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Artificial intelligence as part of future practices in the architect's work: MidJourney generative tool as part of a process of creating an architectural form

Introduction

The fourth industrial revolution becomes a reality – the modern world is in the process of transformation and the development of new technologies is redefining the way humans function in almost every aspect of their existence. The changes are being made at a pace and scope unprecedented in human history [1, p. 17] – for reference: the invention of the telephone gained 100 million users in 75 years, the social network Instagram gained the same number of users in two years, while interactive game Pokemon Go reached this level in just one month [2].

The cornerstone of this transformation has been the implementation of artificial intelligence (A.I.) technology into widespread use – which is defined as a computer's ability to mimic intelligent human behaviour in order to perform complex tasks such as analysing information, recognising objects and sounds, filtering and processing data and, as a result, being capable of autonomous problem solving and creation process [3, pp. 141–143]. It is possible for A.I. to exist through the right software, with its mechanics striving to replicate advanced human thinking processes through scripts and algorithms [4, p. 111], and machines – increasingly powerful computers that are able to collect and process increasingly greater volumes of data, at ever faster rates. The areas in which such technology is currently being used are mainly:

- advertising tools based on machine learning which allow personalised advertising content to be delivered based on the collected user data,

- speech recognition, which is used, among other areas, in voice control systems and virtual voice assistants – capable of recognising human speech and providing content and grammatically correct responses,

- computer vision and image processing – such as facial recognition technology for data authentication, object recognition being used in autonomous vehicles and the anomaly recognition capability based on archived images currently used in medical diagnostics [5].

Amidst the rapidly changing nature of the modern world, the architecture industry is also undergoing a transformation. In recent years, the implementation of new technologies and A.I.-based automation processes in architecture has increased [6], now including performance evaluation, optimisation of structural solutions and the erection process, parametric design, the process of prefabrication for components as well as for entire buildings (also using 3D printing technology). Apart from technological development and model-based mathematical data evaluation, artificial intelligence is also capable of supporting the process of creating architectural form [7, pp. 125–130]. The tool is based on the existing resources, so its implementation must be preceded by data collection, categorisation and evaluation. This work has already started, with BIM technology¹ now in widespread use,

¹ BIM (Building Information Modelling) – a building information model, a digital record of the physical and functional properties of a building, used to generate and use data about a building in the form of a source of knowledge, fully accessible to participants in the development process and providing a basis for decision-making during the full life cycle, from initial conception, through design, construction and operation, to demolition of the building. BIM enables access to the same information, at the same time, through the interoperability of technology platforms.

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that helps to improve the transfer of project information between stakeholders, as well as in the related field of urban planning, with terrain information systems such as QGIS² providing the baseline for urban morphology studies, among others. At present, the data is mainly processed by physical users who rely on their knowledge and experience to analyse it and undertake design or planning actions. What is lacking, however, is a clear trend towards using A.I. in the creation process or in evaluating the aesthetic qualities of a designed building. Similarly, in terms of research – ongoing research focuses mainly on optimisation systems, intelligent models used for sustainable design and simulation of structural resistance – the result of which is indeed influential in making design decisions but does not have the hallmarks of a design process as such. A notable deficit of publications discussing the application of artificial intelligence in the process of creating architectural form can be observed [8]³.

The purpose of the study

The article provides an overview of the creative possibilities of A.I.-based systems and the prospects for their implementation at the architectural design phase. The author's research based on the results from the use of the MidJourney intelligent tool, as well as the evaluation of the results generated by the script based on knowledge and professional practice demonstrate the possible direction of A.I. implementation in the field of architecture. The aim of the research is to present the potential of the tool itself, and to explain the functioning of the script based on transparent examples that include revealing the inserted text prompts that are the basis for the process of creation. Cases were identified where the script bears the hallmarks of the ability to *think* correctly, autonomously; confrontation of the effects of human and computer creativity was therefore conducted following a didactical exercise entitled *In the manner of...*, based on intentional stylisation of an architectural form in the style characteristic of the chosen architect [9]. A presentation is made of the results of the own tests carried out on the basis of the programme of the aforementioned exercise, in an attempt to enforce the artificial intelligence to design a house in the convention of one of the selected architects. Each individual performed trial contributes to an image of the creative possibilities of the MidJourney tool.

