

CASE STUDY

Revolutionizing Engineering Education at UT Dallas with Mosaic's Array



Overview

A Cutting-Edge Approach to Engineering Education

The University of Texas at Dallas (UT Dallas) is renowned for its commitment to innovation, particularly within its Erik Jonsson School of Engineering and Computer Science. One of its standout programs, UTDesign®, provides senior engineering students with hands-on experience by engaging them in real-world, corporate-sponsored projects. To push the boundaries of engineering education, UTDesign® has heavily integrated 3D printing into its curriculum—giving students the ability to rapidly prototype, iterate, and perfect their designs.

However, UTDesign® faced a challenge: its existing 3D printing setup was struggling to keep pace with student demand. With other 3D printers requiring significant manual intervention and expensive material costs, UTDesign® needed a scalable, cost-effective, and automated solution. That's where Mosaic's Array came in.

Why UT Dallas Chose Mosaic's Array

For years, UTDesign® relied on a mix of industrial printers and hobbyist-grade machines. While some of these systems produced quality prints, they posed significant limitations:

- **High operational costs** – Materials were expensive, and maintenance contracts were costly.
- **Labor-intensive workflows** – The 3D printers required manual oversight, SD card transfers, and constant operator intervention.
- **Limited scalability** – With demand for printed parts increasing exponentially (from 90 print jobs per year to over 700 in 2024), the existing workflow couldn't keep up.

When UTDesign® discovered Mosaic's Array, the decision to adopt the technology was straightforward. Array's automated, factory-connected platform allowed UT Dallas to quadruple its printing capacity while reducing labor requirements.

It really was a no-brainer



GENE WOTEN


UTDESIGN®'S STUDIO MANAGER
AND A KEY FIGURE IN ITS 3D
PRINTING OPERATIONS.

The Impact of Mosaic's Array

The results were immediate and transformative.

Unparalleled Efficiency & Scalability

- In the first few months of 2025, UTDesign® has already completed over 90 print jobs, putting them on track to exceed their 2024 record.
- With four independent print systems in one Array unit, UTDesign® streamlined its workflow, eliminating the bottlenecks caused by hobbyist printers.
- The ability to queue print jobs remotely via Mosaic's Canvas software significantly reduced the need for constant human supervision.

A photograph showing several 3D printed parts on a wooden surface. On the left, there are some dark, solid parts. In the center, two thin, rectangular strips stand upright. On the right, a large, complex, lattice-like structure is visible, possibly a part of a larger assembly.

With Array, I don't have to come in on weekends just to load a new print, I can monitor everything from my phone. That's a big deal.



GENE WOTEN
UTDESIGN®'S STUDIO MANAGER

Expanding Student Capabilities

- **Larger Build Volume:** Previous systems required students to break large parts into multiple sections, leading to assembly issues. Array's 14-inch build area resolved this challenge.
- **Multi-Material Printing:** Other 3D printers could only print in a single material at a time, Array allows students to print using up to eight different colors and material types, enabling more sophisticated designs.
- **More Complex Prototyping:** "I think once students realize they can mix materials—like carbon fiber-reinforced nylon with ABS—it's going to change the way they design parts," Woten noted.

Cost-Effective, Future-Proofed Investment

The previous industrial 3D printing system required a significant investment, whereas Array was acquired at a substantially lower cost—while still offering superior functionality and value.

UTDesign®'s long-term goal is to become the primary 3D printing service provider for the entire UT Dallas campus. With Array's automation, they are well on their way.

Real-World Success: Bringing Student Innovations to Life

One of the standout success stories made possible by Array is a fully articulated, two-foot-tall mannequin designed by an Arts & Technology student. The highly detailed model, featuring intricate musculature and vein structures, would have taken nearly nine days to print using UTDesign®'s previous system. With Array's automated queuing and multi-printer setup, the project was completed in a fraction of the time—without requiring weekend labor from staff.

Looking Ahead: The Future of 3D Printing at UT Dallas

The success of Array has laid the groundwork for further expansion. UTDesign® aims to:

- Expand campus-wide 3D printing services, making advanced additive manufacturing accessible to students and faculty across multiple disciplines.
- Enhance student engagement by allowing direct Canvas-based slicing and budgeting per project team.
- Strengthen corporate partnerships by offering sponsors more complex and multi-material prototyping capabilities.

"Thanks to Mosaic's Array, we're not just keeping up with demand—we're redefining what's possible in engineering education," Woten concluded.

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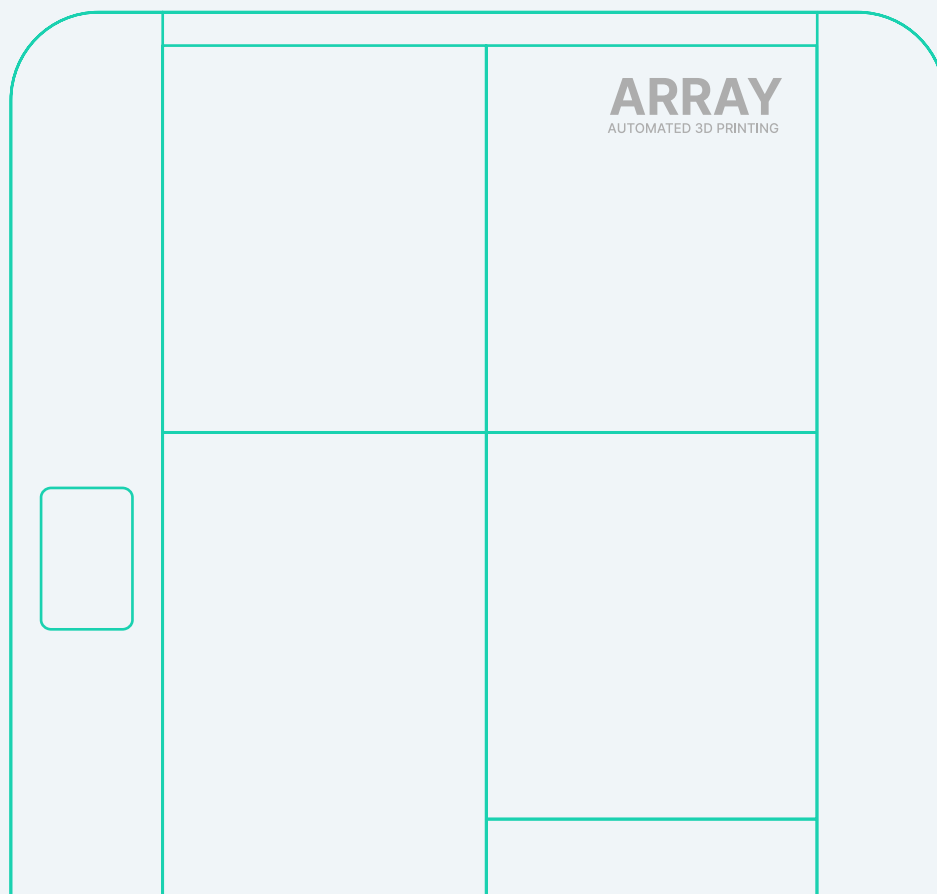


GENE WOTEN
UTDESIGN®'S STUDIO MANAGER

Conclusion

UT Dallas and Mosaic Manufacturing are proving that automated additive manufacturing is the future of education. By integrating Array, UDesign® has enhanced student learning, streamlined workflows, reduced costs, and unlocked new creative potential for the next generation of engineers.

As UT Dallas continues to push boundaries, Mosaic remains a trusted partner in shaping a smarter, more efficient future for 3D printing in academia.



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