LIGHTING DESIGN FOR RUINS - CANTACUZINO DOMAIN AS AN EXPERIMENTAL STUDY/

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Abstract. This article presents a unique exploration of architectural lighting for ruins and landscape, inspired by a workshop conducted at the Cantacuzino Domain in Floresti, Prahova. The workshop is focused on illuminating the ruins of the palace, the water tower, and a fragment of the historic park, involving UAUIM students and the local community. The lighting design workshop was part of a general approach for the revitalization of the domain, including the preservation and enhancement of its cultural heritage. By using innovative lighting techniques, the project aimed to highlight the historical significance and aesthetic value of the ruins, creating a captivating visual experience that would attract visitors and foster a deeper appreciation for the site. The involvement of UAUIM students provided an educational opportunity, allowing them to apply theoretical knowledge in a practical setting and engage with the local community. This collaboration not only enriched the students learning experience but also fostered a sense of ownership and pride within the community regarding their local heritage. Through hands-on experimentation and collaboration, participants had the opportunity to engage directly with the physical space of the palace ruins and the tower, exploring how light can transform and redefine their essence. For the architectural and landscape lighting, aspects of light pollution were also addressed to raise awareness about dark sky and how light can affect the fauna. The workshop emphasized the importance of protecting the cultural heritage, as well as the wildlife, by paying more attention to how we interact with our environment through lighting design. Overall, the initiative demonstrated how thoughtful architectural lighting can transform historic ruins into vibrant cultural landmarks, blending the past with contemporary lighting technology to create spaces that are both visually striking and historically resonant.

Historical and Present Context. The Cantacuzino Domain in Florești was created at the beginning of the 20th century by Gheorghe Grigore Cantacuzino, known as "The Nabob," due to his immense wealth. Inspired by French elegance and luxury, Cantacuzino sought to build a complex that could rival the grandest aristocratic residences of the time [1]. Spanning approximately 150 hectares, the park was designed in a romantic style, featuring winding paths, artificial lakes, canals, bridges, and carefully selected trees.

The palace designed by architect Ion D. Berindey was constructed between 1911 and 1916. Inspired by the Petit Trianon at Versailles, the building was intended to be a symbol of refinement and modernity. However, it remained unfinished due to the death of Gheorghe Cantacuzino and the outbreak of World War I.

A remarkable feature of the domain, is the stone water tower, used for garden irrigation and represented a technological innovation for its time. Currently, the tower is undergoing restoration. This initiative aims to preserve the historical and architectural integrity of the structure while giving it a new purpose that enhances its accessibility and appeal. Once completed, the tower will provide visitors with a panoramic view of the Cantacuzino Domain and its surrounding landscape, further enriching the cultural and touristic experience of the site.

Although the domain suffered neglect following nationalization, the park remains an important cultural and historical asset. Efforts are currently underway by the domain's new owners and organizations such as the Cantacuzino Florești Foundation. The foundation, established in 2013, aims to develop cultural programs and projects that encourage the integration of the Cantacuzino Domain from Florești, into the regional and national circuit. Its primary goal is to promote the built and landscaped heritage of Florești to all categories of the public, to conserve and restore the structures and landscapes of the former aristocratic estate, as well as to organize cultural and sports events designed to draw attention to the domain and its components.

The foundation has carried out activities not only on the Cantacuzino Domain but also in schools and highschools in Florești and neighbour towns, engaging in numerous educational and cultural projects. It has organized workshops and creative activities for youth and adults, established partnerships with higher education institutions, and hosted practical sessions for architecture students, landscape designers, and young artists. Starting in 2019, the Cantacuzino Florești Foundation has periodically organized interdisciplinary workshops dedicated to cultural heritage. Over 150 students, young professionals, and active specialists in fields such as architecture, archaeology, landscape design, and visual arts have participated in these activities, alongside members of the local community.

In 2024, as part of the Architecture Summer School, we initiated a lighting design workshop, to visualize what it would mean to highlight the heritage of the Cantacuzino Domain during the evening hours, both for a normal (permanent) lighting and for an occasional lighting (various special events). For this lighting design workshop we invited two renowned specialists: lighting designer Sarah Ambrozie and Dan Vătăjelu, the president of the Romanian Lighting Association (ARI). Their expertise provided valuable insights into the practical aspects of a lighting workshop, enriching the experience for all participants.

