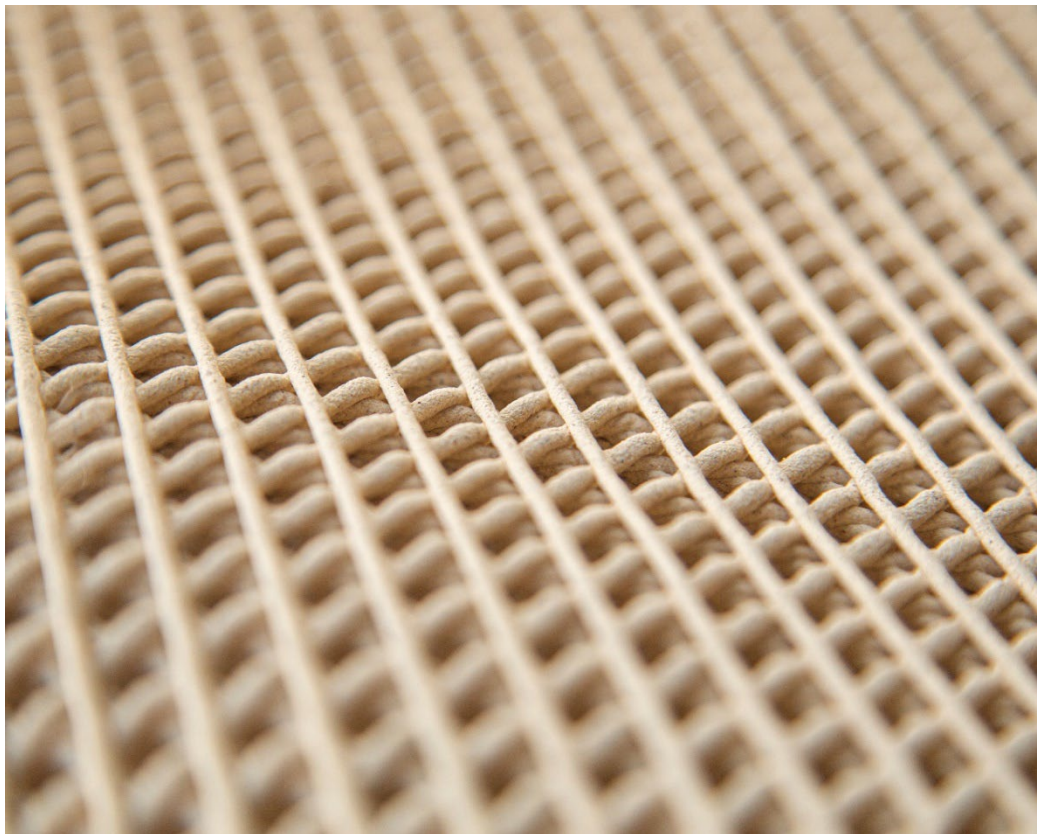


WoodenWood Project

Say.Researchteam by D.DLAB

With billions of tons of unused wood waste, the WoodenWood project explores the potential for design to take responsibility in the development of circular solutions for wood products and processes. Developed by Arch. Avraham Cohen, Yuval Berger, Alon Nisan, Yoav Dabas and D.DLAB director Arch. Shany Barath, the project incorporates traditional modular woodworking expressions with robotic printing of an all-natural wood paste for the prototyping of seating elements. The printing toolpath creates a new 'wood-textile' resembling a rattan texture while using an inferior material, sawdust. The raw wood structure serves as the mold for the printing process avoiding additional waste through by-products. Together, traditional and digital design present a circular expression for wood waste towards a new end of life.

The project was exhibited in Milan Design Week 2023, earning a mention as one of 12 projects in the sustainability category by Fuorisalone. Furthermore, the Design Educates Awards 2023 jury selected the project for a gold prize in universal design and the team as the emerging designers of the competition.



WoodenWood - Wood Textile by Say.Researchteam @ D.DLAB

The WoodenWood Process

Wood is one of the most common building and industrial materials and is portrayed as a “natural” resource. Although its potential for reuse, renewal and biodegradability, the wood chain today is far from circular, with millions of tons of wood waste generated annually.

Our target is to create a continuous lifecycle for wood by introducing a new approach to designing with waste materials. The WoodenWood project is a case study, a proof of concept. Its essence and main objective is to encourage combining traditional and advanced fabrication methods into a combined workflow towards zero waste design.

The project addresses this challenge by developing design methods in which traditional and digital craft are integrated to convert wood waste in the form of raw wood and sawdust towards a new end of life. Emerging from the tradition of fine woodworking, we combine the common expression of wood as a modular component to include the deposition of wood weaving through robotic printing in order to prototype the WoodenWood seating elements.



WoodenWood Chair by Say.Researchteam @ D.DLAB

The wood paste prepared for printing is derived from Daika, sawdust with cellulose-based natural binders to enable 100% biodegradability. A parametric model and manufacturing workflow are developed to correlate between the chair geometry, robotic toolpath and material properties. Outputs are examined in relation to strength, elongation, visual expression and geometrical compatibility to customize human comfort. Through this process, we can explore large amounts of possible designs to create a 'one of a kind' chair within a mass production workflow. While the solid raw wood supports the structure of the chair, the printed sawdust completes the weaved back and seat. The two lifecycles of raw wood and sawdust are combined through the fabrication of the WoodenWood chair and demonstrate a circular design expression of wood towards zero waste.



WoodenWood Stools by Say.Researchteam @ D.DLAB

Company name: Disrupt.Design Lab, The Technion Israel Institute of Technology

Design research team: SAY.research (Avraham Cohen, Yuval Berger, Alon Nisan, Yoav Dabas and D.DLab Director Shany Barath)

Printing material: Daika Wood Ltd.

Filming and photography: Haim Zinger and Avi Cohen

We thank Moti Grossman and the D.DLab community

Notes to Editors

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About Disrupt.Design Lab

D.DLAB emerges from observing a world shaped by environmental factors and global challenges beyond our control. New complexities require spatial practices to seek higher-ordered goals enabling designers to actively participate in formulating new directions for the built environment. Located in the Faculty of Architecture and Town Planning at the Technion - IIT, the lab includes a passionate and diverse group of researchers; Postdocs, Ph.D., Master's students, and Undergrad research assistants. Led by Architect and Asst. Prof. Shany Barath, we hope to serve as a launchpad for the exchange of ideas and as knowledge facilitators between academia and industry.



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