AI x Biomimicry

Architecture competition + Course

Organizer

Never Enough Architecture

In the heart of architecture lies the spirit of competition, a unique and rewarding experience that can shape one's professional journey. This is the story of Never Enough Architecture (NEA), founded by a group of architecture enthusiasts who have personally experienced the thrill and beauty of architectural competitions.

"We've seen how these competitions can create opportunities for everyone, regardless of where they live. From a rural architect in Burkina Faso to a city dweller in Paris, the chance to learn and participate is equal and exciting."

However, we noticed that traditional architectural competitions often failed to provide educational resources on the competition theme. This is where NEA steps in.

NEA is more than just an online architecture platform, it's a community that offers participants a unique value - education. We complement the practical experience of traditional architecture contests with expert-led courses on the contest theme, providing participants with solid, lasting, and systematic knowledge, and giving them access to insights from leading figures in international architecture.

"Our competitions are not just about winning, but also about learning and becoming better architects."

Furthermore, the involvement of an international jury gives participants the opportunity to have their work analyzed and appreciated by renowned figures, providing valuable feedback and potential recognition.

Main partner

Antonio Gaudí Foundation

The Antonio Gaudí Foundation is an organization dedicated to preserving and promoting the legacy of one of the most influential architects in history, Antoni Gaudí.

Antoni Gaudí, a pioneer of Catalan Modernism, is renowned for his unique approach and distinctive architectural style. His works, characterized by their organic forms, intricate detailing, and innovative use of materials, have left an indelible mark on the architectural landscape.

Gaudí's work is particularly significant in the context of biomimetic architecture. He was one of the early adopters of this approach, drawing inspiration from nature to inform his designs. From the structural systems of trees to the skeletal structures of animals, Gaudí observed and incorporated natural principles into his architectural creations. His work serves as a testament to the potential of biomimicry in architecture, demonstrating how we can learn from nature to create more efficient, sustainable, and beautiful built environments.

The Fundación Antoni Gaudí is committed to preserving Gaudí's legacy, promoting his architectural philosophy, and inspiring future generations of architects. Through their work, they ensure that Gaudí's groundbreaking ideas continue to influence and shape the field of architecture.

In this competition, we invite you to follow in Gaudí's footsteps, using biomimicry and AI to create innovative architectural designs. We look forward to seeing how Gaudí's legacy of innovation, creativity, and respect for nature will inspire your projects.

Technical partners

Grimshaw Architects
Heatherwick Studio
Herzog & de Meuron
MONOMO
UIC Barcelona
Online Lab of Architecture

GRIMSHAW   Heatherwick studio   H&dM

UIC barcelona   OLA

/imagine Create images with Midjourney

/imagine prompt a tall building is surrounded by translucent structure inspired by fungi

Introduction

Since the dawn of time, humans have looked to nature for inspiration. From the cave dwellings of our ancestors to the bird-inspired designs of early flying machines, the natural world has always been our greatest muse. Today, we see this influence in the architectural marvels around us, from buildings that mimic the self-cooling mounds of termites to those that use a ventilation system similar to sea sponges and corals. Biomimicry in architecture is not a new concept; it is a natural progression in our design evolution, a testament to our enduring connection with the natural world.

Now, we stand at the threshold of another revolution - the advent of artificial intelligence. This transformative technology promises to reshape our world, and architecture, with its inherent creativity, stands to be one of the most impacted and enriched fields. The introduction of AI in architecture heralds a future where design is not only more efficient and innovative but also significantly more sustainable.

This competition represents a unique opportunity to delve into the intersection of biomimicry and artificial intelligence. We challenge you to create a design that mirrors the beauty and efficiency of nature, enhanced by the power of AI. Together, we can shape a future where architecture is not only visually stunning but also inherently sustainable.

Furthermore, at Never Enough Architecture, we are fueled by a passion for learning, innovation, and pushing the boundaries of architectural design. To this end, we complement our competitions with a free course for participants, in this case focusing on AI and Biomimicry in architecture. This course, conducted by experts in the field, is our commitment to fostering a comprehensive learning process among our participants.

Join us in this journey of exploration and discovery, and let's redefine the future of architecture together.