The discussed script is capable of generating forms with astonishing visual qualities. Its creators had a perfect understanding of the human need for beauty, which

is translated into its growing popularity⁴. In the field of architecture, it is particularly significant that it is possible to create picturesque digital images of aesthetically pleasing architectural objects based on nothing more than key words. This is especially important in the context of ongoing discussions on the role of aesthetics in architecture, which have resulted in postulates indicating the need to return to valuing newly designed buildings on the basis of their beauty. This beauty, defined by parameters – mathematical proportions based both on a retrospective view of the evolution of architectural forms and an analysis of structures that occur in the natural environment [11, p. 339] – has a significant impact on the quality of human life, which is confirmed by research on both architecture and neuroscience [12, pp. 5, 6]. In the context of these considerations, the tool discussed in the article has a distinctive potential, justified by the mechanics of its functioning, and its implementation as a standard practice in the creative process could become the optical key that Walter Gropius already mentioned: *The intuitive directness, the shortcut of the brilliant mind, is ever needed to create profound art. But an optical key would provide the impersonal basis as a prerequisite for general understanding and would serve as the controlling agent within the creative act* [13, p. 43].

State of research

A literature review based on data from the research portals: ScienceDirect, Wiley Online Library, Google Scholar and ResearchGate clearly indicates that there is currently a significant shortage of research concerning the application of the MidJourney generative script in the field of architecture. The name of the script entered as the only key word returned a result of only five publications. In one of the articles, the script was not described in any way, instead its content was illustrated with images generated within the script [14], while in another MidJourney was cited in the context of discussing other generative scripts in general [15]. The remaining papers – from the area of computer sciences – focused on the identification of thematic trends in contemporary cognitive sciences [16], intelligent adaptive systems [17] and the use of the tool in the context of generative art, in the introduction of which the authors note that it is the only publication discussing this topic [8, p. 1].

This is most certainly justified by the fact that the MidJourney script is a newly developed tool – it was created in February 2022 and until the end of March it was available only as a beta version, relying on continuous testing of the tool and corrections of the obtained results being available to a limited group of volunteers only. The script became popular only in June, after it was made accessible to a larger number of users and through the creators sharing the results of their work in the script on online social networks [18]. Digital images – results of the experiments in the MidJourney script – are gain-

² QGIS – a multi-platform, free and open source geo-information software. The QGIS project is part of the Open Source Geospatial Foundation. QGIS allows you to manage geographic data, create your own data, including the use of GPS coordinates, perform spatial analysis and create maps.

³ In the quoted article, the authors, citing the result of a search on scientific portals: ScienceDirect, Wiley Online Library, Google Scholar and ResearchGate, point out that their article is the only one published to date that addresses the application of various artificial intelligence techniques in the creation of generative art. However, their paper lacks reference to architecture.

⁴ Based on the GoogleTrends graph [10].

Fig. 1. Digital collage generated with the MidJourney tool; key words: modern concrete house by the lake (dev. A. Jaruga-Rozdolska)

Il. 1. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney; słowa kluczowe: modern concrete house by the lake (oprac. A. Jaruga-Rozdolska)



ing popularity among graphic designers – including those engaged in the field of architectural visualisation⁵. However, their aim is no more than to create visually appealing graphics. No case was found where this process did not end with only the generated image, but was a starting point for further analysis, on the basis of which design guidelines were formulated. There was no example found either of a case where an architectural design has been developed on the basis of the generated concept image.

