Hybrid Display

KYOTO Design Lab Project Book



Documentation of Workshop and Exhibition

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Herzog & de Meuron / Jacques Herzog und Pierre de Meuron Kabinett, Basel (Foundation)
KYOTO Design Lab, Kyoto Institute of Technology

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October and November 2025

KYOTO
Design Lab

Hybrid Display

——Documentation of Workshop and Exhibition

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Outline

KYOTO Design Lab held a workshop in close collaboration with Herzog & de Meuron to create an experimental digital exhibition.

In an age where architectural spaces are routinely recorded and reproduced using technologies such as 3D scanning, 3D printing, and AR/VR, this work-shop explored the significance of digitally replicated objects through the lens of Utsushi —— a traditional Japanese concept of replication in artistic expression.The focus is on digital objects related to two buildings completed in 2003: the Schaulager in Basel and the Prada Aoyama Store in Tokyo.

From October 27 to November 8, members of Herzog & de Meuron's kitchen (Exhibitions and publications) and DT (Design Technologies) teams visited Japan to lead participants through all stages of the project —— from preliminary exercises in Kyoto, to capturing and editing 3D documentation in Tokyo, developing exhibition design concepts, and finally implementing a pop-up exhibition at KYOTO Design Lab.

Workshop

Period

October 27 (Mon) – November 8 (Sat), 2025

Period (Pre-Workshop)

September 24 (Wed) – 26 (Fri), 2025

Venue

KYOTO Design Lab

Exhibition

Period

November 8 (Sat), 2025

Venue

Photo Studio, KYOTO Design Lab

Contributing Members

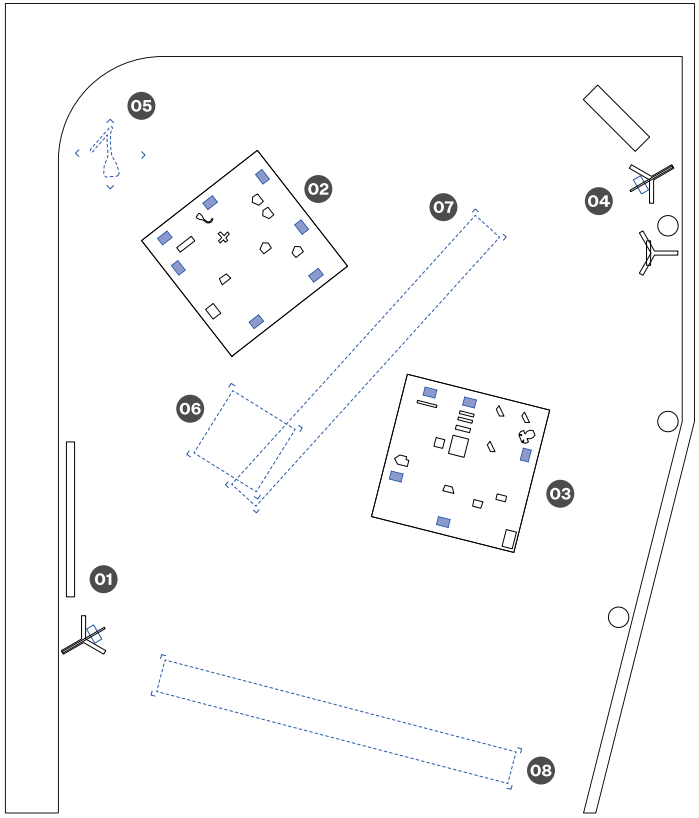
Tutors

- Mathieu Bujnowskyj, Lead kitchen, H&dM
- Saakib Sait, kitchen, H&dM
- Sarah Kim, Design Technologies, H&dM
- Esther Zumsteg, Curator-at-Large Herzog & de Meuron, Director KABINETT
- Erwin Viray, KYOTO Design Lab, KIT
- Yasuhiro Yamasaki, KYOTO Design Lab, KIT
- Shinichi Kawakatsu, KYOTO Design Lab, KIT
- Kohei Ishida, KYOTO Design Lab, KIT

Students

- Shuzo Asakawa
- Saki Fujimoto
- Rose Mayer
- Tomitaro Mori
- Ryoma Nishida
- Louise Sablon du Corail
- Kazuki Uemura
- Ryotaro Yanagi

