# IZVAN GEOMETRIJE BEYOND GEOMETRY

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Izvan geometrije / Beyond Geometry

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The works of students of the Department of Landscape Architecture and Horticulture at the Faculty of Forestry in Belgrade, designed and realized within the "Workshop Geometry" and presented at this exhibition, represent a significant step forward in teaching at the Faculty from the aspect of artistic research of geometric shapes. Dr. Biljana Jović formed the workshop as an extracurricular activity, feeling the importance of an inextricable link between science and art. The success and quality of the workshop is confirmed by the fact that each year the number of interested participants increases. The artistic solutions are the answers to the set geometric themes and the results of students at different levels of study, whose interests in geometry surpass the curriculum framework.

Inspired by the themes that have moved artists from ancient times to date, the students studied proportions, spirals and polyhedra by realizing two-dimensional and three-dimensional compositions, reflecting on the relationship between geometry and nature, as well as by applying artistic geometric shapes in the field of landscape architecture. The authors' poetics with common minimalist traits follows contemporary trends, ranging from graphic solutions of optical illusions to spatial installations. In addition to proportions, the other principles of the form theory are emphasized, such as: the application of unity and harmony, the valerian contrast, the application of balance achieved by symmetry and asymmetry, as well as rhythmic sensations.

The work inspired by the golden spiral particularly stands out. In this work the author applies an uninterrupted proportion, and places snail shells at the points of a spiral. They contain delicately planted plants, which points to the relationship between the micro and macro worlds, but also to the current issues of multipurpose forms, sustainability and recycling.

A great success at the 3D modeling competition in Tokyo was accomplished by Dr. Biljana Jović and master eng. Mirjana Komnenov, who realized and presented the model of the biomorphic form of a pavilion, inspired by the flower Natalia Ramonda (Ramonda nathaliae Pančić et Petrović). An interesting point is the choice of a flower, which in addition to its geometric features important for this project has great symbolism. Besides being named after Queen Natalija Obrenović as an endemic plant of the central Balkans, discovered in Serbia in the late 19th century, it is also called the phoenix flower. In addition, it is the main motive on the emblem of the Great War Truce.

The role of applied geometry in the field of landscape architecture and horticulture was undoubtedly confirmed by the works at this exhibition as well as its inevitability.

Dr. Marijana Paunović, assistant professor
Faculty of Applied Arts in Belgrade

Fotografija / Photo by: Miloš Tripković

Radionica GEOMETRIJA je kreativna platforma namenjena studentima svih nivoa studija Šumarskog fakulteta, Odseka za pejzažnu arhitekturu i hortikulturu. Radionica GEOMETRIJA studentima pruža mogućnost za razvoj i izražavanje kreativnih sklonosti, kroz istraživanje forme i kompozicije geometrijskih elemenata. Studenti imaju priliku da prezentuju svoj rad na grupnoj izložbi, na kraju svake školske godine.

Geometry workshop is a creative platform designed for students of all levels of studies. The workshop provides to students the opportunity to develop and express their creative inclinations. Students are engaged in geometry, graphics, form, composition and visual communications, and at the end of each academic year they have the opportunity to present their work in a group exhibition.

Studentski radovi koji su izloženi realizovani su školske 2015/16. i 2016/17. godine u okviru Radionice geometrija – kreativne platforme namenjene studentima svih nivoa studija koja se odvija na Šumarskom fakultetu Univerziteta u Beogradu na Odseku za pejzažnu arhitekturu i hortikulturu.

Grafike

Skromna studentska oprema i uslovi za rad, nadoknađeni su ozbiljnim pristupom zadatku iskazanom kroz kvalitetne kompozicione celine, kao i adekvatan izbor podloge i pozadine. Kroz svoja autorska dela, koja su sačinjena od različitih geometrizovanih oblika, svaki student je svojom kreativnošću došao do skladne kompozicione celine i pokušao da afirmiše trodimenzionalni prostor. Transformacijom osnovnih geometrijskih oblika i promenom njihove prostorne pozicije, statični i nepromenljivi geometrijski oblici, dobijaju dinamička svojstva i u očima posmatrača stvaraju vizuelnu iluziju.

Instalacija ,,Devoid of the color'' je specijalna struktura generisana metodom multiplikovanja istog geometrijskog oblika. Kompozicija stvara utisak dubine prostora pomerenog u pravcu jedne ose, naglašavajući 3D efekat.

Fotografija kao studija forme omogućila je, pre svega, očiglednu vizuelnu komparativnu analizu posmatranog prostornog oblika. Ispitivani oblici koji su prikazani mogu da se analiziraju ili vrednuju kao samostalna i nezavisna celina ili u okviru i sadejstvu sa svojim neposrednim okruženjem.