MidJourney

MidJourney is a generative software system capable of creating digital images based on entered text parameters⁶, developed on the basis of the high-level programming language Python [19] by a team of programmers led by David Holz⁷. MidJourney generic tool and similarly developed: DALL-E, NightCafe, Wombo Dream or Latent Majesty Diffusion are able to generate digital images with high aesthetics based on text output or a web link to a digital image. The created illustrations form a visually appealing conglomerate of visual data searched after entered key words (Fig. 1). The MidJourney tool was selected for the study due to the degree of involvement of the creator – the physical user – estimated to be the highest among the other tools available. The creation process is performed as follows: after entering the /imagine command and key words – the so-called prompts – the user receives four draft results of an image generated based on those data. A decision can be made to develop them or create further variants based on them, if judged attractive in the first stage (low resolution and low quality). If none of the proposals meet with the expectations, it is possible to repeat the cre-

ation task based on the same key words and obtain different results; it is thus worth emphasising that re-entering the exact same key words will never produce the same results, because the programme selects matching images and graphics available on the Internet at random in each case, additionally giving them a variable proportion in the created image. Furthermore, the continuous analysis of user choices allows the script to evolve as it learns to generate better and better visualisations – therefore, the image produced by the script is unique and, in a sense, attributed to the moment in which it was generated.

In the following chapter, the process of creation will be presented: from the selection of key words, through the multiple-choice phase, to the end result – the selection of the best graphics, which were later analysed in terms of their usefulness in the process of creating an architectural form.

Customised set of inspirations

In the conducted research, the first focus was to evaluate the usefulness of the tool in the context of creating a preliminary architectural concept, which constitutes the basis for the design guidelines. Our intention was to generate a building purely on the basis of relevant key words, which is an aesthetic form correctly set in the chosen landscape. The trial was conducted under the assumption of the requirement to design a modern underwater restaurant. The following key words were entered: *underwater modern restaurant concrete, beach, ocean, Iceland*. The first four refer to the building itself, while the next three refer to the expected environment. Based on these, the script generated four variants of the digital image (Fig. 2). A decision was made to develop the second concept, shown in the top right corner. A variation of this was generated, as well as an upscaled version (Fig. 3a) and a variation of an upscaled image (Fig. 3b).

Subsequent decisions resulting in the development of the selected concepts and the creation of their variations led to the image (Fig. 4), chosen as a start point for the formulation of the following guidelines for the architectural concept:

⁵ Based on trending topics on Behance and Artstation.

⁶ According to the creators' declaration, MidJourney is an independent laboratory exploring new media of thought and expanding the possibilities of human imagination.

⁷ David Holz is co-owner of Leap Motion, a US company that creates motion-controlled devices that change the way people interact with their computers.



Fig. 2. Digital collage generated with the MidJourney tool; key words: underwater modern restaurant concrete (dev. A. Jaruga-Rozdolska)

Il. 2. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney; słowa kluczowe: underwater modern restaurant concrete (oprac. A. Jaruga-Rozdolska)



Fig. 3. Digital collage generated with the MidJourney tool – effect of forcing the upscaling of a selected concept (a) and forcing a variation based on an upscaled concept (b) (dev. A. Jaruga-Rozdolska)

Il. 3. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney – efekt wymuszenia powiększenia wybranego konceptu (a) oraz wymuszenia wariacji na podstawie powiększonego konceptu (b) (oprac. A. Jaruga-Rozdolska)



Fig. 4. Digital collage generated with the MidJourney tool – selected concept (dev. A. Jaruga-Rozdolska)

Il. 4. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney – wybrana koncepcja (oprac. A. Jaruga-Rozdolska)

1. The bluish light inside the designed space enhances the impression of being in the midst of the oceanic depths, and illuminating a section of the underwater ecosystem, making it more visible and visually appealing.

2. The building plan based on an L-shape will create a sense of belonging to some of the surroundings beyond the building's outline, becoming an integral part of the design.

3. The panoramic glazing in the building blurs the visual boundary between inside and outside.

4. The use of materials such as rocks naturally occurring on the given site will benefit its contextual dialogue with the surroundings, and the use of glass in large quantities will ensure that its presence remains legible.

The result of the work in the programme is only a visual representation of the building – without information on the dimensions or the functional plan drawing; this remains the architect's responsibility, however, the use of the script drastically reduces the amount of time it takes to create the concept sketch – rendering the image with the script takes less than one minute⁸. Once a satisfying result is obtained, the architect, through knowledge and experience, is able to consider the possibility of the construction of the generated object and recommend the correction of solutions that would allow the project to be executed – in this case, the key aspect would be the glazing detail in the building constructed under the water surface. For non-standard buildings, familiarity with similar projects may be helpful⁹.