Exhibition



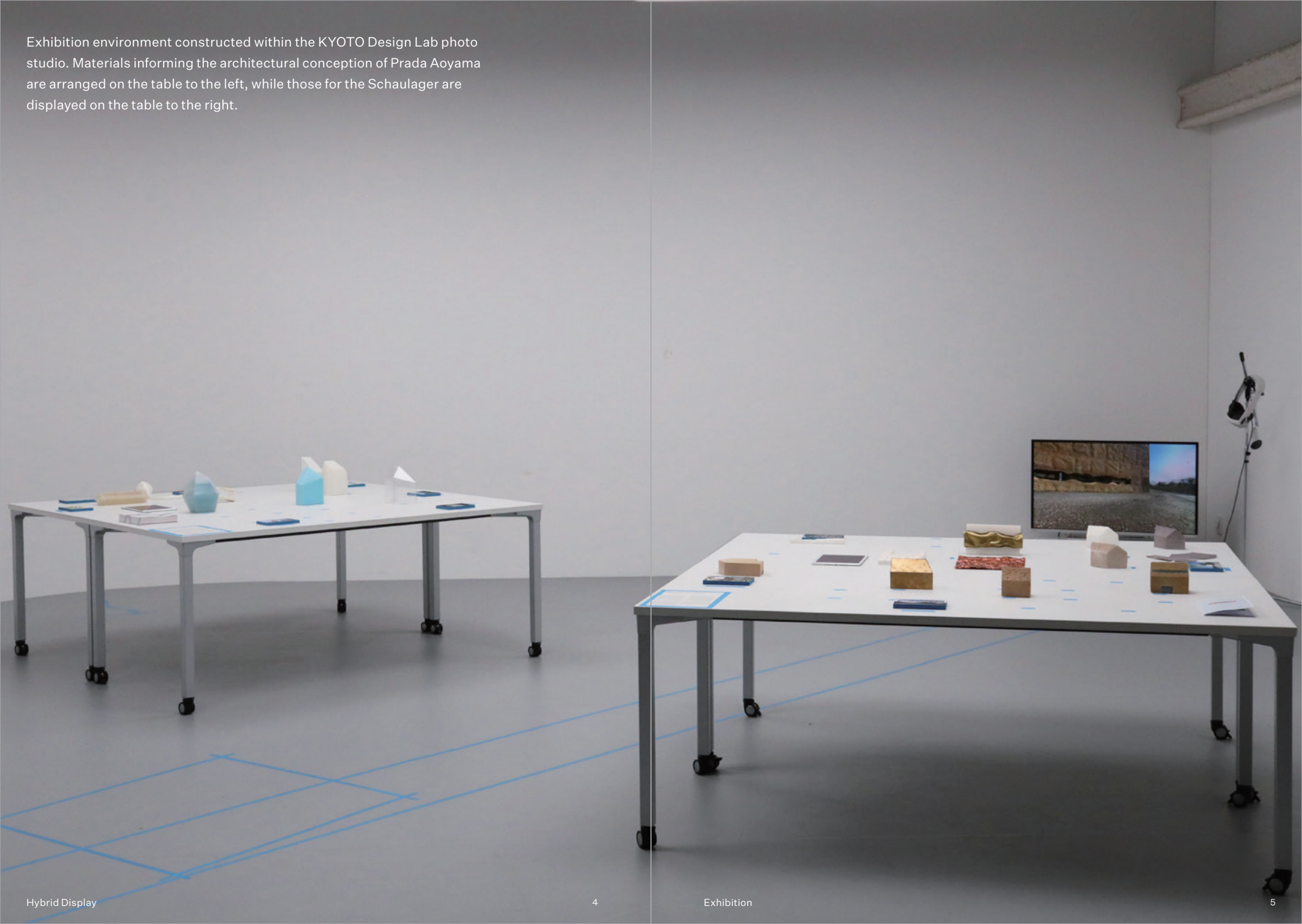
Stations

01 Prada Aoyama VR Splats
02 Prada Aoyama Hybrid Table
03 Schaulager Hybrid Table
04 Schaulager VR Splats
05 Prada Aoyama AR Snorkel
06 Prada Aoyama AR Bench
07 Prada Aoyama AR Facade Mockup
08 Schaulager AR Window Mockup

Lexicon

AR Augmented Reality [use iPad App]
VR Virtual Reality [use Meta Quest 3]
3DGS 3D Gaussian Splats Scenes
MESH Polygonal Mesh Geometries
Trigger Images: Activate AR Objects
> scan the image with iPad App

Exhibition environment constructed within the KYOTO Design Lab photo studio. Materials informing the architectural conception of Prada Aoyama are arranged on the table to the left, while those for the Schaulager are displayed on the table to the right.





