

3D Printing in the Restoration of Italian Classical Art



How Art Academies are Using 3D printing Technology for Restoration and Preservation of Classical Art Master Pieces



In Michelangelo's time, sculpting was considered the noblest of all art forms. When he said "I saw the angel in the marble and carved until I set him free," he was practicing the highest form of editing. In essence, he chiseled away at the unnecessary external in pursuit of the truth and beauty within. Fast forward 500 years and time has taken its toll on some angels. Worldwide restoration and preservation efforts of these world heritage sites and treasures are in full force, many turning to 3D printing technology.

How Can 3D Printers be Used in the Classrooms?

Although restoration is a field dedicated to preserving the past, the modern sculptors at the Scuola di Alta Formazione (SAF) of the Istituto Superiore per la Conservazione ed il Restauro (ISCR) are always looking for new tools and innovations to help facilitate their restoration work. Here, students learn hands-on techniques working with murals, plaster, sculptures, and paintings. The Institute is the leader of restoration interventions on masterpieces of Italian heritage. The wall paintings of the Etruscan tombs of Tarquinia, Giotto in Assisi, and the bronze statues of Marcus Aurelius in Rome, the Tower of Pisa, and the tables of Antonio Vivarini have all been carefully restored and preserved by them.



With human imagination and dedication to preserving the artistic glory of our past, teachers at the Institute decided to experiment with 3D scanning and 3D printing, with excellent results using [Raise3D printers](#).

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3D Printing in Fine Arts

3D printing, like writing, is the process of adding layer upon layer to a flat, blank surface until a new form is created or restored- as is the case of relief restoration or building a prosthetic hand for an amputee.



3D printing applications are taking practically every industry to new places. With a growing number of materials and filaments tested for use in additive manufacturing, this technology has adapted to a wide range of business and innovation. Restoration workers at this university are using [Raise3D printers](#) to research ways to restore works of classical art that are imperative to the cultural heritage of Italy. The CREA3D team and the ISCR chose to use [Raise3D printers](#) for their reliability, professional settings, and high-performance levels. Some of the features that helped to fit their needs for this purpose are:

The Best Slicing Software: ideaMaker

Intuitive and easy to use patented [3D slicing software](#), considered to be one of the strongest control centers in the 3D printing and additive manufacturing industry, was available in several languages, including Italian.



Raise3D branded filaments and Open Filament Program:

Being able to use a wide range of 3D Printing materials like wood fill, silicon, nylon, polycarbonate, carbon fiber, PLA and ABS, helps restorers emulate the color and texture of the art pieces, so no noticeable difference was visible to the naked eye.

Fully enclosed large print volume:

The [Pro2 Plus](#) offered them a massive enclosed build volume with **an electronic dual extruder** for two colors or materials to be used simultaneously so the students could comfortably accommodate those tall or large reliefs and replicas in 3D print models.



Remote User Interface with Raise Cloud in conjunction with Mobile App:

A fully integrated 3D print management ecosystem provides Remote User Interface with the ability to collaborate. The students receive support and training on how to use 3D printing for restoration and preservation efforts through *Raise Academy*, a learning & knowledge platform where they learned all the tools to use 3D printing for art, best practices, and required knowledge needed to become a 21st-century restoration specialist.

Using different scanning techniques, they were able to upload these 3D scans onto their [Raise3D printers](#) and thanks to the [Pro2 Plus](#)' massive build volume, they could accurately reproduce replicas and parts to scale. These 3D printed models were then painted and applied to the originals to reproduce missing parts of stone or wood or create replicas that could be studied or displayed.

Application of 3D Printing in Art Restoration

During the academic orientation for new students, the Institute invited the Crea3D team to showcase how 3D printing is applied to the restoration field. Using a 3D scanner, they were able to upload exact replicas into [ideaMaker](#) (Raise3D's software) to make necessary changes, and then directly print replicas and parts using the material that fit the purpose of that particular print job.



3D printing now represents a path of excellence for those who work as art restorers as these innovative digital tools allow the emulation and technical virtuosity of the masters and restore intricate details that would be impossible to reproduce in any other way so that today we can enjoy art pieces in the splendor that their creators intended.

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Raise3D printers faithfully replicated these cultural heritage artifacts to help restoration students and workers continue bringing the past back to life. Ensuring that art can be enjoyed by future generations is of paramount importance. What time and nature have taken away from our collective artistic heritage, 3D printing is slowly restoring to life and former beauty. Wonder if Michelangelo would have chiseled if he could have created his masterpieces layer by layer instead?



You can access the original story [here](#).

Connect with Raise3D

Do you have a great 3D printing success story and think it would be cool to be featured on www.raise3d.com, we would love to learn more! Write to us at inquiry@raise3d.com

For more information about Raise3D printers and services, browse [our website](#), or [schedule a demo](#) with one of our 3D printing experts.