Baroque-style façade

Next research attempt was aimed at proving that the MidJourney script is an intelligent tool, capable of independent, correct thinking. This capability was tested by giving it the assignment to produce a concept for a Baroque-style façade. In order to obtain the best possible results, the addition of the name of a specific architectural style, architect or specific work of architecture of a chosen period to the key words was tested. In the first attempt, the prompts used were: *baroque style façade*, to which the phrase *by Gian Lorenzo Bernini* was added – to enforce styling in the manner of a specific artist, and *detailed ornament*, forcing an indication of the essence of the ornament. The use of the last phrase generated an overly close shot – a close-up on an architectural detail (Fig. 5). Based on analysis of the first outcome, key words were changed and further prompts were added – instead of including an artist specific to the period as an inspiration, common examples of Baroque-style buildings were mentioned. The choice was Italian Baroque, so such phrases were added to the key words. Text prompts were then modified, producing the results shown in the next illustration (Fig. 6). Continuing the experiment, the phrase *technical drawing* was added to the sequence of key words, with

⁸ Based on personal experience of several months working with the MidJourney script.

⁹ In terms of the underwater building in discussion, the recent Under project by Norwegian office Snøhetta or SubSix by Singaporean design studio Poole Associates Private Limited could serve as examples of the implementation.



Fig. 5. Digital collage generated with the MidJourney tool; key words typed: baroque style façade by Gian Lorenzo Bernini detailed ornament (dev. A. Jaruga-Rozdolska)

Il. 5. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney; wprowadzone słowa kluczowe: baroque style façade by Gian Lorenzo Bernini detailed ornament (oprac. A. Jaruga-Rozdolska)



Fig. 6. Digital collage generated with the MidJourney tool; key words: italian baroque style highly detailed inspired by Trevi Fountain, Church of the Gesù Sant'Ivo alla Sapienza and St. Peter's Square (dev. A. Jaruga-Rozdolska)

Il. 6. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney; słowa kluczowe: italian baroque style façade highly detailed inspired by Trevi Fountain, Church of the Gesù Sant'Ivo alla Sapienza and St. Peter's Square (oprac. A. Jaruga-Rozdolska)

the intention of achieving the result imitating architectural drawing (Fig. 7).

Generated images adequately express the idea of the Baroque style, without being a copy of existing elevations or the works entered in the keyword sequence. The results are diverse in terms of formal correctness – being partly quite free, sometimes abstract interpretations, yet remaining in the



Fig. 7. Digital collage generated with the MidJourney tool; key words: a technical drawing of italian baroque style façade with ornaments, high detail inspired by Trevi Fountain Church of the Gesù Sant'Ivo alla Sapienza St. Peter's Square (dev. A. Jaruga-Rozdolska)

Il. 7. Cyfrowy kolaż wygenerowany za pomocą narzędzia MidJourney; słowa kluczowe: a technical drawing of italian baroque style façade with ornaments, high detail inspired by Trevi Fountain Church of the Gesù Sant'Ivo alla Sapienza St. Peter's Square (oprac. A. Jaruga-Rozdolska)

spirit of the specified era. It is particularly interesting that each of the generated concepts is based on a symmetrical composition, which is correct in terms of content; the word symmetry was not introduced in the key word sequence – the visible result is therefore a manifestation of correct thinking. The well-chosen colour scheme is also worth a mention.

The proven ability to make the right decisions on its own, without having to indicate all the characteristics of a building in a key-word sequence, demonstrates the script's great potential in the context of creating an outline of an architectural concept in any given style. The evaluation of the correctness of the result visible in the generated image again has to be done by a human who possesses the necessary knowledge, but the accuracy of the decisions made by artificial intelligence is a positive surprise.

Project in the manner of...

The next stage of the research involved forcing artificial intelligence to generate a building concept inspired by the work of a prominent architect. This is an idea close to the teaching methods described by Philippe Bourdon¹⁰ in his 1983 article *Project in the Manner of... Notes on a Pedagogic Concept* [9]. It describes the task given to the students to interpret the characteristics of the style of the chosen architect, preceded by in-depth graphical analy-

¹⁰ Philippe Bourdon – a French architect and urban planner, born in 1941. As a theorist, he focuses his research on the cognitive operations that characterise the architects during design work. He has served as director of the Laboratoire d'architecture et de recherches épistémologiques sur l'architecture (Laréa) and professor at the l'École nationale supérieure d'architecture de Paris-La Villette after teaching for ten years at l'École d'architecture de Nancy.

