual transcendence.

In Spring 2025, CAMLab contextualizes Dunhuang within Buddhism's broader currents of space- and art-making that

surged across China during the medieval period. Immersing visitors in confluences of light and sound, the Cave Dance and Shadow Cave projects are case studies of Dunhuang caves that reimagine the rich theatricality conjured by depictions of the dramas of the Buddha's life and dances of transcendent beings. Rebuilding the world's tallest pagoda in a virtual experience, the Embodied Architecture project invokes an 11th century transmission of these dynamics within the towering Shayka pagoda of the Fogang Monastery in present-day Yingxian, China. There, Buddhist pictorial motifs demarcate a journey of ascension toward enlightenment. The Digital Temple project uses an interactive interface to unpack the multiplicity of compositions and multivalent topographies rendered across the murals of Kaihua monastery. By examining Buddhism's three primary contexts in medieval China—the cave, the pagoda, and the temple—these CAMLab projects reveal the dramatic perceptual experiences and invisible force fields embedded by visual programs within Buddhist sites.





Cave Dance

Widely acclaimed as Dunhuang's most representative artistic achievement, scenes of celestial dance performances render beautiful, ethereal figures across numerous Dunhuang caves. CAMLab's Cave Dance project began by considering Dunhuang's thousands of dancer depictions as a data set. Taking over 5000 examples of static murals and carved figures, the Cave Dance team used line drawings to establish a common language of postures and train a machine-learning model, which generated animated motion sequences for the dancing figures. To further augment this data, CAMLab collaborated with trained dancers at the Beijing Dance Academy, who performed the movements of dance notation records also preserved at Dunhuang. As a whole, this human-computer collaborative choreography serves as the foundation of the Cave Dance project.

Applying these movement sequences to animate ethereal motifs, the Cave Dance installation is a reconstruction and reimagination of the celestial dance staged within Cave 220 at Dunhuang. From bringing to life a Bodhisattva sculpture (one of the project's data points) from Harvard Art Museums' collection, Cave Dance's performance cycles through medieval texts' metaphorical accounts of celestial dance. Likening the dancer to a flame in the wind, a fragrance, or a cloud, these texts described celestial dancers as immaterial yet highly sensorial—and as epitomizing the Buddhist transcendent state of the "bodiless body." The infinite horizon of the Cave Dance's mirror-lined space further enacts the bodiless body, opening deeper experiential dimensions, even beyond the room's boundaries. Through this digital performance, Cave Dance elucidates the multifold culture of dance in Buddhist shrines.





Shadow Cave: Dunhuang Mogao Cave 254

CAMLab's Shadow Cave project consists of a series of digital multimedia installations that reinterpret a foundational myth of Buddhism for an international contemporary audience. Around the year 400 CE, a story arose in Nagarahāra (modern-day Afghanistan) that the Buddha had leaped into a cliffside cave and left his "shadow image" there to continue preaching. Radiant like a mirror when seen from afar, it miraculously receded into the rocky surface upon approach. Spread by word and image throughout the Buddhist world, this story inspired pious yearning and ritual visualization, motivating a millennium of icon-making practices and drawing countless pilgrimages along the Silk Road.

Constructed in the late 5th century, Cave 254 at Mogao, Dunhuang, is among the extant Buddhist artifacts closest in time to the shadow cave myth. The cave's program of murals and sculptures bring together otherwise unrelated Buddhist stories to map the transformation between states of being—from an embodied individual, through meditative

concentration, into a disembodied spirit-consciousness. The program ranges between radically different scales of time, from the immediate present to eons past and the infinite future. Indifferent to any particular viewer, the cave turns physical space into virtual space and identifies it with the mind, giving form and structure to the afterlife.

For this episode in the Shadow Cave project, CAMLab animates Cave 254's stories about foregoing the body using theatrical lighting and sound, and simulates its shuttling between real and virtual through particle effects and manipulations of color and speed. The contemporary "black box" is at once reinvented and reconnected to an ancient lineage of caves of the mind. The installation's climax features a rush of Buddha icons generated by artificial intelligence—an aggregate human consciousness, so to speak. Surging across CAMLab's Immersive Theater, this iconography echoes the ambiguities between yearning and doubt, individual and collective, image and imagination at the heart of the original myth.



