

Additive Manufacturing Users Group Names Technical Competition Winners

Joshua Boykin, representing REM Surface Engineering, and Ethan Hartmann, representing B9Creations, take top spots in AMUG's annual competition.

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[/EINPresswire.com/](https://EINPresswire.com/) -- The Additive Manufacturing Users Group (AMUG) today announced the winners of its annual Technical Competition, which recognizes excellence in additive manufacturing applications and finishing techniques. A panel of industry veterans selected entries from REM Surface Engineering and B9Creations as Finishing & Post Processing and Advanced Concepts winners, respectively. AMUG Members also selected REM Surface Engineering's entry as the Members' Choice winner.

The Technical Competition took place at the annual AMUG Conference, March 15-19, 2026, in Reno, Nevada. Corey Wardrop, Technical Competition Committee Chair, said, "There were a lot of firsts this year. The categories were modified. The venue was new, as was the Technical Competition space, and many of the entrants were first-time competitors or even first-time AMUG attendees."

Wardrop continued, "We've come to expect exceptional creativity and expertise in the competition, but equally impressive is the courage and initiative shown by the competitors."

Twelve AMUG DINO's comprised the judging panel. They scrutinized every detail of the competition entries to select Finishing & Post Processing and Advanced Concepts winners.

Joshua Boykin, Ph.D., a senior research chemist with REM Surface Engineering, submitted the winning entry in the Finishing & Post Processing category. It not only impressed the judges, but it also inspired AMUG Members to award it the Members' Choice award.



Joshua Boykin with his winning AMUG Technical Competition entry for Finishing & Post Processing.

Boykin's entry, titled "Breaking the Powder Barrier: Selective Chemical Declogging Enables Truly Free AM Design," presented a production-ready chemical process that selectively removes stubborn, sintered powder from fully enclosed internal passages in metal powder bed fusion components without degrading critical thin-wall geometries. Validated through high-resolution X-ray CT analysis, the work demonstrated near-complete powder removal, preservation of structural integrity, and restoration of functional flow paths in complex TPMS-based heat exchanger architectures.

By overcoming one of additive manufacturing's most persistent post-processing limitations, this approach expanded the feasible design envelope for high-performance thermal systems and established a scalable pathway for broader adoption across the aerospace and industrial sectors.

The judges said of Boykin's entry:

"A great way to evolve the technology and open new applications with a quicker workflow."

"An amazing solution to a problem currently creating a massive roadblock for the adoption of powder metal additive manufacturing. Not a sexy version of post processing, but it solves a very big problem and allows for even more geometric freedom and complexity."

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Corey Wardrop

"Enabling metal additive manufacturing to push its limits with novel post processing. This solution will help reduce scrapped parts and promote new designs that would be too difficult to process using traditional depowdering processes."

Ethan Hartmann, solutions engineer at B9Creations,

submitted the winning entry for Advanced Concepts. His entry, "Additive-Enabled Miniature Silicone Component Manufacturing via Sacrificial Tooling," demonstrated a novel workflow for producing true platinum-cure silicone components at the microscale using high-resolution DLP printing and silicone-safe soluble tooling.

The process enabled the creation of complex internal geometries and fine features of a few hundred microns in size—capabilities not achievable through traditional molding methods.



Advance Concepts winner Ethan Hartmann with his AMUG Technical Competition entry.

Through careful development of print parameters, sacrificial mold design, and silicone processing techniques, the work achieved consistent mold filling, dimensional control, and repeatable part quality.

By leveraging a combination of commercially available materials in a highly engineered workflow, this approach expanded the practical manufacturing envelope for micro-scale silicone components. It highlighted the impact of additive manufacturing in enabling previously unmanufacturable geometries.

The judges said of Hartmann's entry:

"Innovative approach for being able to make silicone parts for miniature-scale applications. Tools become expendable but are small enough to be low-cost. Potential for complex geometry is excellent."

"Very unique and niche application. Well done."

"Delicate work."

In Advanced Concepts, Halil Tekinalp of Oak Ridge National Laboratory took second place with "Multiplexing Extrusion System (MExS): Multi-material AM System for Tailored Hybrid Composites," a large-scale, dual-extrusion multiplexing system that enabled purge-free, in-bead multi-material printing with core-shell and gradient architectures, significantly improving interlayer bonding and throughput.

In third place, Jason Jones of Hybrid Manufacturing Technologies entered "Seeing Beneath the Surface: Accelerating AM Adoption through In-situ Volumetric Inspection." Jones' entry presented a hybrid manufacturing workflow that integrates additive manufacturing, machining, and in-situ ultrasonic inspection into a single automated system, enabling real-time volumetric defect detection and dramatically improving yield, speed, and cost efficiency for safety-critical components.

A tie among the judges resulted in two second-place entries in the Finishing & Post Processing category. Aaron Sherman of HellermannTyton earned second place with "Pip-Boy 3000 Mk V—Prop Replica from the Fallout TV Series," a highly detailed, fully functional prop replica. His entry leveraged advanced post-processing techniques to transform 3D-printed components into a mechanically accurate, metallic-feeling assembly with optical-grade features and integrated electronics.

Joe Olguin also earned the second-place recognition with "Adapting an As-printed LPBF Design for Ultra-Thin Sectioning," demonstrating a process-driven approach to enabling sectioning of LPBF 316L components, showing that residual stress—not geometry—was the limiting factor, and that integrating build strategy adjustments with vacuum annealing enabled reliable cutting

down to 400 microns.

Wardrop concluded, "The 2026 Technical Competition brought together a truly diverse set of skills and creative drive. All 20 entries showed a very high standard, and judges had difficulty isolating their favorites, as evidenced by very close scorecard rankings. These competitors represent the very best of the additive industry. A huge thanks to all who participated."

The Technical Competition judging panel was comprised of twelve AMUG DINO's, a coveted award that recognizes tenure and contributions. These judges were Dan Braley, Carl Dekker, Bob Diaz, Timothy Gornet, Joerg Griessbach, David Leigh, Nicholas Licari, Jason Lopes, Thomas Murphy, Heather Natal, Jeremy Pullin, and Ed Tackett.

ABOUT ADDITIVE MANUFACTURING USERS GROUP (AMUG)

The Additive Manufacturing Users Group (AMUG), a 501(c)(6) nonprofit corporation, is a catalyst for its community of members to drive additive manufacturing forward. We are committed to encouraging and coordinating the exchange of technical information among those who use additive manufacturing. Our annual gatherings provide a platform for in-depth technical presentations, workshops, and hands-on experiences, focusing on processes, technologies, and real-world applications. Join us at www.amug.com to be part of the innovation shaping the future of manufacturing.

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