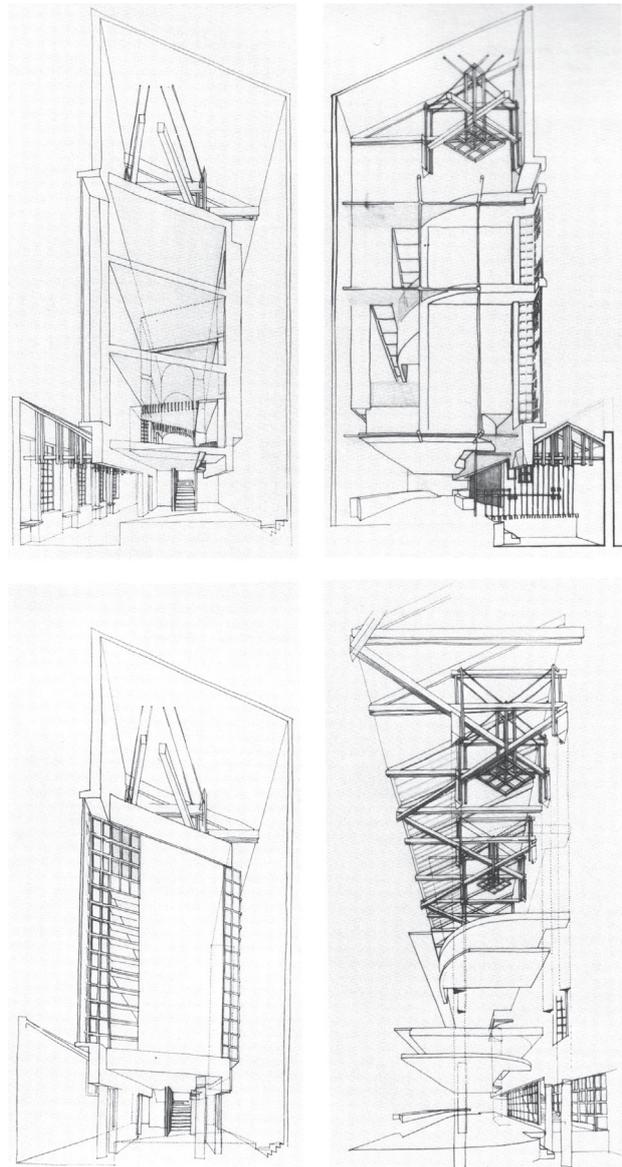


Fig. 8. A scan of a drawing prepared as part of the *In the manner of... Charles Mackintosh* course by P. Guyart (source: [9])

Il. 8. Skan rysunku przygotowanego w ramach kursu *In the manner of... Charles Mackintosh* autorstwa P. Guyarta (źródło: [9])

ses as an integral part of the project, and to create, on the basis of those, a conceptual sketch which is stylised after the architect's work [9, p. 66].

An example of the results of such an exercise, in the form of a sketch of an architectural concept inspired by the work of Charles Mackintosh made by one of the course participants, is presented in the above-mentioned publication (Fig. 8). This was juxtaposed with the artificial intelligence result in the first stage of creation – based on key words entered only, without any selection from among the results, thus involving artificial intelligence only, without further user intervention (Fig. 9). In this task, artificial intelligence is thus faced directly with the human.