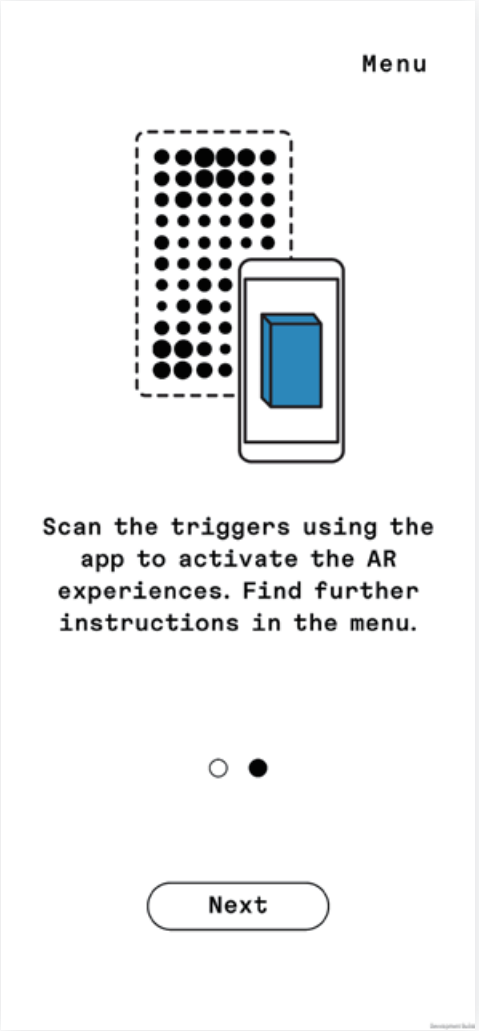
Display table for Prada Aoyama. Alongside models and samples brought from KABINETT and 3D models produced during the workshop, AR-based objects embedded in virtual space are also presented.



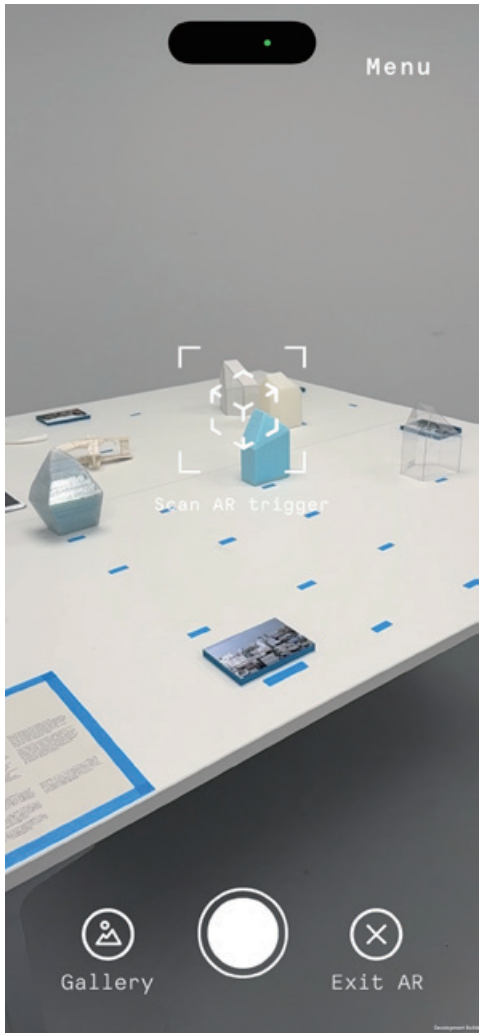
CNC-milled expanded polystyrene derived from scan data of the Schaulager's exterior envelope.

The gold cylinder served as a generative reference for the geometry of the Schaulager's window openings. The triangular-roofed object at the bottom right is a study model for the entrance gatehouse.

The AR environment within the venue was accessed via an app developed by Herzog & de Meuron.



The AR environment is activated through the recognition of blue-painted panels (cf. bottom center) functioning as a visual trigger.



View on the iPad showing the entrance zone of the Schaulager (center) alongside a series of gatehouse study models. Which elements belong to the physical environment?



AR object of the Snorkel display used in the interior of Prada Aoyama, including a reconstruction of the ceiling plane.



Formwork used to build the window openings in Schaulager visualized as an AR overlay on the iPad.

AR representations of Prada Aoyama were also distributed throughout the exhibition space. Blue tape applied to the floor indicates the positioning of AR objects. Note how reflections of the exhibition environment are mapped onto the geometry of the glass façade.

Digital scan of in-store furniture from Prada Aoyama reproduced within AR space.





Full-scale (1:1) reconstruction of a fragment of the window opening on Schaulager's south facade within the AR environment.

VR environment of Prada Aoyama. The image rendered in the headset is mirrored on a display.