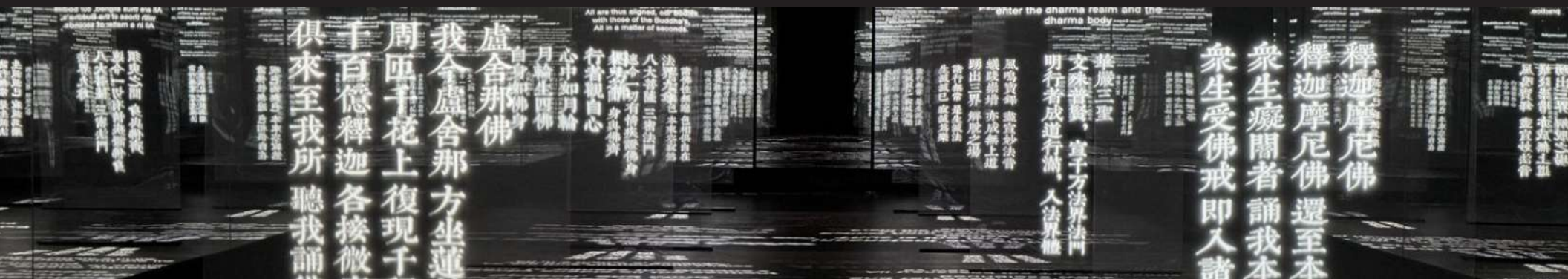
Embodied Architecture: Buddhist Pagodas of the Liao Dynasty (916-1125)

The Embodied Architecture project unfolds the cultural logic of the eleventh-century Shakya Pagoda of the Fogang Monastery (located in Yingxian, China). One of the tallest wooden structures in the world, the pagoda rises 67 meters above the ground and was built without a single nail. It epitomizes the sophistication of medieval Chinese carpentry—and also set the stage for a series of ritual practices.

Presented within the Infinity Room are a series of excerpts from Buddhist sutras, which CAMLab's research team found encased within the Buddha sculptures that stand at the centers of the Yingxian pagoda's five floors. Serving as clues for deciphering the pagoda's design, these texts indicate that the pagoda maps a process of transcendence from its bottom to top floors. The texts also draw allusions between the pagoda's design and Indra's net, the central metaphor of Avatamsaka cosmology. Describing the universe as a web of jewels so radiant that they infinitely reflect each other, Indra's net defines identity not as discrete, but instead as relative to all other beings. The Infinity Room activates these

texts' reflections to form an infinite matrix, mirroring the cosmology that underpins them.

Through its immersive film, Embodied Architecture navigates a total reconstruction of the pagoda in VR that CAMLab built by combining an array of technologies (from photogrammetry to architectural modeling and computer-generated imagery). The film approaches then ascends the pagoda, unfolding the ways in which rituals transformed each floor into mindscapes of meditative visualization. The stairway follows the path of circumambulation (a practice of repeatedly walking around a central point, transmitted from South Asian stupa worship); a moon disk emerges from within a Buddha sculpture; incense smoke summons the presence of the Buddha as a series of mudra hand gestures. Throughout, a soundscape of bells and chanting reverberates. As it narrates the arc of the pagoda's existence—from the formation of its structure and continuance of its icons, to the decay of its materials and its decomposition into the landscape—the film evokes the multisensory spiritual experience embodied by the pagoda.



Digital Temple: Kaihua Monastery (c.1096)

Nestled into the western foothills of the Taihang range in China's Shanxi province, Kaihua Monastery (c. 1073/1092–96) was once a large complex of structures. However, today only one Northern Song building still stands: its main Buddha hall (the Mahavira hall). With an interior rich in pictorial iconographies, this Buddha hall's visual program transformed it into a virtual theater by embedding both temporal and spatial transformations within its representations. By unpacking the artistic and religious underpinnings of the temple's visual program, CAMLab stages a virtual experience of the temple's transformative process, through which an array of semiotic and sensorial media reconstruct—and facilitate—the transcendence of embodiment.

