

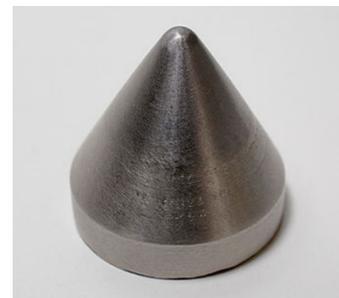
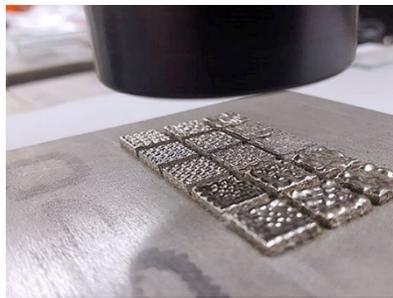
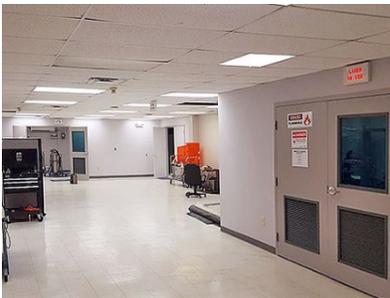
UTC Announces Standup of 3D Innovation Lab



9 Feb 2018: Universal Technology Corporation is proud to officially announce the standup of our new 3D Innovation Laboratory. Over recent years, UTC has forged a dynamic portfolio of additive manufacturing (AM) and 3D printing (3DP) capabilities through federal funding, internal investment, and asset acquisitions. The 3DI Lab was initiated in late 2017 to consolidate AM/3DP initiatives and focus on critical industry and defense needs.

MISSION: Lower the barriers inhibiting the adoption of metals and multi-material AM/3DP across applications, through focused research products, and services.

Facility: The lab is located on Ohio University's 60-acre Russ Research Center, a collaborative environment for high-tech firms near Dayton and Wright-Patterson Air Force Base. Our 7500 SF facility includes three AM labs, 3D printing room, machining and system assembly area, design room, meeting rooms, and offices. The lab is designed for safe use of Class 4 lasers and reactive powders. Current and planned systems include multiple open-architecture laser powder bed fusion systems, laser micromachining workstation, hybrid additive/subtractive laser processing workstation, large format fused deposition modeling (FDM) system (build volume 2 feet x 2 feet x 2 feet), desktop FDM and stereolithography (SLA) systems, optical microscopy, and engineering support equipment.



Research: Our research portfolio aims to improve the capability of AM to meet industry and defense needs. Projects are typically funded through federal contracts (including small business SBIR/STTR program), independent R&D, and industry sponsors. Major research thrusts include: (1) in situ monitoring of powder bed fusion and other AM processes (including development of lower-cost sensor systems, advanced analytics, and feed-forward control strategies); (2) hybrid additive/subtractive laser processing to relieve residual stresses, remove surface roughness, and machine precision features during the build process; (3) novel techniques for controlling laser beam shape, power, and scanning parameters to improve build quality; (4) multi-material powder bed processing for building unique AM

parts tailored for application needs; and (5) advanced alloy development through integrated computational and design of experiment approaches to optimize alloy parameters for AM production.

Products: Beginning 1 March, UTC is offering the OPENSIM™ open-architecture laser powder bed system for commercial sale. The development of this system has been made possible through NASA SBIR Phase II/III funding. OPENSIM represents a step-change in metals AM systems, with unsurpassed versatility and affordability for R&D, process development, and small-volume production needs. The systems can be configured for application needs, allowing purpose-built solutions at a fraction of the cost of traditional metals AM systems on the market today. Later in 2018, we plan to roll out commercial version of our AMSENSE™ integrated process monitoring suite. Prototype versions of this system are being installed at federal customer and research partner facilities.

Services: The 3DI Lab offers a range of services for government and industry customers. These include: (1) specialty additive manufacturing; (2) precision laser machining, (3) AM process optimization; (4) prototyping and engineering support; and (5) consultation and training.

More Information: Visit the 3DI Lab website at www.utc3di.com, or contact 3di@utcdayton.com.