Image by Tomitaro Mori

Exterior environment of Prada Aoyama reconstructed using Gaussian Splatting.

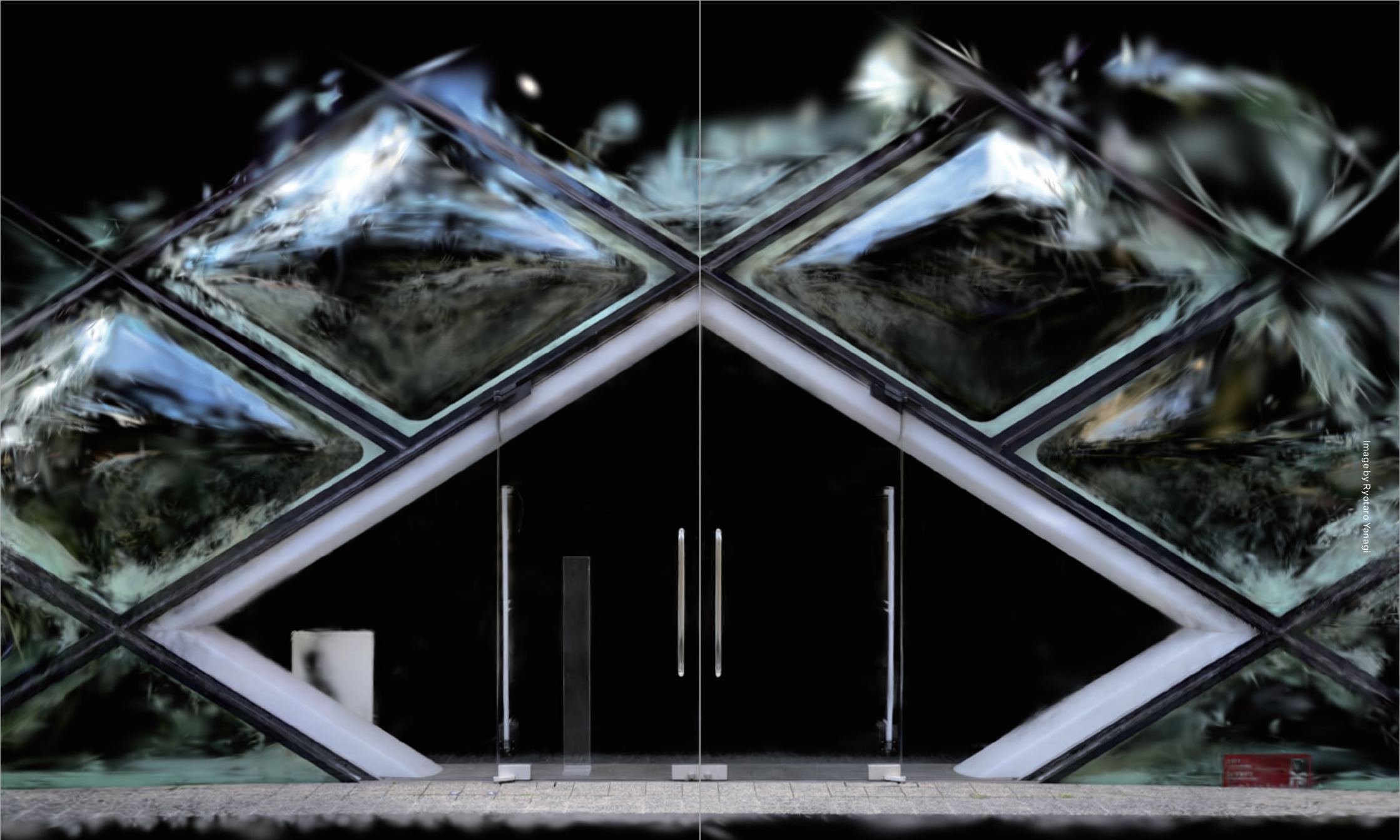


Image by Ryotaro Yanagi

Entrance of Prada Aoyama reconstructed using Gaussian Splatting to capture fine-grained details such as door handles and hardware.

Interior of Prada Aoyama reconstructed using Gaussian Splatting effectively capturing variations in material and surface properties including transparency and reflections.

Image by Tomitaro Mori



Image by Ryotaro Yanagi

Furniture and merchandise of Prada Aoyama reconstructed using Gaussian Splatting. By interpolating and densifying point clouds, high-resolution imagery is generated that extends to minute surface details.



Image by Shuzo Asakawa

Level 4 interior of Prada Aoyama reconstructed using Gaussian Splatting, articulating the spatial relationship between the architecture and various display strategies.