Through an immersive online experience, CAMLab invites audiences to explore Kaihua Monastery's main Buddha hall. Visitors first approach the hall and see its setting on the mountainous landscape, which served as a backdrop for the mural stories within the temple. Entering the temple's space, visitors can explore the intricate murals of the temple's interior. There, ethereal light emanates from the Buddha in its various forms, reimagining the ritual experience of practices such as meditative visualization within the temple.

Further exploration of the Kaihua Monastery is available at www.digitaltemple.art.



About Harvard FAS CAMLab

The Harvard FAS CAMLab fosters cutting-edge research, design, and exhibition projects fueled by both humanistic inquiry and multisensorial technology. Our innovative and interdisciplinary experiments probe and elucidate art and culture through immersive installations, exhibitions, films, digital and print publications, and other digital formats.

For more information, visit camlab.fas.harvard.edu.



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展览时间

2025 年

2月14日至5月25日

周五、周六、周日

下午 2:00 - 5:00

参观地址

CAMLab Cave

哈佛大学

485 Broadway 地下一层

Cambridge, MA 02138



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Department of
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欢迎来到哈佛大学 CAMLab Cave

作为哈佛大学 CAMLab 的多媒实验空间，CAMLab Cave 致力于推动创新性的知识生产、教学和多感官媒体实践。

对于哈佛大学中国艺术实验室（Harvard FAS CAMLab）来说，“洞窟”（cave）一词勾连起人类文明史上的许多瞬间。在人类的艺术发展历程中，洞窟是一个起点。其中，洞窟壁画便是最早的艺术创作形式之一，西班牙、印度尼西亚等地的洞窟壁画可上溯到旧石器时代。不仅如此，纵观全球思想史，洞窟更作为超越时空界限的空间，为内心认知世界的沉思奠定了基础。在欧洲哲学史中，柏拉图就提出了把洞窟比作形而上学认知中微观世界的“洞穴之喻”。在佛教世界中，一千多年来，亚洲各地的众多洞窟都是进行宗教仪式和冥想的重要场所。在 20 世纪，伊利诺伊大学则开创了洞穴自动虚拟环境（Cave Automatic Virtual Environment）——一个三面墙上皆有投影的独立空间，被视为沉浸式虚拟数字现实的原型。

将时间推进到 21 世纪，哈佛大学 CAMLab Cave 于 2022 年正式面向公众开放，经过数年耕耘，作为人文历史、数字科技与新媒体艺术的跨学科实践空间与前沿体验剧场，已成为国际范围内文化遗产数字研究与创意的重要阵地。在 CAMLab Cave，我们邀请您一同潜入人类文明史与艺术史的深处，以全新的视角，洞见古往今来之流变，观照人类文化历史之脉络。





自敦煌启程：中古中国的窟·塔·寺

冬去春来，哈佛大学 CAMLab Cave 空间重启公众参观。在 2 月 14 日至 5 月 25 日的展期内，我们将延续秋季参观“自敦煌启程”的精彩内容，通过多媒体文遗体验剧场，把“窟、寺、塔”置于中国中古时期佛教思维与艺术的广阔脉络中进行探讨。图像、仪式、空间在佛教艺术世界中的互文关系为此次展览的重点线索。

本次展览将展出 CAMLab 在 2024 年最新推出的旗舰项目“数字寺观：北宋高平开化寺 | Digital Temple: Kaihua Monastery (c.1096)”与“影窟：敦煌莫高窟第 254 窟 | Shadow Cave: Dunhuang Mogao Cave 254”。在这两个沉浸式数字剧场中，开化寺壁画与敦煌石窟均以其壁间绘塑，将原本各自独立的佛传本生因缘故事相互贯通，并与建筑空间互相辉映，构建富有仪式性与思辨性的时空交响。