Biomimicry in architecture

Biomimicry is an innovative approach to design that seeks to emulate nature's time-tested patterns and strategies. The core idea is that nature, with 3.8 billion years of evolution and adaptation, has already solved many of the problems we are grappling with. Animals, plants, and ecosystems are expert engineers, and by studying and imitating their physical forms, shapes, structures, and the processes and rules that govern their growth and behavior, we can create sustainable and efficient solutions.

In the realm of architecture, biomimicry introduces a transformative perspective, shifting the design process from merely drawing inspiration from nature's aesthetics to deeply understanding its principles and mechanisms. It encourages architects to observe how nature designs systems, manages resources, optimizes energy, and adapts to changing conditions. This approach can lead to innovative architectural designs that are not only visually striking but also inherently sustainable and resilient.

Biomimetic architecture can take various forms, from buildings that mimic the efficient thermal regulation of termite mounds to structures that emulate the strength and flexibility of bamboo. It can also involve using natural materials in innovative ways or integrating ecosystems into the built environment. The ultimate goal is to create architecture that performs as nature does, seamlessly blending with its surroundings, using resources efficiently, and contributing positively to the environment. This approach opens up a world of possibilities for design, pushing the boundaries of what is achievable in architecture and paving the way for a more sustainable future.

Eden Project, UK

Eden Project, by Grimshaw Architects, is the world's largest greenhouse. The huge semi-circular modules were inspired by the shape of soap bubbles. The efficient structural system consisting of hexagons and pentagons was derived after studying pollen grains, radiolaria, and carbon molecules.

30 St Mary Axe, UK

This skyscraper, designed by Norman Foster, uses a ventilation system similar to that of sea sponges and corals. The building's unique design allows air to flow up through spiraling wells, reducing the need for artificial cooling.
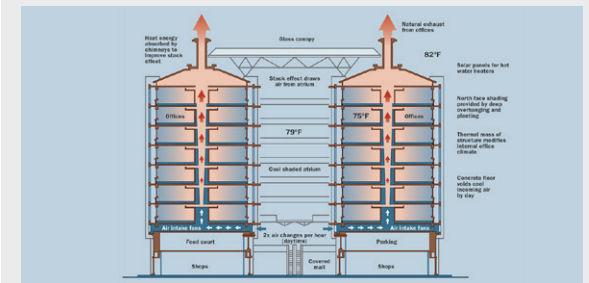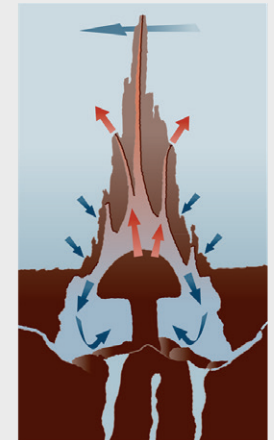
The Eastgate Centre, Zimbabwe

Designed by Mick Pearce, this building is designed to mimic the self-cooling mounds of termites. Despite being located in a hot climate, the building maintains a comfortable temperature without the need for air conditioning.The perfect example of a design that mimicks a natural process.

Examples of biomimicry in architecture

AI in architecture

Much like biomimicry, Artificial Intelligence (AI) is an innovative approach that is reshaping the field of architecture. Although they may seem to be at opposite ends of the spectrum - with one drawing inspiration from the natural world and the other leveraging cutting-edge technology - they share a common goal: to create more sustainable, efficient, and innovative designs.

AI is set to revolutionize the field of architecture, similar to the impact of the advent of computer-aided design (CAD) software decades ago. AI in architecture employs advanced algorithms and machine learning to generate and refine designs, pushing the boundaries of what's possible in the field.

The impact of AI on architecture is anticipated to be profound and far-reaching, transforming how architects design, plan, and execute projects. Just as past technological revolutions fundamentally changed how goods were produced and how people lived and worked, AI has the potential to bring about a seismic shift in architecture, altering not only how architects work, but also the nature of the buildings they design.

Looking ahead, the role of AI in architecture is likely to expand. We can anticipate AI being used to automate more aspects of the design process, from initial concept generation to detailed design development. AI could also play a role in managing the construction process, optimizing resource allocation, and ensuring projects are completed on time and within budget.

The combination of these two approaches, biomimicry and AI, can yield remarkable results. By using AI to explore and implement biomimetic designs, architects can create buildings that are not only visually stunning and efficient but also in harmony with their environment. This fusion of nature-inspired design and advanced technology represents a new frontier in architecture, one that holds great promise for the future.

