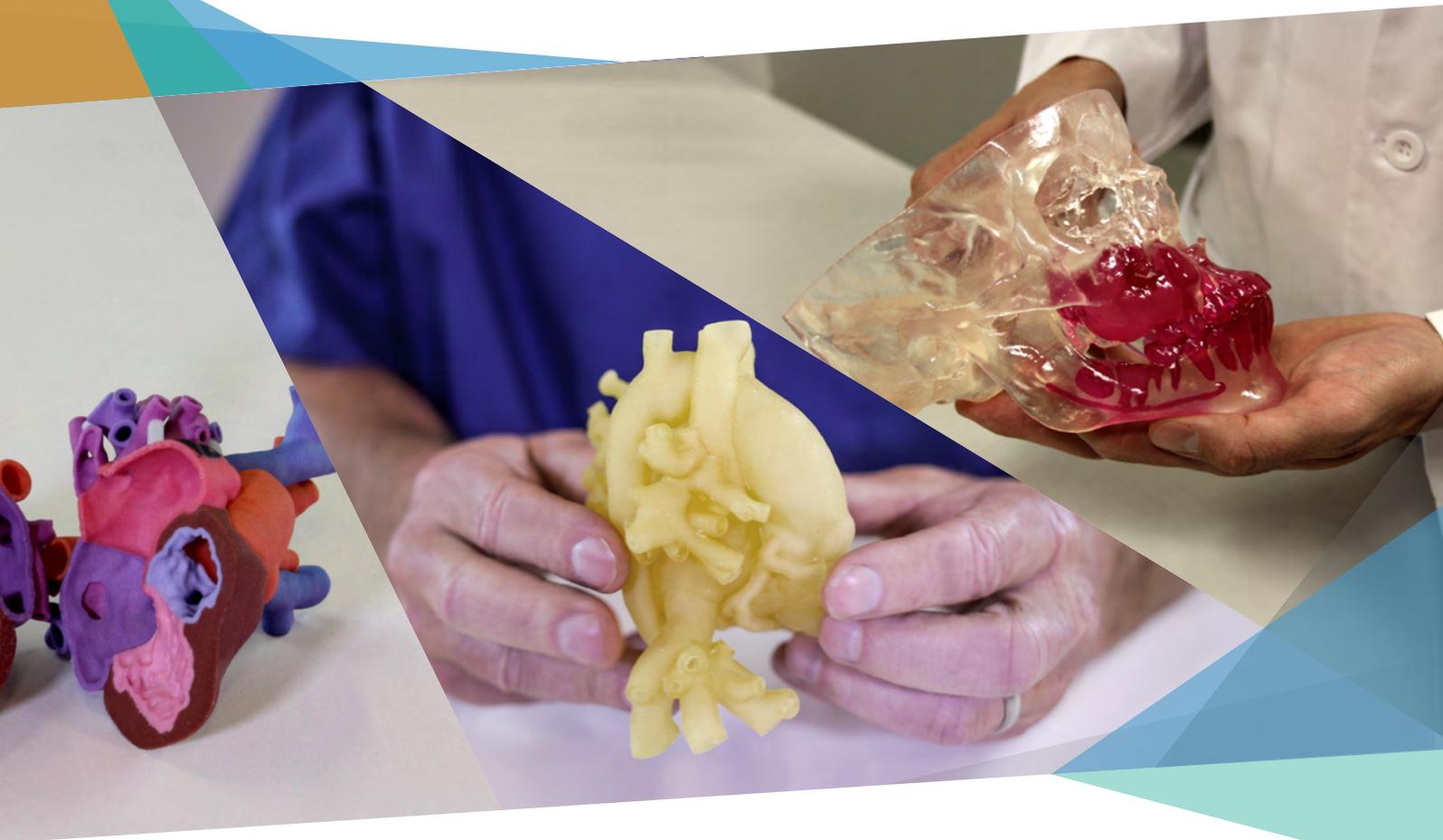
