



School of the Art Institute of Chicago

www.saic.edu

Challenge

Overcome color and affordability constraints in art school's 3D printing lab.

Strategy

Provide students with Mcor IRIS 3D printer, offering the industry's greatest color capability and lowest operating costs.

Results

- Students from across disciplines are joining architecture and product design students in 3D printing.
- Mcor's full-color, paper 3D printed models cost students a fraction of that of monochrome and limited-color plastic and acrylic models.
- Students can produce color on a 3D printed model that's as detailed, realistic and accurate as from a document printer.
- Mcor IRIS produces models from scanned data without requiring complicated and time-consuming file repair.
- Students and faculty are printing molds and mold patterns that dramatically reduce time and expense in casting and thermoforming.

School of the Art Institute of Chicago discovers the power and versatility of affordable full-color, paper-based 3D printing

Dramatic cost reduction and expanded color capability attract students from across disciplines

When you think of paper and ink at art school, you might think drawing or printmaking.

For Mike Dorries, however, paper and ink mean 3D printing. Dorries is manager of the Advanced Output Center at the School of the Art Institute of Chicago (SAIC). Until recently, plastic has been the predominant 3D printing material used at SAIC. But plastic 3D printing is expensive, with models costing SAIC students up to \$12 per cubic inch. Plastic models have another drawback: they're generally restricted to a single color (usually white) or basic colors in blocks. That doesn't cut it, especially in art school, where visual appeal and creative freedom are paramount.

Dorries, always on the lookout for more capabilities at lower cost, recently found a way to get multicolor output as bold, detailed and nuanced as a document printer, for a surprisingly low operating cost.



“The ability to print in color at a very low price has opened up 3D printing to students who otherwise could not afford it. At SAIC, Architecture, Interior Architecture and Designed Objects students had been the primary users, but the Mcor IRIS has attracted students from across all of our disciplines, including sculpture, animation and fashion.”

-Mike Dorries, Manager of the Advanced Output Center, SAIC

More power, lower cost

The solution was the Mcor IRIS, the industry's most color-capable 3D printer, able to produce highly realistic models in more than one million colors simultaneously. Colors are rendered as rich, vibrant and complex as they appear in the digital file. The Mcor IRIS is the first 3D printer to include the global-standard International Color Consortium (ICC) map, ensuring that the 3D printer will accurately and consistently produce colors precisely as intended in an engineer's or designer's digital model.

Mcor 3D printers are the only ones to use ordinary paper, the

best medium for color ink, as the build material. When sheets of paper are bound together in the 3D printing process, the resulting model is tough, durable and stable.

“The ability to print in color at a very low price has opened up 3D printing to students who otherwise could not afford it,” says Dorries. “At SAIC, Architecture, Interior Architecture and Designed Objects students had been the primary users, but the Mcor IRIS has attracted students from across all of our disciplines, including sculpture, animation and fashion.”

Versatile models at a fraction of the cost

The variety of applications for the Mcor IRIS continues to surprise students and faculty alike. Students are making models of innovative buildings, avant-garde art objects and garments driven by mathematical equations. A professor is using digital data from the Smithsonian Institution to recreate artifacts such as medieval battle gear and busts of Ludwig Beethoven and Alfred Tennyson. “The 3D printed models are phenomenal. The Mcor is able to supply high-resolution parts with great color on a material that is easy to obtain at a low cost,” Dorries says.

And the 3D printing cost is astonishingly affordable – 25 cents per cubic inch of volume compared with \$5.50 for fused deposition modeling (FDM) or

\$12 for acrylic. “If you want color in your model, if you want visual detail, but are trying to stay below budget,” says Dorries, “the Mcor IRIS makes a lot of sense.”

Beyond directly producing finished models, SAIC is using the Mcor IRIS to save time and money in casting. An Mcor model quickly and affordably makes an ideal burnout pattern or mold around which hot plastic can be thermoformed or silicone can solidify. Says Dorries, “Many casting and mold making processes can be labor-intensive and expensive, and 3D printing paper patterns and molds eliminates a lot of that work and cost.”

The Mcor IRIS is also reducing computer-based work for SAIC students, who often create models from scanned data. The Mcor IRIS directly prints files generated by SAIC's handheld scanner without requiring time-consuming file repair, a separate process requiring training and special software. The Mcor IRIS is fast becoming a star of the lab. “It produces more colors and gives you more power over those colors, which are more vivid to begin with,” says Dorries. “The operating cost tends to be lower than that of other technologies, and the technology significantly reduces effort in scanning and mold-related applications. The Mcor IRIS represents a giant step in 3D printing, bringing the technology further into the mainstream and putting SAIC students in command of it.”