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VISUAL INTERFERENCE IN THE GLASS FACADE

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Introduction

Intentional use of visual interferences has been on the rise in art and architecture. Its popularity stems from the search for ever newer forms of expression with simultaneous return to minimalism and geometric layouts. The seeking of an increasingly more advanced and processed form of art is linked to the fascination with physics and maths. The objective of this publication is to examine visual interferences that occur in architecture and to determine their effects on how the building is seen and on the architectural space.

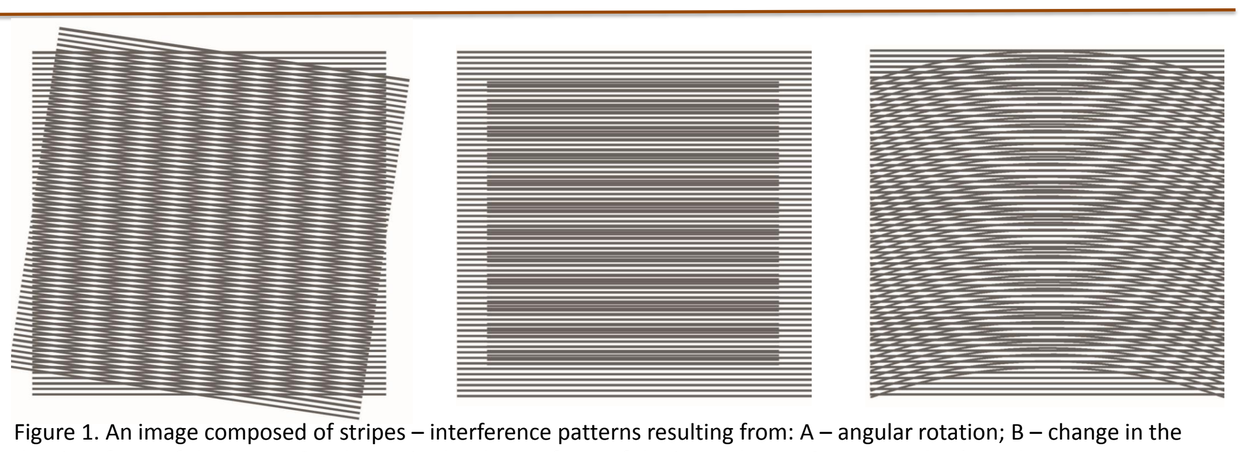

Figure 1. An image composed of stripes – interference patterns resulting from: A – angular rotation; B – change in the density of one of the layers; C – change in the shape of one of the image layers. Source: Author's study.

Material and Methods

The research material includes realizations on a different scale. At the beginning, small installations, glass walls and facades with the phenomenon of visual interference were mentioned. The phenomenon will be examined based on buildings created over the past two decades.

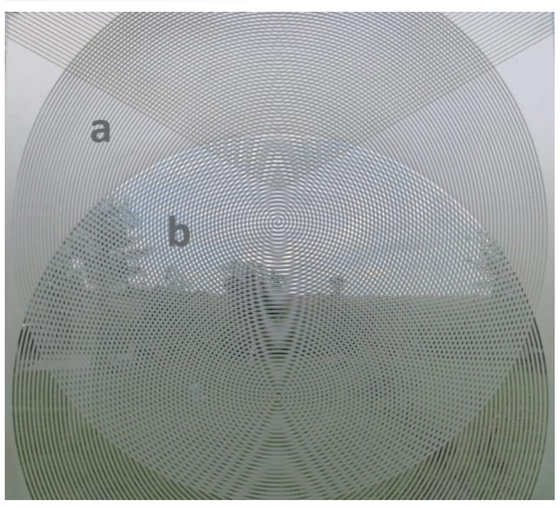

Figure 1. Part of the, triptych (Alina Budzyńska, 2016), sandblasting and painting. Photos: by the author.

Discussions & Conclusions Smaller installations create decorative, visually mobile arrangements, which can be used in an interior as a component that either moves or is permanently connected with the building. Interference patterns can be made using surfaces with varying degrees of transparency. On the outer layer, the image is placed on a glass plane; while the inner layer can be made up of another opaque material covered with graphical features, which simultaneously acts as the wall's cladding. An enamel layer is a unique decorative element, in which reception depends on the location relative to the façade plane and the distance from the front of the building. Graphical features can be seen properly from a few to over ten metres. The image of the raster and interferences can be seen from half a meter to less than ten metres, depending on the raster's size.