Utsushi:
Generating a Distance through Digital Reproduction

Shinichi Kawakstsu
Project Researcher, KYOTO Design Lab, Kyoto Institute of Technology

Copy / Mimesis / *Utsushi*

In recent years, with the rapid advancement of digital technologies, attempts to three-dimensionally scan cultural properties, architectural works, and historical documents to recostruct them as highly precise reproductions have expanded significantly. At work in such practices is a paradigm that seeks to reproduce the original "equivalently," while preserving as much information as possible. At the same time, however, this form of reproduction —oriented toward identity and equivalence—constitutes only one facet of cultural-historical thought regarding reproduction. By considering "copy," "mimesis," and the uniquely Japanese aesthetic concept of *utsushi* (写し) as modes of reproduction, this essay reconsiders the value of reproduction in the post-digital age.

As is typically exemplified by printed matter and photography, a copy may be understood as aiming to make the reproduced object as identical to the original image as possible. Modern society, through the development of industrial and information technologies, has enabled the mass production of identical objects; as Walter Benjamin famously argued, this led to an institutional transformation of art supported by technologies of reproduction. Mimesis, by contrast, differs from a copy in that it concerns the principle of representation—that is, how the world is to be represented. It belongs to the epistemological framework symbolized by Aristotle's foundational proposition in aesthetics that "art imitates nature."

In considering reproduction in Japan, one cannot overlook the periodic reconstruction (*shikinen sengu*) of the Ise Grand Shrine and similar institutions. What these buildings, rebuilt every twenty years, demonstrate is that what matters in reproduction is the continuity of form, as well as the institutional process by which the techniques, procedures, and bodily operations that make such continuity possible are embodied by younger generations of carpenters. The very act of reproducing orms the continuity—the movement—of history and technique. This makes it possible to escape the binary opposition between original and reproduction, as well as the Western value system in which the former is privileged while the latter is often deemed derivative or devoid of value.

Creative Dimensions of *Utsushi*

Moreover, *utsushi* points to a possibility of reproduction distinct from both the mere securing of identity and the representation of the real world. *Utsushi* has been understood as an act that creatively handles the distance that exists "between" the original and its reproduction. In this context, distance is not a deficiency to be eliminated; rather, it is the site where "difference" is generated, serving as a generative field from which new works and new forms of knowledge emerge.

A well-known example is the *Wind God and Thunder God Screens* (Fūjin Raijin-zu), of which multiple versions exist, including those by Tawaraya Sōtatsu and Ogata Kōrin. While the compositions are similar, in Sōtatsu's original version, the deities are pushed to the far edges of the picture plane, generating a bold, empty space at the center. In Kōrin's *utsushi*, the viewpoint retreats slightly, and adjustments are made so that the attributes of the two deities fit within the frame. In versions produced after Kōrin, the deities are enlarged slightly, amplifying the visual pressure within the picture plane. In this way, *utsushi* transmits form while allowing for the author's own interpretation. Difference is both inevitable and intentionally produced; it

is precisely this "difference" that constitutes the singularity of each work.

The tea room is another domain in which *utsushi* plays a vital role. For example, the tea room *Ennan* (燕庵), originally established by Furuta Oribe in the seventeenth century, was destroyed by fire in 1864. However, following the tradition that "if it is lost to fire, the oldest *utsushi* shall be regarded as the legitimate *Ennan*," a reproduction based on a later *utsushi* continues to exist as the "authentic" Ennan. Likewise, *Jo-an* (如庵), now relocated to Inuyama and designated a National Treasure, has a precise *utsushi* on its original site in Kyoto. If the surrounding environment and context are paramount in architecture, one might ask: which is more authentic—the relocated original or the *utsushi* built on the original site? In the context of *utsushi*, such a binary question becomes unnecessary. Furthermore, the tea room *Ryōkakutei* (遼廓亭) by Ogata Kōrin is known as an *utsushi* of Jo-an, yet the thickness of materials and window forms differ from the original. While these might ordinarily be grounds for criticism, today they constitute a vital part of the tea room's identity, valued as "Kōrin's taste." In tea-room *utsushi*, respect for the original coexists with the selection of materials, adjustment to site conditions, and reinterpretation of bodily scale.

This disposition to refer to an original while appropriating and transforming it is also found in the culture of *waka* poetry. The technique of *honkadori* (本歌取り) consists of taking up elements of an earlier poem to graft into a new work. This is not subordination to a preceding work, but a creative attitude that opens toward a new deviation. Similarly, in "metalware *utsushi*," where a hanging metal lantern is deliberately rendered in ceramic, the intentional change of material expresses the maker's technical virtuosity. Even when the principle is one of reproduction, value is accorded to the maker for the difficulty and mastery of the *utsushi*. In all these cases, a "new work" is produced through the judgment of how to calibrate a particular distance. The premise is that "complete reproduction" is impossible; therefore, the "difference" is accepted as an inevitability.