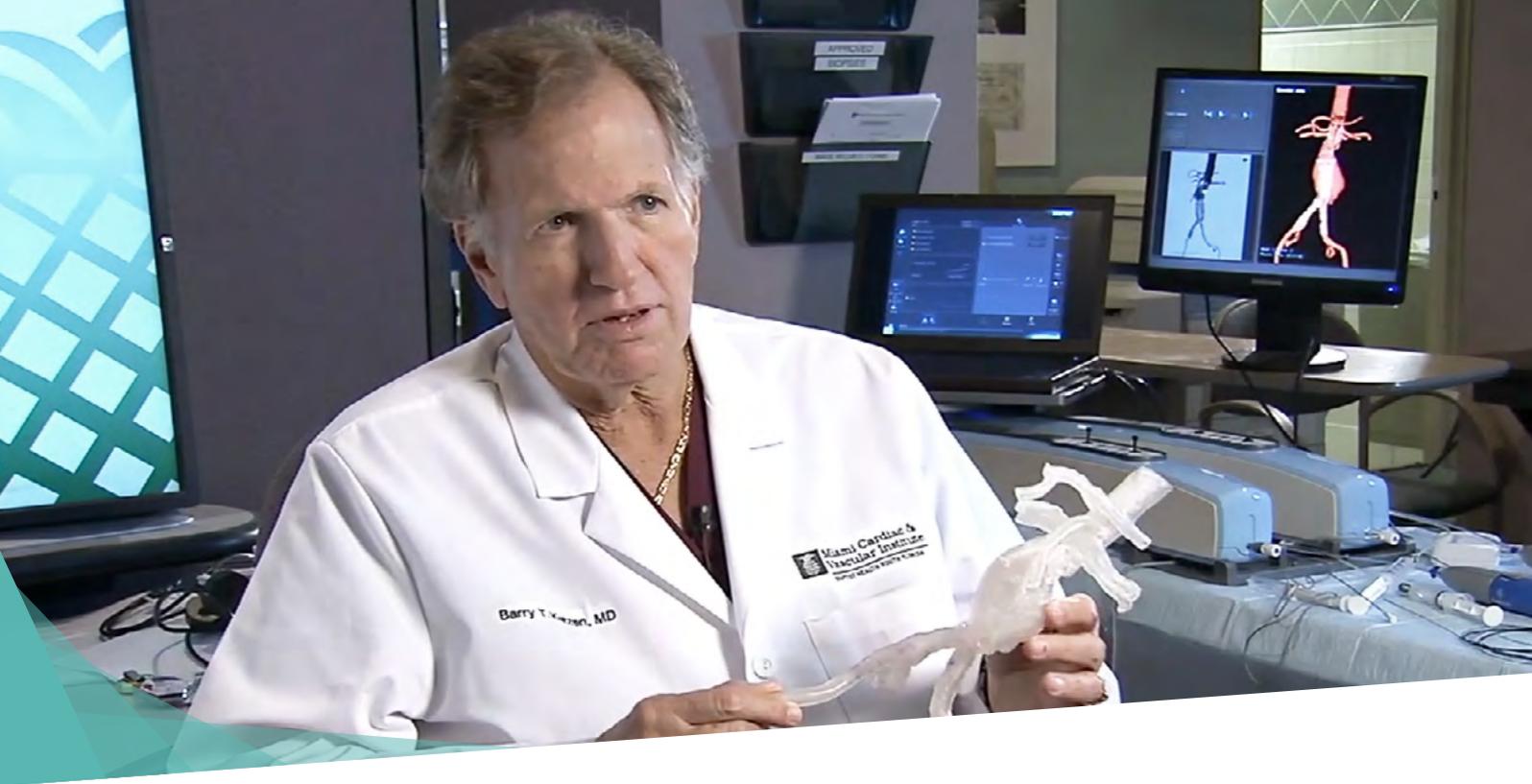