The following phrase was used: *technical drawing of a building inspired by Charles Rennie Mackintosh* – so the effect was forced to imitate a technical drawing, making the result similar to the outcome of the original exer-

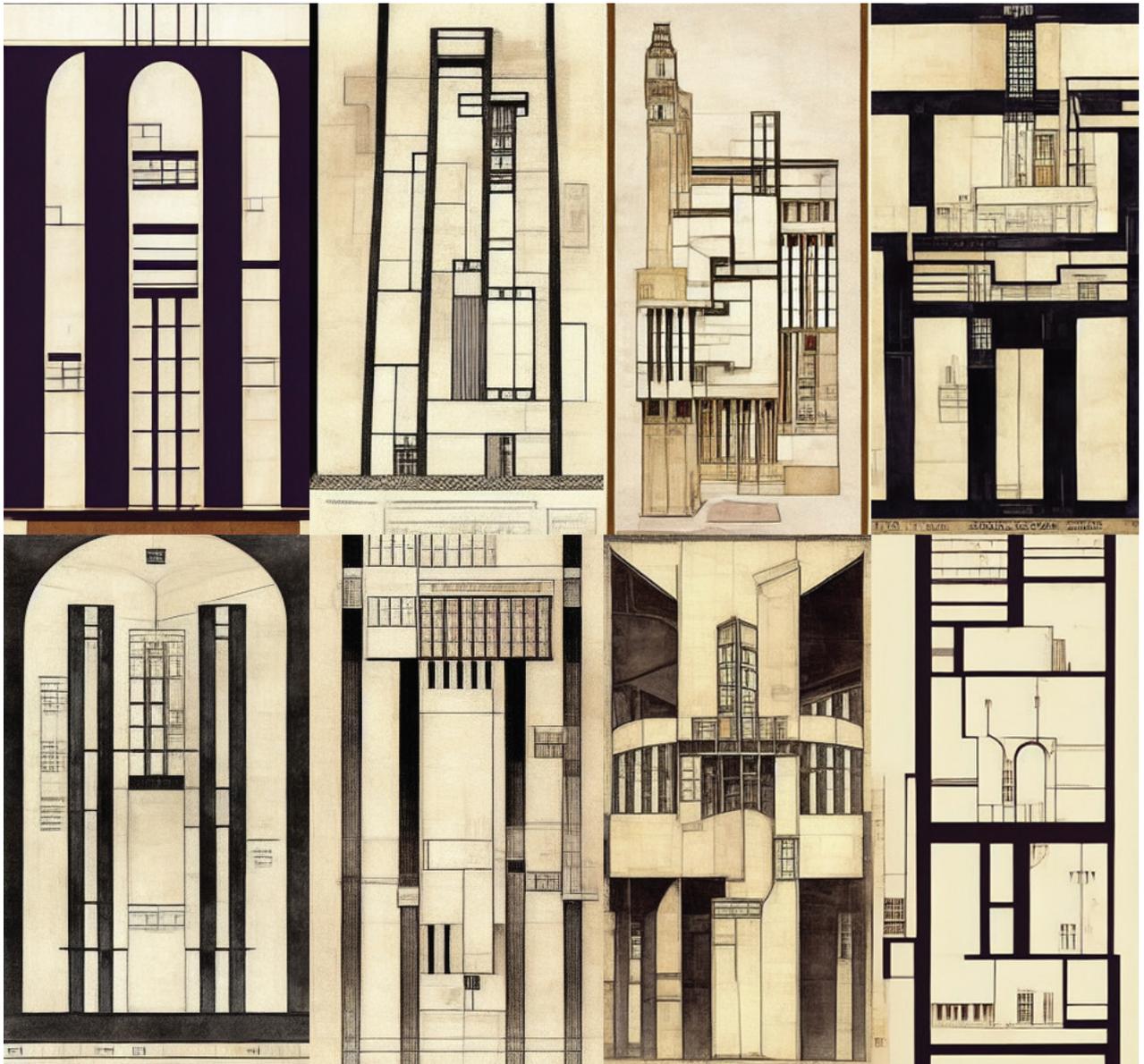


Fig. 9. Images generated by the MidJourney script on the basis of key words:
technical drawing of a building inspired by Charles Rennie Mackintosh
(dev. A. Jaruga-Rozdolska)

Il. 9. Obrazy wygenerowane przez skrypt MidJourney na bazie słów kluczowych:
technical drawing of a building inspired by Charles Rennie Mackintosh (oprac. A. Jaruga-Rozdolska)

cise. The result differs from the sketches created by the architecture student – it is more abstract, graphic, lacks the translation of Mackintosh's characteristics into finished architectural solutions and has no accurate perspective representation. An interpretation of the forms of some of the architect's best-known works, such as the House of an Art Lover or the Hill House and Ingram chairs, can be recognised. In both cases, the results of these efforts cannot be considered as overly literal copies.

