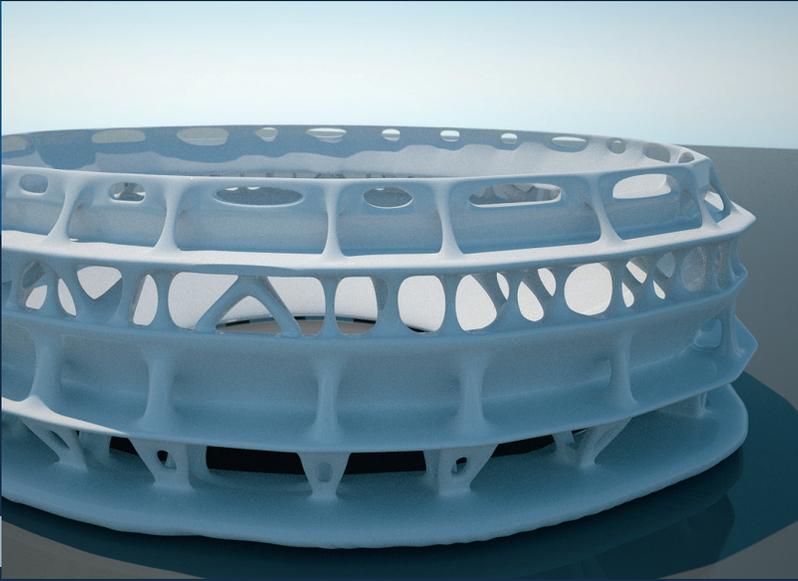


COOL SCHOOL



Objet elevates architectural design, reduces time, costs at Camerino University

"Thanks to Objet, we can touch the results of 210 days of work. I had a stadium in my mind, and now it's in my hands."

– Luca Frattari, University of Camerino

Luca Frattari is able to produce detailed models of his architectural designs quickly, accelerating the design process.

For Luca Frattari, a Ph.D. candidate at the University of Camerino's Edoardo Vittoria School of Architecture and Design, the old adage of "seeing is believing" describes only half of what he needs for his cutting edge design and architectural research. For him, the other half is "touching is understanding."

In his thesis work on "The Structural Form," Frattari focuses on the application of structural optimization to architectural and industrial design. Being able to handle and observe his creations for as long as he needs, from a variety of perspectives, is as important as seeing his designs take shape in digital form on a computer screen. For that, Frattari depends on an Objet Eden™ 3D Printer.

Speed and quality make Objet models a perfect fit.

"Getting a real model is very important to my research," said Frattari. "I need to touch and observe the models for a great deal of time before I move on to refining the design concept. I need smooth surfaces and fine details that exactly reproduce the generated shape. However, I also need to get the model quickly, with minimal production time, because the redesign phase requires a lot of time."

Frattari uses an Eden 3D Printer to print models quickly and cost effectively at several stages the design process. The printer's ease of use, its ability to produce accurate design representations and its innate robustness, due to the strength of Objet's materials, all combine to make the Eden 3D Printer a perfect match for his research. "During my research projects, I often create very complex shapes that are affected by errors on the surfaces," he said. "So, early localization of potential errors, thanks to Objet models, reduces wasted time."

"With Objet, it's possible to use different materials to obtain complex shapes that are smoothly surfaced and have all the fine details in my designs," he said. "Often, I

At a Glance

Challenges

- Fully understand highly complex architectural designs at multiple design stages
- Compress model-creation time to enable maximum time for redesign work and to reduce time to market

Solution

- Objet Eden 3D Printer

Results

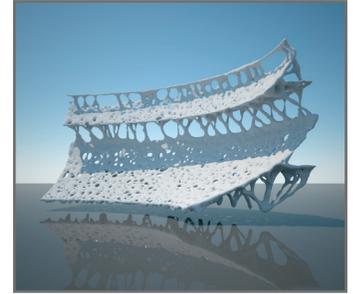
- Significantly shorter time from sketch to final 3D model
- Maximum creativity and more effective refinement process
- Early identification of potential surface areas on complex shapes, reducing time and cost
- Ability of multiple researchers and students to build 3D models quickly

don't need to paint because the rigid opaque materials provide satisfactory visualization. Thanks to Objet, we can touch the results of 210 days of work. I had a stadium in my mind, and now it's in my hands!"

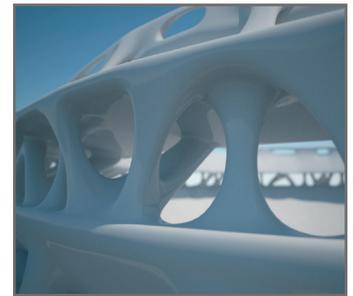
For the purposes of Frattari's research, it is not possible to create a true scale model using common techniques involving cardboard and laser cutting machines. "I need a technology that is rapid and easy," he said. "Time compression is very important. The Objet printer is easy to operate like a common office printer, and the software does not require any special skill. It prints very quickly, so we can rapidly move from concept to reality and create additional prototypes after modifying the design." This enables him to get instant feedback from his advisors, thus reducing the entire design and research process.

Objet brings complex stadium design to life.

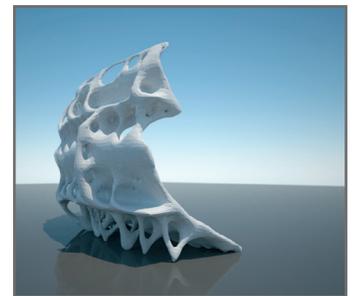
One particularly complex research project, a stadium that Frattari calls "Colossus," is an excellent example of how he uses Objet's 3D printing capabilities to push the edges of design innovation. A highly innovational computational technique that reproduces the natural behavior of life forms generated the stadium concept. Frattari devoted 210 work days to developing and modifying the concept, using Objet's PolyJet technology in the first, intermediate and final stages of the design process. "The results were impossible to materialize without the use of Objet's technology," said Frattari. "I used the printer to evaluate the first and intermediate results, as only with a true model could I really understand and analyze these organic forms. Colossus is alive!"



The University of Camerino has a strong industrial design department.



Chair models helped evaluate a new design methodology.



Rapid prototyping optimized the chair design.

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