Izloženi 3D model rad autora dr Biljane Jović i mast.inž. Mirjane Komnenov, koji je bio u finalu AFGS 2017 konferencije je originalni 3D model inspirisan cvetom vrste Ramonda nathaliae Pančić et Petrović. 3D model je generisan u softveru Rhinoceross i njegovom plug-in-u Grasshopper L. koristeći postupak parametarskog modelovanja. Oblik 3D modela je u potpunosti proizašao iz parametara koje je obezbedila struktura cveta Ramonda nathalia Pančić et Petrović. Zbog svoje kompleksnosti model je generisan iz više faza, primenom konstrukcije Voronoi dijagrama. U poslednjoj fazi izvršena je materijalizacija kreiranog modela. Dobijeni objekat je rezultat primene digitalnih tehnologija uz pomoć geometrijskih relacija.

Rad pod nazivom "Sistem" odlikuje skladna forma ljušture puža koja je u idealnom proporcijskom odnosu zlatnog preseka. Ova forma sadrži zlatnu proporciju, koja je u geometrijskom smislu proistekla iz sukcesivne podele zlatnog preseka. Pored osnovnog proporcijskog odnosa, u ovoj formi postoji čitava mreža nevidljivih unutrašnjih proporcijskih podela.

dr Aleksandar Čučaković, vanr. profesor
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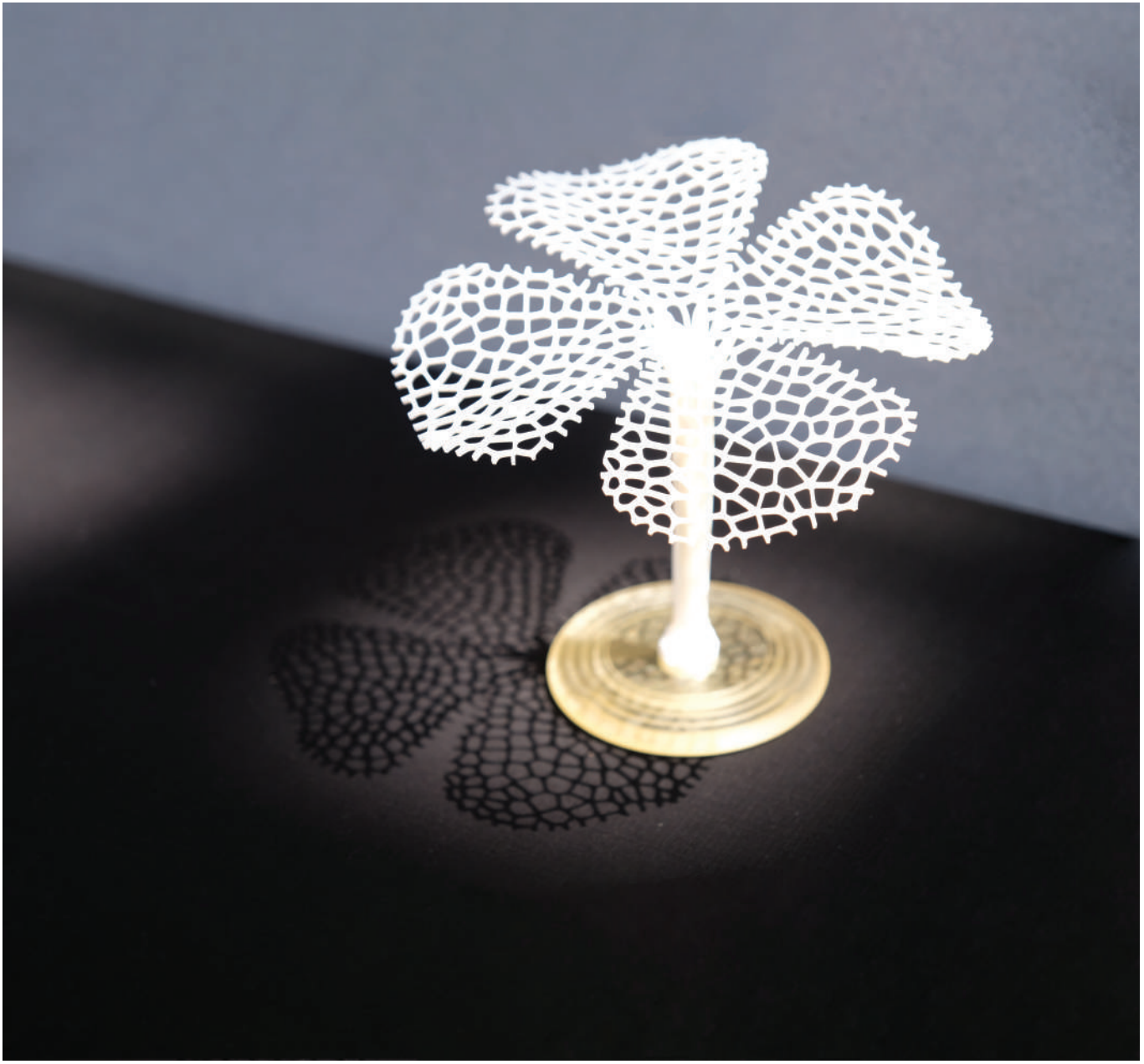