The Architectural Lighting Workshop. The Architecture Summer School started with a historical overview of the Cantacuzino Domain, during a site visit for on-the-ground analysis of the ruins, landscape, roads and paths. The visit allowed us to understand the site's current condition, the beauty of its ruin's imperfection and how natural and architectural elements create the context for our work. In this phase, the participants experienced some lighting effects, with the technology provided by ARI and Zumtobel: different light sources and fixtures, color filters, and control

systems. We launched a few questions inspired by Derek Philips [2]: Should the ruin be lit at night? What is the relationship with the daylight appearance? What is the effect of/on the location? Can we use color light?

We took time to get to know each other, learning about everyone's background and identifying the unique skills each person could contribute to form strong teams for the upcoming lighting design challenges.

The following day began with a theoretical introduction to outdoor architectural lighting design [3]. This open talk session included, principles and case studies, the concept of glare, light or luminous pollution and discussions about dark sky, sustainable technologies and lighting practices. We talked about how Dark Sky Organization try to restore the nighttime environment and to protect communities from the harmful effects of light pollution over wildlife, human health, energy waste or over the view of the universe. Talking about solutions such as shielded lighting, low-intensity fixtures, and promoting warm light rather than blue-emitting LEDs helped the students realize how simple changes could make a difference.

The design brief required participants to develop two lighting proposals to the key elements of the Cantacuzino Domain: one for regular lighting and another for occasional lighting, using RGB technology.

Organized in two teams, the students designed multiple lighting scenes, exploring creative lighting solutions, concepts, and lighting layers. They all agreed to propose a classic and elegant lighting solution for the ruins, with fixtures placed outside the ruins, ensuring that the existing facades and the surrounding nature would not be disturbed. They used warm white light for normal lighting system, with contrasts only in cool white, highlighting architectural features, shapes, textures, details. This approach resulted in a softer, more classical appearance, allowing the ruins to be appreciated both day and night, in harmony with the surrounding landscape. For occasional lighting, several concepts were proposed in connection with special events held on the domain. These proposals incorporated the use of RGB colored lighting for all the architectural and landscape objects. The use of colored light introduced a festive character, but also prompted discussions on its appropriateness for various architectural elements and settings. This divergence of opinions enriched the creative process, highlighting the subjective nature of light perception and its impact on the ambiance of the space.

After the initial design ideas were developed and presented to the tutors, in the evening the students together with the volunteers from the community moved to the experimentation phase, where each team tested a normal and an occasional lighting solution for the ruins (Figure 1), the water tower (Figure 2) and an historic tree (Figure 3).

This practical experimentation enabled participants to rapidly observe the materialization of their ideas and to understand the impact of different lighting techniques, including the use of color and directional filters.

The next phase was a critical review of the lighting proposals, followed by group discussions and conclusions on the effectiveness and creativity of their designs. The final session was to refine and improve the lighting designs based on feedback and analysis, allowing participants to adjust and enhance their concepts. This iterative phase is essential in any design process, as it allows for the application of new insights, ensuring the best possible outcome.

In the second phase, the design increased in complexity, transitioning from the study of façades to the architectural object as a 3D form in its context (trees, the former water pool and the nymphaeum). The students proposed a phased approach to nighttime lighting with two lighting scenes, gradually reducing the illumination level throughout the night. They experimented some artistic aspects, such as the silouette effect for one of the monumental tree (Figure 4). This lighting technique is achieved by placing a strong light source behind the subject (in our case the tree), making it appear completely dark or only outlined, with its details becoming hard to distinguish. The result is a distinct shape / silhouette that stands out against the illuminated background.

Some details of the ruins became visible only illuminated with upwards effects, with ascendent lighting, otherwise they are overlooked during the day. This technique emphasizes the textures and architectural details by casting shadows and creating depth, which are particularly effective for the uneven surfaces like ruins. Details are important, so the students dedicated time to observe and experimenting with various lighting effects, in order to determine which would best highlight the ornaments and unique decorative elements (Figure 5). They explored shadows, which are significant as light itself, in creating depth and contrast, enhancing the visibility of decorations and architectural elements.

One of the objectives was to avoid disturbing the nature on this site. The lighting strategy was designed to be unobtrusive, with the lights positioned so that they illuminated only the architectural elements, leaving the natural vegetation and wildlife undisturbed. By using discreet, low-impact lighting, the design ensured that the ruins would be visible and appreciated by visitors, while maintaining the tranquility and authenticity of the natural environment around them. The lighting design also adhered to sustainable practices, using energy-efficient fixtures and minimizing light pollution. The contrast between warm and cool white light not only helped to create visual interest but also contributed to a sense of balance and harmony between the man-made and natural elements of the site. This approach ensured that the lighting enhanced the cultural and aesthetic value of the ruins, while also respecting the need for environmental preservation.

