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# Ripple effect

Dubai-based architect, designer and entrepreneur Riyad Joucka has created a 3D-printed chair that is manufactured by Spanish design brand Nagami, who specialises in 3D printing and robotic manufacturing, and has worked with the likes of Zaha Hadid Architects and Ross Lovegrove.

The founder of MEAN (Middle East Architectural Network), Joucka created 'موج — Mawj - 3D Printed Chair' for a private client. 'موج — Mawj' translates to 'wave' or 'ripple' in Arabic. The chair's undulating patterns and aquamarine green surface are a direct reflection of this translation, reminiscent of the waters of the Arabian Sea on the shores of Dubai – the city in which the chair was conceived.

The chair investigates the possibilities of robotic 3D printing in designing and producing bespoke furniture. The design takes shape based on a continuous form, printed on its side with a thickness of just 6 mm, using advanced plastic polymers.

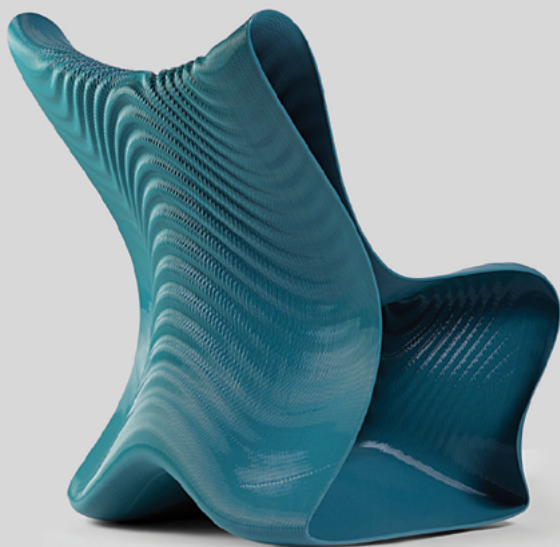


'موج — Mawj' borrows its dimensions from the modern iconic proportions of the *Eames Lounge Armchair*, with a sequence of design iterations forming the shape of the chair through the use of algorithmic design processes. The chair is created as a standalone interior design object, proving to be a statement piece and a distinctive piece of furniture.

"A series of lines moving in space forms the layers for 3D printing in one single layer, progressively forming sine curves as they wrap around the form. On every other layer, the curve inverts to a negative value, generating a weaving pattern that makes larger rippling undulations on the surface," Joucka says of the process.

"The pattern aids the structural stiffness, as well as creating a unique aesthetic feature, which naturally emerges as the result of the parametric modelling of the chair. Following a series of prototypes, careful attention to small details in the making of the chair develops the outcome. The pattern fades out towards the edges and intensifies at the top, avoiding areas where the back would rest. It also continuously wraps around the billowing surface, which is doubly curved for structural stability," he adds.

Designed for comfort, structural stability and ergonomics, 'موج — Mawj' ventures towards a future where minimal material is required to design and shape objects into practical, lightweight and comfortable pieces of furniture.



Photography by: Luis Filipe