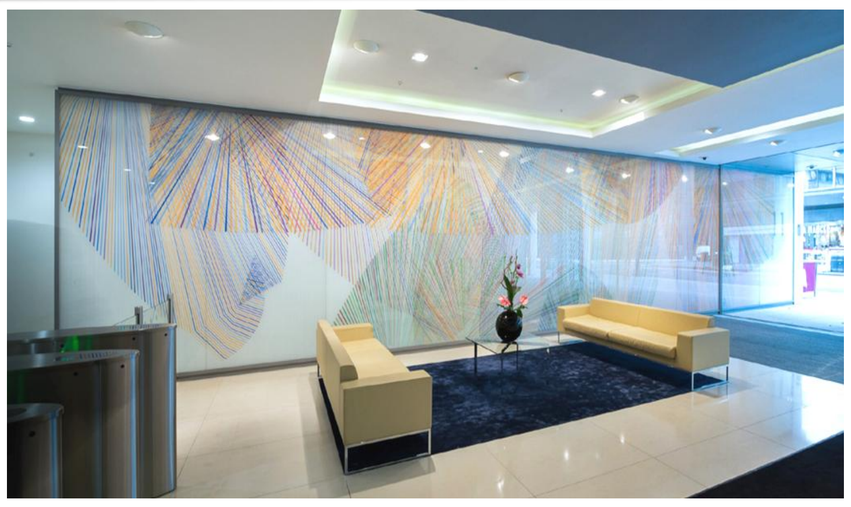

Figure2. The entrance hall with the view of the glazing, Baker Street, London (artist: Alexander Beleschenko, 2011). Photo: Alexander Beleschenko.

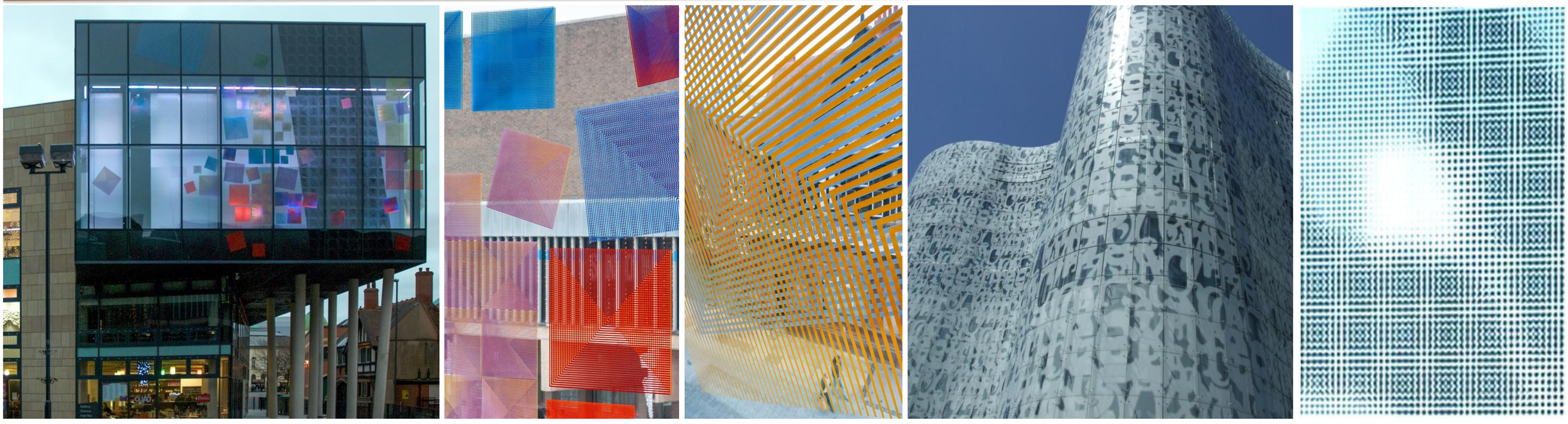

Figure3. QUAD, Derby, UK (Artist: Alexander Beleschenko ,Architect: John Sutton, 2011): A - facade from the outside; B - view from the inside; C - facade detail. Photos: Alexander Beleschenko..

Figure 4. The University Library, Cottbus: A - building's façade; B - interference patterns from up close. Photos: by the author.

Discussions & Conclusions

Interference patterns constitute an additional element that integrates the building's façade; graphical features composed of fine elements remove divisions in the glazing, and provide a partial cover for the structure enclosed in the space between the graphical layers.

Surfaces made of small, repetitive texture elements or a raster provide a unique aesthetic feature, both on the façade side as well as inside the building. Despite the use of opaque enamels, a glass façade creates a semi-transparent veil that makes it impossible to see through from either side. And the layer also looks different when seen from one side or the other. From the lit side, the image is seen in colour; and from the other side, when backlit, opaque pixels provide a dark cover and the image is the negative of that seen from the outside.

The distance created between the images provides a buffer inside an architectural structure. In double glazing, it boosts the sunlight protection and affects the building's thermal protection. Additionally, the building is protected against noise.

Figure 5. Institute for Hospital Pharmaceuticals, Basel, Switzerland (Herzog & de Meuron, 1998): A - the section of the building on the street side; B - elevation structure and graphical features. Photo: Maarten Helle.

Results Visual interferences can be effectively used in the interior, as a decorative element, or in the outer partition, as part of façade's integration strategy. The removing of the two graphical layers from each other results in the occurrence of a visually mobile layer, and creation of a buffer layer, which is used for the thermal and sunlight protection of the building. The double graphical layer becomes a unique decorative element, the reception of which depends on the location relative to the façade. Two independent images are created, and they filter through each other to produce a new single image. In the raster image, the screen print layers seen from the interior overlap, creating visual interferences. An advantage that this solution provides is sunlight protection as well as effective see-through protection. This provides control over the integration of the external space with the building's interior, and also more effective protection of the building against noise.

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