/imagine Create images with Midjourney

/imagine prompt a skyscraper, honeycomb hexagon geometry pattern, beehive

/imagine Create images with Midjourney

/imagine prompt a young architect exploring the possibilities of AI

The competition

In this competition, we challenge you to delve into the exciting intersection of biomimicry and AI in architecture, with the aim of producing extraordinary designs. Your task is to create projects that are rooted in a strong biomimetic concept, while utilizing AI software for their realization.

We are seeking the following objectives:

A project rooted in a principle of biomimicry:
Your design should be fundamentally based on a concept or strategy derived from nature.

Biomimicry that adds value:
The use of biomimicry in your project should contribute more than just aesthetic appeal. It should provide a tangible benefit, such as enhancing the building's sustainability, efficiency, or resilience.

Essential role of AI in the creative process:
The objective of this competition is to encourage participants to integrate AI tools as a fundamental part of their creative process. We are looking for designs where AI has been used during the conceptualization of the idea. Following this, participants have the freedom to either retain the output from the AI software as is or modify it to achieve their desired final result. The choice to use traditional software (such as Photoshop) to complement the AI-generated design is entirely up to the participant. The key is to demonstrate how AI can be a powerful tool in the early stages of design, opening up new possibilities and directions for your project.

Freedom in building type and function:
The choice of the building type and function remains entirely in your hands. It could be anything from a residential house, an apartment complex, a school or an office building, to a retail outlet, a museum, a public market, a transportation hub, a community or cultural center, a multipurpose pavilion, a library or a sports facility, among others. We encourage you to leverage your unique perspectives and interests to explore innovative ways in which biomimicry can shape architectural design. However, to ensure a consistent evaluation process based on our evaluation criteria, we ask that your proposed building be of small to medium scale, with a maximum height of approximately four levels.

Evaluation criteria

The jury will evaluate the entries based on the following principles:

- **Innovation**: The effective and creative use of biomimicry in architectural design.
- **AI Integration**: The application of AI tools in the design process and their integration with biomimetic concepts.
- **Originality**: The uniqueness and creativity of the design, pushing the boundaries of architecture.
- **Presentation**: The clarity and effectiveness of the visual presentation and written description.
- **Sustainability**: The sustainable outcome of combining biomimicry and AI in the design.

The jury will highly value designs that express a special sensitivity towards the integration of biomimicry in sustainable and innovative architectural solutions using AI tools.

Your project should be presented on a board, which can include multiple images and any other visual aids that contribute to a clearer understanding and explanation of your project. You may develop additional information such as diagrams, plans, elevations, etc., if you believe it will enhance the understanding of your idea. Deep technical details will not be considered extremely important in the evaluation process.

/imagine Create images with Midjourney

/imagine `prompt` elastic sheets pavilion design like a beautiful sea slug

/ Khaled Sadeden

Course in AI and Biomimicry

We firmly believe in the transformative power of education and are committed to equipping our participants with practical knowledge and skills that they can apply to their projects and beyond. As such, we aim to provide a comprehensive learning experience that extends beyond the competition itself.

This course, conducted live online, is designed to offer an immersive and engaging learning experience. It is structured around two main areas of focus, each providing comprehensive exploration and reflecting the themes of the competition: AI and biomimicry.

The first focus delves into Artificial Intelligence, with a particular emphasis on Midjourney, a leading AI platform with a lot of possibilities in the architectural field, along with discussions on other AI tools. This segment of the course will be facilitated by industry experts who will instruct participants on how to proficiently utilize these AI tools for generating and refining designs.

The second focus concentrates on the implementation of biomimicry in architecture. Participants will gain insights from distinguished architects who have effectively integrated biomimetic principles into their designs. This part of the course will not only impart theoretical knowledge but also demonstrate the practical applications of biomimicry in real-world architectural projects.

The course is designed to foster active participation, featuring live Q&A sessions that allow participants to interact directly with the instructors and resolve their queries in real-time, thereby enriching their learning experience.

For those unable to attend live sessions or who register after a course session has been conducted, recorded sessions will be provided to ensure equal access to the course content.

The calendar of the lessons will be published on our website once it is defined.

All participants attending the course will receive a digital certificate of completion.

Awards

We are offering a total of 10,000€ in cash prizes, distributed as follows:

1st PRIZE
6,000 €

2nd PRIZE
2,000 €

3rd PRIZE
1,000 €

SPECIAL HONORABLE MENTIONS
2 × 500 €

10 HONORABLE MENTIONS

50 FINALISTS

All winning projects and finalists will be published in various architecture magazines, blogs, social networks, and our website. All participants will receive a digital certificate of participation.