Utsushi and the Exhibition in the Post-Digital Age

When understood in this context, digitally generated objects occupy a unique position. In objects produced through algorithmic generation, the distinction between original image and reproduced object becomes increasingly blurred. While 3D scanning enables more precise copies than ever before, making those copies physically experienceable requires VR/AR operability and a theory of "output transformation." Where, then, does the value of reproduction lie in the age of the digital twin? It lies in recovering the "generation of distance" that *utsushi* has long embodied.

The collaborative workshop and display between KYOTO Design Lab and Herzog & de Meuron seeks not merely to demonstrate the precision of digital reproduction, but to understand how objects archived across different times and places can be reintegrated into a dynamic process oriented toward new acts of creation. This means drawing out the potential embedded in the complex artifact of architecture and setting out along the branching paths toward countless "possible worlds." It means discovery within the "distance" between the original work and the digitized object the potential for new narratives and innovative forms of exhibition.

Workshop

From October 27 to November 8, members of Herzog & de Meuron's kitchen (Exhibitions and publications) and DT (Design Technology) teams visited Japan to lead participants through all stages of the project—from preliminary exercises in Kyoto, to capturing and editing 3D models.ß

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Theme

Making Digital Exhibition: Replication, Transfer, Reflection and Emulation

Timeline

Pre-Workshop

24 Sep (Wed) – 26 Sep (Fri), 2025

24 Sep	Project briefing, lecture, and work session
25 Sep	Sketch review and work session
26 Sep	Presentation and review

Main Workshop

27 Oct (Mon) – 8 Nov (Sat), 2025

27 Oct	Introduction
28–29 Oct	Lectures and basic exercises on 3D scanning
30–31 Oct	3D scanning practice in Tokyo
4–6 Nov	Data processing and exhibition design development
7 Nov	Exhibition setup and final review
8 Nov	3D scanning of the exhibition venue









Taking pictures of
PRADA AOYAMA
for 3D scan



Try to capture as much of the space as possible

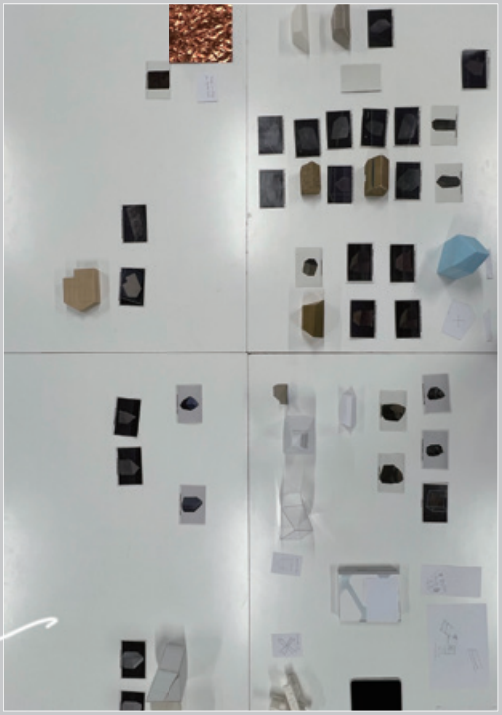


Scanning exterior of the building





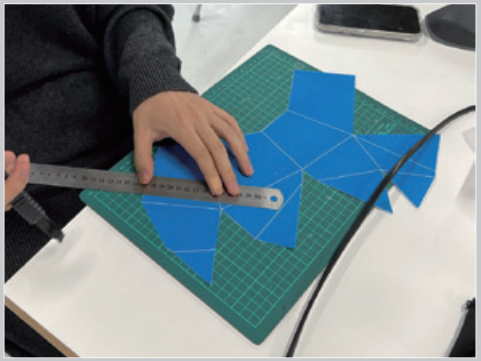
Curatorial Discussion

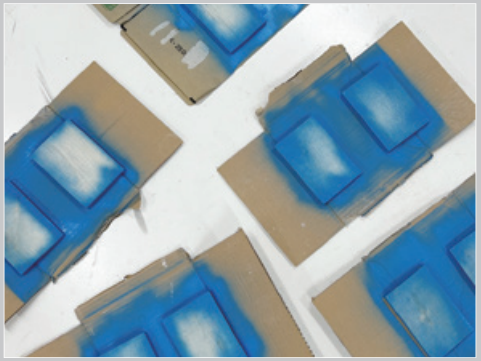


Studying the layout of materials



Testing table layout whithin the space





Production of the exhibition pieces in progress



Reflections on the show with the whole team

Photogrammetry / Mesh

Using multiple photos taken from various angles of the subject, it analyzes corresponding points between images to reconstruct the 3D shape. Based on the resulting point cloud data, it generates triangular polygons and creates mesh data by continuously connecting the surfaces. Color information derived from the photos can be applied as textures.