3D Printing for Healthcare





3D Printed Models

3D Systems offers a selection of fine detailed anatomical printed models in various materials and a service to print patient-specific models derived from your patient's scans for training and pre-operative surgical planning. Printed models are beneficial for:

- Physicians planning an upcoming procedure to enable repetitive practice on patient specific anatomy prior to entering the operating room.
- Medical training programs to allow better understanding of the anatomy, skills attainment and practice on true-to-life organs.
- Medical device companies to provide a solid platform for device bench testing.



Spine with Hardware



Scoliosis spine



Knee



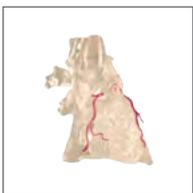
Pelvis



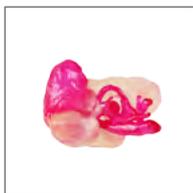
Heart with Airway



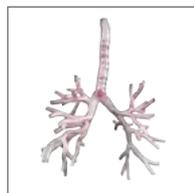
Pediatric Heart



Heart



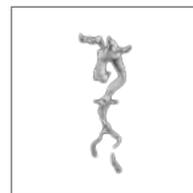
Kidney



Airway



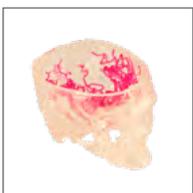
Abdominal Aortic Aneurysm



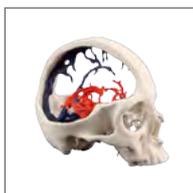
Thoracic Aortic Aneurysm



Maxillary/Mandible Bones with Tumor



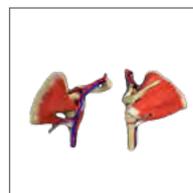
Cerebral Aneurysm



Cerebral Aneurysm II



Mandible with Tumor



Shoulder



Lap Chole



Lobectomy

3D systems' healthcare products include simulators, software, virtual reality, printed models, surgical instruments and implants.

Printers

PROJET® X60 SERIES

- Produce realistic models in one step.
- Better communicate the look, feel and style of product designs.
- Output models in hours- 5-10x faster than all other technologies.
- Build multiple models at the same time.
- Quiet, safe, odor free.
- Eliminating material waste- Unused core material is recycled for the next build.
- Part costs are a fraction of competitive technologies.
- Requires minimal training and easy to operate.
- No physical supports necessary.
- Maximum printed size: 203 x 254 x 203 mm / 8 x 10 x 8 inch.



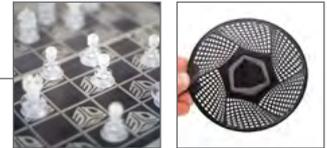
Projet® CJP 360
White monochrome printing



Projet® CJP 460
Full color printing

PROJET® MJP 2500 SERIES

- Professional parts quality: True-to-Life part accuracy with superior edge fidelity and surface finish quality for functional testing.
- Advanced plastics and elastomeric materials deliver durable white, black or clear plastic parts, and elastomeric parts with outstanding elongation and full elastic recovery.
- Print speed: Up to 3X faster print speeds than similar class printers deliver more parts sooner in a single build.
- Ease of Use (post-processing) – Up to 4X faster post-processing simplifies the workflow and allows for same-day design verification.
- Maximum print size 11.6 x 8.3 x 5.6 in (295 x 211 x 142 mm).



PROJET® MJP 3510 SD

- Multi-jet printing technology for durable, high quality plastic parts in a range of colors, translucencies and tensile strengths.
- Office-friendly and easy-to-use, ideal for functional testing, design communication, rapid manufacturing, rapid tooling and more.
- High-speed printing and easy post processing.
- Support printing of USP Class VI Certified material.
- Customized prints for immediate casting, education and testing.
- Maximum printed size: 298 x 185 x 203 mm / 11.75 x 7.3 x 8 inch.



PROJET® MJP 5500X

- Perfect for a variety of applications, multi-material assemblies, rubber-like components and high temperature testing.
- Fuses together flexible and rigid materials in colors including opaque, clear, black, white and numerous shades of gray.
- Delivers the highest quality, most accurate and toughest multi-material composites.
- Maximize spending by using less material than similar printers.
- Easy hands-free post processing.
- Larger net build volume for bigger parts or more parts per build.
- Maximum printed size: 550 x 393 x 300 mm / 21.6 x 15.5 x 11.8 inch.