此外，展览将再度为大家呈现“窟·舞 | Cave Dance”与“建筑之躯：辽塔 | Embodied Architecture: Buddhist Pagodas of the Liao Dynasty (916-1125)”两件沉浸式影像作品，再现敦煌乐舞中超越肉身、空灵变幻的伎乐舞蹈想象，与辽代山西应县佛宫寺释迦塔内蕴藏的通向开悟的修行攀登之旅。





窟·舞 | Cave Dance

作为世界知名的文化遗产地，敦煌是丝绸之路网络内一个重要的里程碑，在今天的中国西北地区保存着超过 400 个装饰精美的佛教洞窟。进入这些石窟之中，来访者便被描绘佛教传说和佛教世界壁画和雕刻构成的世界所包围。其中，敦煌的乐舞图像更被誉为最具代表性的艺术成就。由哈佛大学 CAMLab 设计制作的“窟·舞 | Cave Dance”项目始于由敦煌数以千计的舞者图像构成的数据集。“窟·舞”团队收集了 5000 多个静态壁画和雕刻人物的样式，并将它们的肢体形态转化为统一的几何语言，由此训练了一个机器学习模型。该模型可以将舞者形态连接生成动画序列。为了进一步丰富这些数据，CAMLab 与北京舞蹈学院的专业舞蹈演员合作，重新演绎了保存在敦煌的乐舞相关文本。这种人机合作的编舞是“窟·舞”项目的基础。

《窟·舞》装置应用人工智能将这些动作序列生成空灵动画，其中着重对于敦煌第 220 窟中乐舞展开重构与再想象。整个作品从哈佛艺术博物馆收藏的一尊菩萨雕塑（该项目的数据点之一）的舞蹈开始，《窟·舞》的表演演绎了唐代佛经文本对乐舞的隐喻性描述。这些经文把舞者比喻成风中的火焰、香气或流云，把仙舞者形容为非物质的、强感官的、象征著佛教的“无形之身”的超然状态。《窟·舞》的镜面空间进一步体现“无形之身”的虚幻想象，打开更深层次的体验维度，甚至超越了物理空间的边界。通过这种数字化的表演，《窟·舞》展现了佛教仪式舞蹈文化关于身体与超越的内在想象。





影窟：敦煌莫高窟第 254 窟 | Shadow Cave: Dunhuang Mogao Cave 254

由哈佛大学 CAMLab 开发的最新旗舰项目“影窟：敦煌莫高窟第 254 窟 | Shadow Cave: Dunhuang Mogao Cave 254”项目，通过一系列数字多媒体装置，将千年前佛教核心概念“影窟”中的神秘传说再度唤醒。传说中古印度之那揭罗曷国石窟中有一奇迹：佛陀于岩壁中“踊身入壁”，留下晶莹如镜的“佛影”。此影远观显现，近则隐没，似无形，却恒在，经由文字、图像跨越时空传扬。建于公元 5 世纪后期敦煌莫高窟第 254 窟，作为最接近“影窟”原型的遗迹之一，为今所存最接近“影窟”原型之佛教遗迹之一。其壁间绘塑，将原本各自独立之佛传本生因缘故事相互贯通，以形象众生之身命，示以舍身修行、渐次禅观，乃至有形化无形，从而入于精神意识之境。窟中图像结构时间层次深远：自当下刹那，逾及古昔，乃至无尽来日，尽显佛教广大之时空观。第 254 窟将物理之境转化为虚拟之界，使身心相通，遂令时间与意识俱有形相与规制。

在《影窟：敦煌莫高窟第 254 窟》沉浸式装置中，CAMLab 通过戏剧化的音画设计，重现了敦煌第 254 窟关于超脱肉身的故事，并通过粒子效果、色彩、光线等元素的微妙操控，模拟了现实与虚拟之间的往返。现代的“黑匣子”空间在此得以重塑，并与古老的“心灵洞穴”传统重新连接。装置的高潮是一场由人工智能生成的千佛浪潮——可以说是人类集体意识的汇聚，在 CAMLab 沉浸剧场内激荡而出的这一影像符号，呼应了原初神话核心中的模糊性——虔诚与疑惑、个体与集体、图像与想象交织共存。

