Waffle-Structured Chair: Exploring Robotic Manufacturing in Design Education

A team of DIA Master’s students at Hochschule Anhalt explored computational design and robotic manufacturing by creating a full-scale, waffle-structured ergonomic chair, combining efficiency, ergonomics, and sustainability. Exhibited at Campus Fest 2025, the project showcased the potential of digital workflows and robotic fabrication in architectural education.

NEXUS: From Machine Learning to Manufacturing

NEXUS by ENCODE Studio explores the fusion of machine learning, generative design, and additive manufacturing to create intricate, morphing geometries showcased during Cairo Design Week. Using Rhino and Grasshopper, the team translated AI-generated patterns into full-scale 3D-printed architectural elements, redefining possibilities for design and fabrication.

Shellscape Pavilion: Exploring Wood–Bioplastic Composites in Architecture

The Shellscape Pavilion explores the architectural potential of waste-derived composites through a fully computational and robotic workflow. Developed as part of a PhD research project, this prototype demonstrates how circular materials, structural optimization, and mixed-reality assembly can converge in a full-scale architectural design.

Monumento Pijao Ancestral: A Father–Son Fusion of Art, Technology, and Heritage

The Monumento Pijao Ancestral in Tolima, Colombia, is a 13.6-meter steel sculpture created by artist Edgar Varón Oviedo and his son, industrial designer Edgar Daniel Varón Villarreal. Blending ancestral geometric patterns with advanced 3D modeling in Rhino and Grasshopper, the monument honors the Pijao people through a fusion of art, cultural heritage, and precision engineering.

Thinking in Code: First-Year Towers from Ain Shams University

First-year architecture students at Ain Shams University utilized Grasshopper to design and fabricate parametric towers, learning to think like system designers from day one. The course emphasized algorithmic logic, data structures, and generative workflows to build not just models, but design intelligence.

Astroid: A Parametric Ergonomic Mouse Built with Rhino

The Astroid 7000 is a parametric, ergonomic 3D mouse that revives the legacy of the original Spaceball using Rhino as a central tool for design, prototyping, and engineering. This case study highlights how digital modeling can transform legacy concepts into responsive tools for today’s designers.

3DCITYGH: A Parametric

Workflow for Digital Urban Survey and City Information Modeling

3DCITYGH presents a modular parametric workflow for generating structured City Information Models from survey data and point clouds, enabling efficient urban-scale modeling for risk assessment, heritage documentation, and structural analysis. Developed within Grasshopper, the approach combines AI-assisted segmentation, custom semantic structuring, and BIM/FEM interoperability.

Digital Clay: A New Layer at the Natural History Museum

At the Natural History Museum’s new Fixing Our Broken Planet gallery, digital design meets sustainable craftsmanship through 3D printed ceramics. Using Rhino and Grasshopper, the team developed modular components that bring innovation to a heritage space without leaving a trace.

ShaperBay: A Browser-Based

Platform for Custom Surfboard Design and Fabrication

ShaperBay is a browser-based platform that empowers users to design and export custom surfboards using parametric tools powered by Rhino and Grasshopper. Its standout Hollow Wood Structure (HWS) feature supports the fabrication of sustainable, high-performance wooden boards through laser-cut templates and intuitive digital workflows.

Pushing the Limits of Offshore Racing: IMOCA Partners with Orca3D

IMOCA has partnered with Orca3D to bring advanced stability analysis and streamlined design workflows to the world of offshore racing. By leveraging the modeling power of Rhino, this collaboration helps teams build faster, safer, and more consistent IMOCA 60 yachts for the world’s most demanding ocean races.