3D Printed Patient Specific Modeling Service

As methods for precision medicine are becoming more common, 3D Systems continues to offer products and services for personalized surgery. 3D Systems' offers a service for patient specific anatomical models. The service begins with the receipt of patient CT scans, once the data is imported our team of biomedical engineers follow a detailed digital workflow in order to process the data and prepare it for 3D printing. Our fleet of state of the art 3D printers allow customers different material options which include materials that can be sterilized for use in the operating room, full color, opaque white, as well as flexible materials.

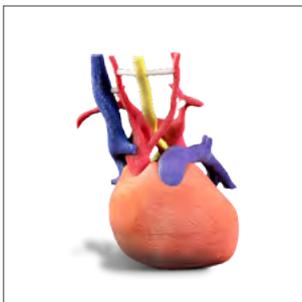


3D SYSTEMS PARTNERED WITH TULANE UNIVERSITY TO DEVELOP 3D PRINTED SOFT TISSUE MODELS FOR MEDICAL EDUCATION, PRE-SURGICAL PLANNING AND PRE OPERATIVE REHEARSAL:

"Individualized patient-specific soft tissue 3D printing allows surgeons and trainees the opportunity to operate on a model that looks and feels just like their patient's kidney tumor. This technology has the potential to reinvent the way we teach and train our young surgeons and for experienced surgeons adapting to a new technology such as robotics, it will flatten the learning curve."

Dr. Jonathan Silberstein, Assistant Professor of Urology, Chief, Section of Urologic Oncology, Tulane University School of Medicine.

True-to-life models can be used to benefit patients, as they may be held in their hands while a surgeon educates them on their condition and planned procedure.

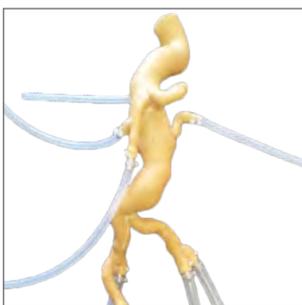


3D SYSTEMS AND WASHINGTON UNIVERSITY CARDIOLOGY TEAM HELP TODDLER BREATHE EASIER WITH 3D PRINTED HEART MODEL:

"With 3D printing, we were able to print a replica of the patient's heart anatomy, developed from medical imaging scans, and use that model to get a handle on what surgeons would be faced with in the OR and to communicate with the patient's parents and other team members."

Dr. Shafkat Anwar, Pediatric Cardiologist, Washington University School of Medicine.

Life-size, realistic models make it simpler for patients and families to grasp the details of complex medical procedures, and they provide healthcare practitioners with invaluable preparation for their work in the operating room.



REALISTIC FEVAR HANDS-ON TRAINING MADE POSSIBLE WITH 3D PRINTED AORTIC MODEL:

"The model was quite accurate in its feel and how it interacted with the actual delivery systems of the fenestrated stent-graft. The flexibility of the model mimicked real-life in terms of how the devices tracked through the vessels, making it one of the most usable complex aneurysm training tools currently available".

Dr. Jason Lee, Professor of Vascular Surgery, Stanford University Medical Center.

3D printed models allow course attendees to perform procedures as they would be done in the operating room.



“By doing a rehearsal using modeling and simulators we can actually practice what we are going to do before the procedure. Everybody knows exactly what they are going to do and when they’re going to do it.”

Dr. Barry Katzen
Founder and Medical Director
Miami Cardiac and Vascular Institute

3D Printing: Empowering Your Creativity

Chuck Hull, 3D Systems’ Founder and Chief Technology Officer, invented Stereolithography 30 years ago. Innovation continues with seven print engines and more than 100 materials ranging from high-precision plastics to advanced metals. Precision healthcare applications include patient-specific anatomical models, instrumentation, surgical guides and implants.

Healthcare Solutions

3D Systems is a pioneer for healthcare solutions that improve outcomes which benefit both patients and surgeons. Our global team works with customers to help navigate technologies and provide support for surgical planning, training, device design, personalized medical technologies and 3D printing. We are dedicated to helping medical professionals train for, plan and practice complex medical procedures to achieve better patient outcomes.

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