Fotografija / Photo by: Professor Emeritus Tsutomu ARAKI

Radovi studenata Odseka za pejzažnu arhitekturu i hortikulturu Šumarskog fakulteta u Beogradu, koji su osmišljeni i realizovani u okviru radionice „Geometrija" i predstavljeni na ovoj izložbi, sa aspekta likovnog istraživanja geometrijskih formi predstavljaju značajan iskorak u nastavi na Fakultetu. Dr Biljana Jović oformila je radionicu kao vannastavnu aktivnost, osećajući značaj neraskidive veze između nauke i umetnosti. Uspeh i kvalitet radionice potvrđuje činjenica da se svake godine povećava broj zainteresovanih polaznika. Likovna rešenja su odgovori na postavljene geometrijske teme i rezultat studenata različitih nivoa studija, čija interesovanja za geometriju nadmašuju okvire nastavnog plana i programa.

Nadahnuti temama koje su umetnicima bile inspiracija od antike do danas, studenti su se bavili proporcijama, spiralama i poliedrima, realizujući dvodimenzionalne i trodimenzionalne kompozicije kroz promišljanje odnosa geometrije i prirode, kao i primenom likovnih geometrijskih oblika u oblasti pejzažne arhitekture. Autorske poetike sa zajedničkim minimalističkim osobinama prate savremene tokove, od grafičkih rešenja optičkih iluzija do prostornih instalacija. Pored proporcija, u radovima se ističu i drugi principi teorije forme kao što su: primena jedinstva i harmonije, valerskog kontrasta, primena ravnoteže postignute simetrijom i asimetrijom, kao i ritmične senzacije.

Posebno se izdvaja rad inspirisan zlatnom spiralom, kod kojeg autor primenjuje neprekidnu proporciju i u tačkama spirale postavlja ljušture puževa u kojima su delikatno posađene biljke, čime upućuje na odnos mikro i makro sveta, ali i na aktuelna pitanja višenamenskih formi, održivosti i reciklaže.

Veliki uspeh na takmičenju 3D modelarstva u Tokiju postigao je zajednički rad dr Biljane Jović i master ing. Mirjane Komnenov, koje su realizovale i prezentovale model biomorfne forme paviljona, inspirisan cvetom Natalijine ramonde (Ramonda nathaliae Pančić et Petrović). Interesantan je izbor cveta, koji pored geometrijskih osobina značajnih za ovaj projekat, ima i veliku simboliku. Osim naziva koji je dobila po kraljici Nataliji Obrenović, jer je kao endemska biljka centralnog Balkana, otkrivena u Srbiji krajem XIX veka, zovu je i cvet feniks, a kao glavni motiv nalazi se na amblemu praznika Dana primirja u Velikom ratu.

Uloga primenjene geometrije u domenu pejzažne arhitekture i hortikulture je radovima na ovoj izložbi dobila nesumnjivu potvrdu njene neizbežnosti.

dr Marijana Paunović, docent
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Fotografija / Photo by: Srđan Veljović

The exhibited student works were made during the school year 2015/16. and 2016/17. in the framework of the Workshop Geometry - a creative platform for students at all levels of study taking place at the University of Belgrade Faculty of Forestry - Department of Landscape Architecture and Horticulture.

Graphics

The modest student equipment and working conditions are compensated by a serious approach to the task expressed through quality composition units, as well as an adequate choice of base and background. Through their small author works, composed of different geometric shapes, each student came to a harmonious compositional whole with creativity and tried to affirm the three-dimensional space. By transforming the basic geometric shapes and changing their spatial position, static and unchangeable geometric shapes obtain dynamic properties and in the eyes of the observer they create a visual illusion.

Installation "Devoid of the color"- Art installation "Devoid of the color" is a special structure generated by the multiplication method of the same geometric shape. This composition creates depth of space shifted in the direction of one axis, emphasizing the 3D effect.

Photography as form study above all enabled an obvious visual comparative analysis of the observed spatial form. The examined forms presented can be analyzed or evaluated as a separate and independent entity or within the framework of their immediate environment and in synergy with it.

The exhibited 3D model, work of the author Dr. Biljana Jović and master engineer Mirjana Komnenov, which was in the final of the AFGS 2017 conference, is an original 3D model inspired by the flower of the species Ramonda nathaliae Pančić et Petrović. The 3D model is generated in the Rhinoceross software and its plug-in Grasshopper L. using the process of parametric modeling. The 3D model was completely derived from the parameters provided by the Ramonda nathaliae Pančić et Petrović flower structure. Due to its complexity, the model was generated in several phases using the Voronoi diagram. The last phase involved materialization of the created model. The resulting object is the result of the application of digital technologies using geometric relations.

The work entitled "System" is characterized by a consistent shape of the snail shell in an ideal proportional ratio of the golden cross-section. This form contains a golden proportion, which in geometric sense resulted from a successive division of the golden cross-section. In addition to the basic proportional ratio, this form contains a whole network of invisible internal proportions.

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Fotografija / Photo by: Mira Ranković

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