Calendar

The registration periods, submission deadline and winners announcement are as follows:

Early Registration
July 12 - August 16

Regular Registration
 August 17 - September 13

Advanced Registration
September 14 – October 11

Late Registration
October 12 – November 08

Submission deadline
November 8

Winners announcement
November 29

Registration

To register for the competition, visit our official website and complete the registration form. Upon completion of the form, you will be redirected to the payment page where you need to complete the payment to finalize the registration process.

The registration fees are tiered based on the date of registration as follows:

  - Early Registration: €65 + VAT

  - Regular Registration: €85 + VAT

  - Advanced Registration: €105 + VAT

  - Late Registration: €125 + VAT

Please note that VAT is charged at 21%.

We accept Visa, Mastercard, Discover, and American Express credit or debit cards. Payments can also be made through PayPal. Please note that we will not have access to your credit card details. Once the registration and payment process is completed, no refunds will be issued.

Immediately after registration and payment, you will receive a confirmation email to the address provided during payment. This email will include your unique registration number. When submitting your proposals, you will be required to provide this registration number for identification purposes, and it should be clearly displayed on your competition board, preferably in the lower right corner.

FAQs & Elegibilty

- For common queries, refer to the FAQ section on our website. During the competition, individual responses will be provided to questions sent via email.

- The competition is open to all, including architecture students, professional architects, and individuals from other disciplines such as engineering, philosophy, sociology, photography, etc. All nationalities are welcome, we appreciate as diverse participation as possible.

- Teams can consist of one to four members, all of whom must be at least 18 years old. The registration fee is per team, irrespective of team size.

- If a team or participant wishes to submit more than one proposal, they must register and pay the fee for each submission.

- Jurors, the organization, or anyone directly related to the jury are not allowed to participate in this competition.

Submission

For this competition, participants are required to submit **two digital files**: an "A1 Board" and a "Project Description". Submissions should be made through the '**Submit' section on our website**.

A1 Board: Participants are required to present their project on a **single A1 format board** (594×841 mm or 23.4×33.1 inches), which can be either landscape or portrait oriented.

A1 Board Content: The board should contain a variety of visual aids that contribute to a clearer understanding of the project. The **registration number** must be clearly visible in the lower right corner of the board.

A1 Board File Details: The board must be delivered in **JPEG or JPG** format with a **maximum size of 10 MB**. The **file name** must be the registration number provided upon registration **(e.g., 432465423.jpg)**.

Project Description: A project description, of no more than 400 words, must be submitted along with the A1 Board.

Project Description Content: The description should include an explanation of the project, especially the biomimetic idea behind the design.

Project Description File Details: The description must be submitted in **PDF format**. The **file name** must be the registration number provided upon registration **(e.g., 432465423.pdf)**.

Language: All texts, both on the A1 Board and in the Description, must be written in **English**.

Anonymity: The materials cannot contain any name or reference to participants or teams. Only the registration number should be included in the files' names to ensure anonymity.

Rules & Conditions

Intellectual Property: Participants maintain the rights over the intellectual property of their submissions. However, by participating, they grant our platform a global, free, and non-exclusive license to reproduce, publish, and distribute the project in any format and through any dissemination medium. Our platform will make sure to give proper attribution to the project authors.

Use of Copyright-Free Images: Participants are responsible for ensuring that any images or materials used in their submissions are copyright-free. Our platform is not responsible for any copyright infringements made by participants.

Changes to Competition Rules: Our platform reserves the right to change the competition rules at any time, in compliance with current legislation. Any modifications will be published on the website and will be binding for participants.

Right to Cancel the Competition: Our platform reserves the right to cancel the competition due to lack of enrollment or other justified reasons. In such cases, participants will be notified individually and the registration fees will be refunded within 15 days from the notification of the cancellation.

Adherence to Terms and Conditions: Participants are required to adhere to the terms and conditions of the competition as stated on our website. Failure to comply may result in disqualification.

No Responsibility for Third-Party Use: Our platform is not responsible for the use of participants' submissions by third parties, including content that has been shared by third parties or indexed by search engines.

Please note that these rules are a summary and participants should refer to the full terms and conditions on our website for complete information.

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