更多介绍，欢迎扫描二维码参阅 CAMLab 微信公众号文章：



建筑之躯·辽塔 | Embodied Architecture: Buddhist Pagodas of the Liao Dynasty (916-1125)

“建筑之躯：辽塔 | Embodied Architecture: Buddhist Pagodas of the Liao Dynasty (916-1125)”探索了山西应县佛宫寺内“释迦塔”（又名：应县木塔）的文化意涵和设计原理。作为世界上最高的木结构建筑之一，释迦塔不仅展示了宋辽时期中国木工技艺的巅峰，也是佛教仪式的关键场地。基于对藏于塔中佛像内文本的研究，该项目呈现了从塔底到顶层的修行过程，揭示了佛塔作为宇宙缩影的象征意义。结合摄影测量、建筑建模和计算机成像等技术，“建筑之躯：辽塔”在虚拟现实重建了释迦塔，为观众提供了一次攀登并探索塔内冥想空间的机会。

观众在沉浸式影像的包裹中，将亲身体验木构楼梯沿着旋绕诵法（circumambulation）的路径纵向伸展、代表心灵的月轮从佛像中浮现、缕缕青烟召唤着各式佛手印——凄凉夜雨，带回人世之慨叹；檐铃响彻，诉说万物之变迁——沉浸式体验可视化了历史中的仪式，数字剧场的形式展现了佛教宇宙观中的“成住坏空”，引领观众体验超越时空的精神旅程。



数字寺观：北宋高平开化寺 | Digital Temple: Kaihua Monastery (c.1096)

坐落于中国山西省太行山西麓的高平开化寺（约1073/1092-1096年）曾是一个庞大恢宏的北宋建筑群。其中大雄宝殿是中国现存唯一一座集宋代木构、壁画、彩绘于一体的完整建筑遗存，全面展现了宋代寺观的艺术风貌。结合殿内丰富的视觉内容，通过在建筑和壁画中嵌入时空的转换，这座佛殿所蕴藏的仪式程序将其转化为一个精彩的虚拟世界，揭示了建筑空间中的剧场性和仪式性。通过解读殿内的视觉设计所体现的艺术与宗教内涵，CAMLab运用符号和感知媒介构建了超越具象的体验，并重现了佛殿之中身心转化的幻境，为公众开启一场与开化寺的跨时空对话。

“数字寺观：北宋高平开化寺”项目中的虚拟漫游体验邀请观众置身于开化寺的大雄宝殿之中展开自主的漫游。CAMLab通过将大殿西壁壁画中的山水绘画进行颜色及色块的提取与分析，运用三维建模与数字生成技术还原再现了说法场景的地理景观空间，为观赏壁画提供了全新维度的视觉及想象体验。在虚拟世界里，观众可以于大雄宝殿中自由探索并阅览四壁精美生动的高清经变壁画内容。在进入壁画视角的同时，观众更可以身临其境地感知其中的时空变换与身心转化。

观众还可以通过线上互动界面深入探索开化寺的壁画内容。欢迎扫描二维码自行体验，访问网址：
www.digitaltemple.art。



关于哈佛大学 CAMLab

哈佛大学 CAMLab 隶属于哈佛大学文理学院，由哈佛大学洛克菲勒亚洲艺术史终身教授汪悦进（Eugene Y. Wang）创立并领衔，是整合尖端学术研究与多媒艺术创意的国际平台，开启文化艺术想象时空的跨界实验地，熔铸精神维度文化体验的艺术展示空间。实验室旨在将前沿学术研究成果化为艺术体验呈现，并以艺术实践催化激活学术研究，是集学术与艺术为一体的创意园和孵化器。

如欲了解更多信息，请浏览 camlab.fas.harvard.edu。



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