

3D

3D is a component of the EVA Gallery, representing an exhibition of artworks within a 3D space.

It is divided into two applications:

- 3D Planner
- 3D Viewer

3D Planner

This application is designed for registered artists who wish to present their works in a virtual space. The 3D Planner is integrated with the administrative interface (admin), which prepares the materials for 3D presentation.

A single exhibition can have multiple 3D designs, of which one can be published for public viewing.

A 3D design consists of the following functions/modes:

Artwork

- Editing of the artwork or painting.
- Scaling while preserving the original aspect ratio.
- Positioning the artwork by moving it along the X and Y axes on the wall's surface.
- The artwork can only be moved within the wall's width and height.
- Multiple artworks can be displayed on a single wall.
- The artwork has a thickness and a frame.
- Clicking on the artwork displays information such as the title, artist's name, description, tags, and additional data, along with a link to the artist's webpage.

Wall

- Editing the wall.
- Positioning the wall on the floor along the X and Z axes within the floor's dimensions.
- Default wall dimensions: 3600mm height, 150mm thickness.
- Rotating the wall on the vertical axis.
- Wall color and transparency.

- Option to disable the wall to view a 360-degree panoramic environment.
- Applying a texture across the entire wall surface, with cover or contain sizing options.

Room

- Defines the available 3D space for the camera.
- Floor dimensions on the X and Z axes, with the center at coordinates 0,0.
- Ceiling dimensions and height.
- Floor material options include wood parquet, concrete, marble tiles, carpet, etc., with reflective properties for artistic effects.
- Ceiling color.
- 360-degree panoramic environment, selectable from prepared textures or custom uploads.
- The room contains walls, lights, and objects.
- The 3D scene is lit by neutral daylight, which can be adjusted.

Lights

- Additional light sources can be added.
- Positioning of lights in the 3D space.
- Adjusting light intensity.

Objects

- Predefined objects such as:
 - Figures
 - Benches
 - Plants
- Positioning of objects in the 3D space.

3D Viewer is integrated into the administrative area as a standalone page.

Users can design their exhibition in the 3D Planner and save it as a version within their administrative environment, from where the entire 3D scene can be published on their public page. The published version of the exhibition's 3D space is then loaded into the 3D Viewer application.

3D Viewer

The 3D Viewer application is intended for the general public. It is a simplified version of the 3D Planner, without the capability to create or edit spaces.

In the 3D Viewer, visitors can navigate the space, view the artworks, and enjoy the artistic presentation prepared by the artist.

Functionality

- Movement within the 3D space.
- 360-degree rotation and tilting of the view up and down in natural intervals.
- Collision with walls, artworks, and objects, preventing the viewer from passing through them.
- Clicking on an artwork opens a window with information about the piece.
- Option to allow the repositioning of artworks for an interactive experience.
- The 3D Viewer is embedded in the public webpage as a canvas.

Unity

The 3D Planner and 3D Viewer applications are created using Unity, version 2022. A WebGL build is generated, which is integrated into the HTML page as a canvas.

The application can be launched in full-screen mode.

Unity dynamically loads JSON data from the backend, containing details about the 3D space, such as room size, wall placements, artwork positions, lighting, and other objects, as well as the overall scene layout.

The 3D Planner saves the created space back to the database. The 3D Viewer is a read-only version.

Artworks are loaded externally as images and are not part of the build. Example textures, such as flooring or 360-degree environments, as well as objects like benches and figures, are stored in the build.

Administrative Zone

Upon registration and login, users access their administrative zone, which consists of the following modules:

- Gallery
- Exhibition
- Artist

- Artwork
- 3D
- User

Each module that contains object lists, such as galleries or artists, features a table with search, filtering, pagination, and sorting capabilities.

Gallery

This module manages galleries. An institution may have multiple galleries, so our registered users can create multiple galleries as well.

Exhibition

This module manages exhibitions. Each exhibition is assigned to a specific gallery. We adhere to existing structures to accommodate large galleries as our users. Each exhibition contains a list of artworks included in the exhibition. An exhibition can be active, have a duration from a start date to an end date, and have an assigned curator.

Artist

A list of artists managed by the user. Each artist has their artworks associated with them. The database contains details about the artist, such as name, description, and more.

Artwork

A list of artworks uploaded by the user. An artwork can be included in multiple exhibitions because we operate in a virtual space. The artwork has the following attributes:

- Name
- Description
- Artist
- Year
- NFT
- AI
- Genre
- Work type
- Material
- Technique
- Measurements (width + height in mm)

3D

A module for creating a 3D presentation of an exhibition. The 3D space is always linked to a specific exhibition. The user first creates the exhibition, assigns artworks to it, all through the administrative interface, and then creates the 3D space in this module.

Multiple 3D spaces can be created for a single exhibition. Spaces can be duplicated to create new versions.

In the 3D module, the user determines which 3D space will be published for the specific exhibition.

User

A module for editing the user account.