Overall, the final proposal balanced modern lighting techniques with a deep respect for the history and ecology of the site, creating an elegant and sustainable solution that showcases the beauty of the Cantacuzino Domain without overwhelming its natural and historical elements.

Light Painting/Writing . Late during one of the last nights of the lighting design workshop, participants had a bonus activity, coordinated by Dan Vătăjelu: a special light painting session dedicated to the Cantacuzino Domain (Figure 6). Light painting is a form of art consisting of moving a light source while taking a long-exposure photo. Just as Picasso referred to his work as "light drawings", we can similarly speak of "light writing". Both concepts involve using light as a medium to create visual forms, whether in abstract shapes, drawings, or even written messages. Creating some words in our workshop added a personal and expressive element to the activity.

The vibrant colors of the illuminated letters spelling “Cantacuzino” in front of the historic ruins created a striking contrast between the new and the old, achieving a unique balance between creativity and reverence for the location.

Lighting design often requires late-night work, so it’s important to maintain enthusiasm and not overlook the value of having fun while we work.

Conclusion. Experimentation can be the first step in scientific approach, it allows to test hypotheses/designs and observe outcomes. Lighting design for ruins combines creativity with technical skill to enhance the architectural features while preserving the historical and atmospheric essence of the site. It’s about finding a balance between illuminating key elements, such as details, textures, and structures, without disrupting the ambiance of the ruin.

The summer school held at the Cantacuzino Estate in Florești was a first experiment with architect students, together with professionals in the field of lighting design. Participants moved from theory to experimentation, gaining a better understanding of the theoretical concepts presented: floodlighting to illuminate large areas, grazing to emphasize textures, spotlights and accent lighting for details, color temperature (3000K warm white - 7000K cool white) as well as colored light using blue, green and maigenta color filters. They experimented contrasts, both in terms of light color and intensity (general lighting - accent lighting, directional filters, etc.). Thanks to the ability to quickly test the proposed effects on field and then study them on photos, we were able to draw conclusions and make further adjustments, including increasing the complexity of the solutions.

Current LED technology offers a wide range of possibilities for expression in lighting, which is why the involvement of architects and designers in this field is essential. Low-power, durable LED lights are often used for energy-efficiency and their ability to offer various color temperatures. It’s also important to think about where the lights are placed: ground-level lighting, uplighting, or using lights hidden behind architectural features The goal is to highlight the beauty of the ruin while maintaining its aged and authentic appearance, and the integrity of the structure.

This workshop was the first dedicated to the field, focusing on the architectural and artistic aspect. The next step could be a collaboration with the technical specialists in the field—installation engineers, technologists, and company representatives—to undertake a design exercise within a multidisciplinary team.

The summer school on the Cantacuzino domain offered an architectural approach for illuminating this special heritage ruins with sensitivity and creativity. It establishes a foundation for future advancements in heritage lighting, making it a valuable addition to the discourse in architectural lighting. While original in its focus, its contribution lies in addressing the challenges of blending historical preservation with contemporary lighting technologies, developing experimental designs that balance functionality, aesthetics, and sustainability.

The positive feedback from students, their participation in international competitions, and the inclusion of their work in notable events and publications demonstrate the success of the initiative. Efforts to feature the Cantacuzino Domaine on the global map of architectural ruins underline the importance of preserving heritage and ensuring its continued relevance in both academic and cultural contexts.

In the end, the main objectives were achieved: to raise awareness about the Cantacuzino Domain and its ruins, and to develop a tourist circuit, including after sunset, by designing an appropriate architectural lighting. The project had also an important educational value, hoping to shape a new generation of lighting professionals.

The owner, the foundation, the community, and the students expressed a shared desire to continue exploring the impact of light on the Cantacuzino Domain. The proposal for the next Summer School is to create a James Turrell-inspired experience, embracing his philosophy: “Light is not so much something that reveals, as it is itself the revelation”. [4]

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FIGURE 1 - Little Trianon Palace in Floreşti – the main façade, warm white lighting proposal.

FIGURE 2 - The Water Tower - normal and occasional color lighting.

FIGURE 3 - The monumental three in the park.

FIGURE 4 - Lighting design of the ruins and a tree, with silhouette effect.

FIGURE 5 - The ruin details, visible with ascendent artificial lighting.

FIGURE 6 - Light painting/writing session in front of the ruins.

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