

AT A GLANCE

Company: University of Camerino, Edoardo Vittoria School of Architecture and Design
URL: www.unicam.it
Location: Ascoli Piceno, Italy
Industry: Architecture and design research and education

Challenges

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

Solutions

- > Eden 3D printing system from Objet Geometries

Results

- > Significantly shorter time from sketch to final 3D model
- > Models are used in initial, intermediate and final design stages, maximizing creativity and enabling a more effective refinement process
- > Early use of models enables early identification of potential surface areas on complex shapes, reducing time and cost wastage
- > Easy, office-friendly process enables multiple researchers and students to quickly build 3D models

“Using the Objet technology, we can produce structures that evolve and grow like an organic life form. We can move from concept to reality, from sketch to product, quickly

”

Luca Frattari
 candidate for PhD in architecture,
 University of Camerino

Objet Elevates Architectural Design, Reduces Time & Costs at Camerino University

For Luca Frattari, a PhD 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 is needed when working on his cutting edge design and architectural research. For him, the next, and just as vital, step is “touching is understanding”.

In his thesis work on “The Structural Form”, Frattari focuses on the application of structural optimization to the fields of architecture 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. And for that, Frattari depends on an Eden 3D printer from Objet Geometries.

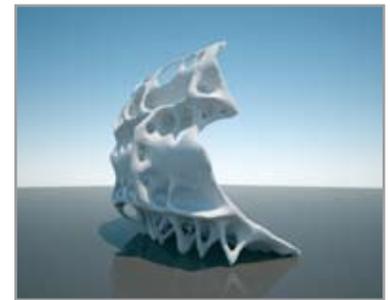
Speed and quality make Objet models a perfect fit

“Getting a real model is very important to my research,” says 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 reproduce exactly the generated shape. However, I also need to get the model quickly, with minimal production time, because the re-design phase requires a lot of time.”

Frattari uses an Eden 3D printer to quickly and cost-effectively print models at several stages through the design process. The printer's ease of use and ability to produce accurate representations of his designs, and the models' innate robustness, due to the strength of Objet's FullCure® materials, all combine to make the Eden 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. So, early localization of potential errors, which is possible thanks to Objet models, reduces wasted time.”

Frattari continues: “With Objet, it’s possible to use different model materials to obtain complex shapes that are smoothly surfaced and have all the fine details that are in my designs. Often I don’t need to paint the model because the VeroWhite and DurusWhite model materials provide very satisfactory visualization for my needs.”



“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!”

He notes that for the purposes of his 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. Time compression is very important. The Objet machine 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 move from concept to reality very quickly. And, we can rapidly create additional prototypes after modifying the design,” says Frattari. 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 the PhD student is utilizing Objet’s 3D printing capabilities to push the edges of design innovation. The stadium concept was generated using a highly innovational computational technique that reproduces the natural behavior of life forms. In all, Frattari devoted 210 work days to developing and modifying the concept, using Objet’s 3D printer in the first, intermediate and final stages of the design process.



“The results were impossible to materialize without the use of Objet’s technology,” says Frattari. “I used the Eden machine 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!”

About Objet Geometries

Objet Geometries Ltd., the innovation leader in 3D printing, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing systems and materials that utilize PolyJet™ polymer jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet’s patented office-friendly PolyJet™ Technology. The Connex™ family is based on Objet’s PolyJet Matrix™ Technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet’s FullCure® materials to create accurate, clean, smooth, and highly detailed 3D parts.

Objet’s solutions enable manufacturers and industrial designers to reduce cost of product development and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as Education, Medical / Medical Devices & Dental, Consumer Electronics, Automotive, Toys, Consumer Goods, and Footwear industries in North America, Europe, Asia, Australia, and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Mexico, Europe, Japan, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions. Visit www.objet.com.

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