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Application used: Reality Scan 2.0



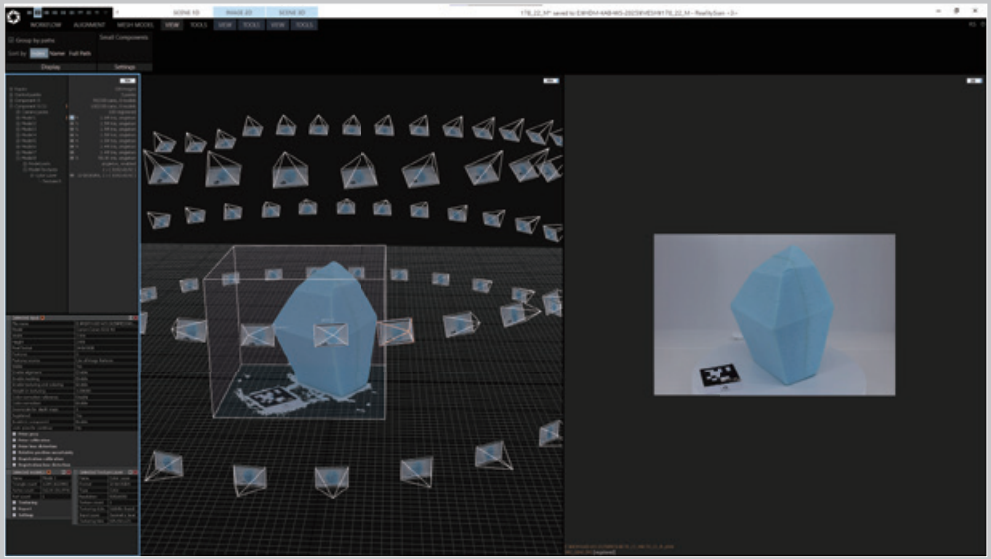

Image by Ryotaro Yanagi

Gaussian splatting

This technique represents shapes and colors as numerous Gaussian distributions (translucent ellipsoids) placed within a 3D space. It achieves high-quality rendering relative to the viewpoint by optimizing the position, size, orientation, and color information of each Gaussian distribution, without directly generating meshes. It excels in fast rendering and photorealism.

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Applications used:
Postshot, supersplat

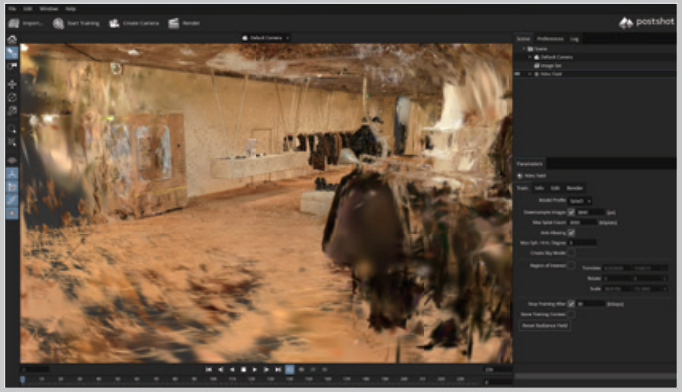



Image by Louise Sablon du Corail

Hybrid collaboration between H&dM and KYOTO D-lab

Herzog & de Meuron, February 2026

The workshop "The Production and Reproduction of Models – Hybrid Displays for Architecture" was developed by Herzog & de Meuron and the KABINETT in collaboration with the KYOTO Design Lab, based on a long-term exchange between H&dM and Prof. Erwin Viray. This two-week workshop extended our ongoing dialogue by situating architectural practice, archival material, and exhibition-making within an experimental pedagogical framework in Kyoto, building in continuity with previous visits of the KABINETT in Basel by KDL students and a previous workshop on social media and Architectural Perception.