The result of actions of artificial intelligence, as included in the referenced task description, is preceded by an analysis of the architect's style characteristics. In this aspect, the script is able to perform such analysis as well as present the result of these studies in the form of an aesthetic graphic within seconds. Just as quickly, it is capable

of generating further interpretations that differ from the previous ones. Thus, when confronted with a human, A.I. unquestionably wins in terms of speed, but the complexity of the drawing produced by the architect far exceeds the substantive quality of the computer-generated concept. The vision drawn by man, which is the result of graphical inspiration enriched and developed possibly due to the theoretical and practical knowledge owned, is a ready-made solution that can be translated into reality. The tool could therefore support the designer at the initial stage of work, while still requiring involvement in the process of converting the generated graphics into the language of architecture.

The fundamental difference between humans and A.I. also remains in the freedom of choice – a key aspect of



Fig. 10. Images generated by the MidJourney script on the basis of key words: house and a name of an architect, according to the order in the body of the article (dev. A. Jaruga-Rozdolska)

II. 10. Obrazy wygenerowane przez skrypt MidJourney na podstawie słów kluczowych: dom i nazwisko architekta, zgodnie z kolejnością w treści artykułu (oprac. A. Jaruga-Rozdolska)

the exercise being discussed. Students participating in the course were allowed to independently decide whose work they wish to interpret during the course [9, p. 67]. A.I. uses key words that clearly identify an architect. The result can therefore be considered incomplete, as the tool relies on a human-imposed choice. However, the script, while relying on the human decision, is able to correctly interpret the work of the designated architect, and the graphics, colours and composition of the generated image have high potential to be used as a tool to support the architect in his attempt to find an answer to the given assignment.

Single-family house concept

Following a *Project in the manner of...* design exercise, it was intended to test how the MidJourney tool would perform in the task of generating an image depicting a house designed by a selected architect. The tool

worked on the basis of two basic parameters – the used key word: house, and a variable phrase containing the name of the selected architect. On each occasion, the most pertinent concept was indicated and then forced to be developed and modified through a sum of consecutive clicks and addition of more key words, e.g. to indicate the preferred façade material, until the desired result was achieved. The script thus served as a tool in the hands of an architect, who evaluated the result visible on the screen in each instance and selected the most interesting interpretation of the theme. At this stage of the research, the participation of the creator in the process of creating the digital image was by far the greatest. The same key words were entered several times, choosing not amongst the four, but dozens of interpretation attempts. Designers of a variety of architectural styles were selected: Antoni Gaudi, Frank Gehry, Terunobu Fujimori, Ricardo Bofill, Buckminster Fuller and Tadao Ando (Fig. 10). Therefore,

it must be emphasised that each of the generated interpretations, including the rejected ones, was equally correct in terms of the specified scale – the concept of a single-family house, the translation of the characteristics of the chosen architect's style as well as the correct use of characteristic elements, such as the geodesic dome depicted as the canopy of a house stylised after Buckminster Fuller's design. The result of the attempt is again a positive surprise – inspiration from the works of the designated architect is evident, but not literal; the concepts visible in the digital images remain creations, not copies.

Conclusions

The aim of the research was to test the potential of the generative script MidJourney based on artificial intelligence in the context of supporting the creative aspect of architectural form creation. The results of the research and its evaluation led to the following conclusions:

1. Using the script under study, by entering a suitable sequence of key words, an outline of an architectural concept can be generated; the generated sketch has viable potential to be developed in further stages of the project, and adding the MidJourney tool to the practice can significantly speed up the early stages of an architect's work.
2. Based on the digital image generated by MidJourney, the architect is able to formulate valuable design guidelines.
3. Artificial intelligence is capable of correct thinking, as proven when the correct features of an object visible in a digital image are added by default without being entered in a keyword sequence.
4. Research based on a teaching exercise *In the manner of...* provided an insight into the fundamental differences between how a human interprets a subject in comparison to the results achieved by the generative script in its current state.
5. Visualisations produced through work with the script portray buildings with a high degree of aesthetics, and likewise the digital image itself is visually appealing.
6. With appropriately entered prompts, the script is able to generate concepts for buildings modelled after the work of the selected architect.
7. In its current state, the result of the work in the programme is only a concept sketch – not a complete architectural design.
8. Considering the above, the potential for implementing the script use in the context of architectural practice was rated as high.