At its core, the workshop offered students direct access to selected content from the KABINETT's physical holdings and H&dM's digital archives, centered on two key projects: the Schaulager in Basel (2003) and Prada Aoyama in Tokyo (2003). Physical study models, historical documentation and digital project material were treated not as static artifacts but as active carriers of architectural knowledge. Two digital pipelines structured the production: photogrammetry to generate mesh assets for Augmented Reality (AR) applications, and Gaussian splatting to capture and spatially edit fragments of built architecture for access through Virtual Reality (VR) headsets. Rather than treating these as purely technical exercises, the workshop examined how such tools can extend the life, accessibility, and distribution of architectural models beyond their original physical context.

This workshop at the Kyoto Institute of Technology reflects H&dM's interest in maintaining an active research and academic engagement alongside our professional practice. Teaching creates a space for dialogue, engaging in new ideas with students and professors, exposing us to external perspectives. Privileged access to Prada Aoyama outside of public hours allowed the building to be approached as a pedagogical object, while the compact two-week format and the use of the KDL Photostudio created a dense environment for experimentation. The eight participating students were first trained in the methodologies and tools, then collectively developed a pop-up exhibition that acted both as a final critique and as a public interface, drawing a large and diverse audience. By observing how hybrid displays were perceived, the students were also able to reflect critically on narrative clarity, mediation, and spatial experience.

For us at H&dM, the workshop created a protected research space to advance questions that run in parallel to ongoing exhibition practice, including how architectural models can be digitally reproduced, locally re-materialized, or virtually accessed without relying solely on the physical transport of artifacts. The set-up confirmed specific observations about how visitors engage with hybrid displays. VR stations paired with large, shared screens confirmed an unexpected dynamic: the headset user becomes a performer, and other visitors become spectators, producing dialogue and collective engagement around what is otherwise an individual experience. Augmented Reality, by contrast, tends toward a more collective mode of perception — visitors naturally compare, point, and comment together, using tablets as mediation tools that make invisible objects visible in a shared space. In both cases, the digital alone does not replace the physical but complements it, offering a level of flexibility that physical objects alone cannot match. The workshop confirms the relevance of hybrid displays as a future direction for the presentation of architecture, and our interest in continuing and expanding this collaborative format in the years to come.

Hybrid as Reflection: Rethinking "Utsushi" in Architecture

Yasuhiro Yamasaki
Professor, KYOTO Design Lab, Kyoto Institute of Technology

Architecture can be understood as a cultural system with a long history of 'reflection'. There was a time when design was shaped by inherited styles of architecture. In the modern era, however, it was function, rather than style, that took on this role: architects conceived architecture by translating function into space. From the formal imitation of style to the spatial translation of function, and then, with the rise of postmodernism, the return of style to form, architecture has consistently been expressed through reflection. So what does architecture reflect today?

At KYOTO D-lab, we have been exploring a narrative approach to modern architecture using archival materials. By working with architectural archives in their historical contexts, we aim to renew the ways in which architecture is interpreted and understood continually. With this in mind, we set out to reimagine the exhibition format as an intellectual landscape where a new presentation platform can emerge through digital technologies.

Our workshop took place between two cities with rich and layered histories: Basel and Kyoto. It focused on the ways in which Herzog & de Meuron engage with materials and forms. Participants worked with fragments — pieces of models and material samples left behind by the architects — treating them as clues. From these, they produced physical or digital replicas, which were then assembled into an exhibition that brought these elements into relation.

A fundamental condition of the architectural exhibition is that architecture cannot be presented at a one-to-one scale. As a result, the curator must find ways to evoke architectural experience indirectly. Working with fragments carefully selected by KABINETT, students used digital tools to reconstruct and reinterpret these elements, attempting to extract the underlying ideas. At the Prada Building in Aoyama, Tokyo, they even took advantage of the moment before opening hours to capture and replicate the interior as data.

Some of this data was situated within virtual environments, while other parts were materialized using different media. In each case, careful consideration was given to how these reconstructions would be experienced by the audience. The exhibition space was designed to create a seamless transition from the real to the virtual, forming a space where both coexist. Visitors were able to move between physical and virtual spaces, engaging with them in parallel. Through this process of replication, distinctions between original and copy, material and data, began to shift, giving rise to new ways of perceiving and understanding architecture. In this sense, the "Hybrid Display" exhibition can be considered a compelling success as an architectural project.

This workshop not only made it possible to cross national and cultural boundaries, but also to share and reconfigure accumulated architectural knowledge, techniques, and experiences. Participants began to approach architecture across multiple generations, histories, and geographical contexts. The era in which architecture was primarily shaped by the transposition of style or function has passed. Today, architecture can be discovered as the boundaries between physical and virtual space, and between material and data, shift—reshaping how we perceive space. Architectural education should embrace this shift in perception. The journey of architectural reflection by Herzog & de Meuron and KYOTO D-lab has only just begun.

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