Summary

The article presents how the generative script MidJourney functions in the context of its potential for use in architectural practice. Based on the conducted research, it has been demonstrated that artificial intelligence, when used appropriately, can be a valuable tool for the architect and is capable of supporting the creative thinking process. The digital images created with MidJourney portray buildings which, in addition to being aesthetically pleasing and compliant with the input key words, also are correct in aspects not addressed by the key word sequence, demonstrating an advanced deductive ability not previously achievable by any known tool. Another undeniable advantage lies in the speed of the creation, which is significantly more rapid than offered by any previously released software. However, artificial intelligence still has a limited capacity for autonomous decision-making – the process always starts with the input of relevant data by the physical user. It remains the responsibility of the user to evaluate its output, and make subsequent decisions leading to the desired result. Outcomes of the work in the programme depend on the user's knowledge, awareness and ability to formulate accurate prompts.

In the context of architectural design, a generated digital image represents no more than the initial stage of the creation – it remains an architect's role to assess the feasibility of the building, make the necessary adjustments, determine the parameters of the building and draw its functional plan. By using the script, the time spent working on the concept can be significantly reduced, but the digital image is still only a concept sketch of the building, not a finished design.

The question of whose authorship is the result produced with the help of advanced generative scripts remains open. The creators of MidJourney attribute full copyright to the user, treating the script merely as a tool.

Artificial intelligence, like any new technology, is causing controversy. Automation of the creative process significantly speeds up the phase of creating an architectural concept, but may have consequences that are at present impossible to define and measure. It is crucial to understand how such technology functions and to evaluate the results meaningfully. This will enable us to see both possibilities and dangers and make the right decision to implement it or resign from it entirely.

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Abstract

Artificial intelligence as part of future practices in the architect's work: MidJourney generative tool as part of a process of creating an architectural form

The article presents an overview of how the MidJourney generative script based on artificial intelligence works for its potential use in architectural practice. The purpose of the research is to present the potential of the tool in the context of supporting creative processes. The discussion of the performance of the script was carried out on the basis of the author's research resulting from work conducted with the tool; clear examples are the basis for introducing the reader to the mechanics of the script's operation and pointing out cases in which the process bears the hallmarks of the ability of correct autonomous thinking. The result of the research, not merely a description, but visible also in the digital images generated by the script included in the article, shows the full potential of the tool. On the basis of these findings, its usefulness in architectural design practice was analysed.

Key words: generative art, artificial intelligence, architectural concept, MidJourney

Streszczenie

Potencjał wykorzystania sztucznej inteligencji w praktyce architektonicznej na przykładzie narzędzia generatywnego MidJourney

W artykule zaprezentowany został sposób działania opartego na sztucznej inteligencji skryptu generatywnego MidJourney w kontekście potencjału jego wykorzystania w praktyce architektonicznej. Celem badań jest prezentacja możliwości narzędzia we wspomagananiu procesów twórczych. Omówienie działania skryptu przeprowadzono w oparciu o autorskie badania będące wynikiem pracy z narzędziem – czytelne przykłady są podstawą przybliżenia czytelnikowi mechaniki działania skryptu i wskazania przypadków, w których proces ten nosi znamiona zdolności poprawnego, autonomicznego myślenia. Rezultat badań, niebędący jedynie opisem, widoczny również na zamieszczonych w artykule wygenerowanych przez skrypt cyfrowych obrazach, ukazuje w pełni potencjał MidJourney. Na podstawie tych obrazów dokonano analizy przydatności narzędzia w pracy nad projektem architektonicznym.

Słowa kluczowe: sztuka generatywna, sztuczna inteligencja, koncepcja architektoniczna, MidJourney