

GENERATION **The GIF Newsletter — Special Edition**

2D-3D: When paintings have paved the way for GEN IV reactor design studies and more...



GILLES RODRIGUEZ (WEARING "THE HOKUSAI GREAT WAVE MASK") & SYLVIA ANGLADE-CONSTANTIN

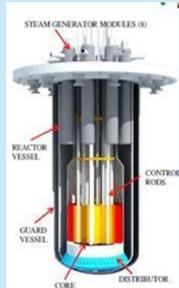
From the Quattrocento to the first 3D images

For over 20 years now, 3D modeling and reconstruction tools have been key features of reactor design. But do we know when and how it all began?



It all started during the Quattrocento (Early Renaissance) with the work of painters who were also mathematicians: Paolo Uccello et Piero della Francesca. Even if these techniques of the vanishing point perspective were already known in classical times, they were rediscovered with the work of these two painters.

The "Ideal City" attributed to Piero della Francesca (c. 1470-75) can be seen at the [National Gallery of the Marche](#) housed in Urbino's Ducal Palace (Italy). It is not the first painting using this type of perspective but it is definitely the perfect attempt to move from 2D to 3D. All the mathematical theories behind this painting were written in a book to explain the perspective theory. And today most of them are still used when we design a reactor with CATIA or SOLIDWORK Softwares.





Closer to us, this teapot is the first object ever fully modelled in 3D. The teapot was chosen as a model in 1975 by Newell, a member of the pioneering graphics program at the University of Utah, thus earning the nicknames « Newell Teapot » and « The Utah Teapot ». Its rounded shape and complex features made it an ideal study. The teapot is still exhibited at the [Computer History Museum](#) in Mountain View (Ca, USA).



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In 2007, photographer Jean-François Rauzier experimented with perspective in a tribute to Piero della Francesca, but with a pessimistic view and a new numerical technique compiling thousands of numerical pictures taken throughout Europe (he calls it the [HyperPhoto process](#)). This allows enlarging infinitely without losing any details and keeping the same quality. This is close to fractal mode (not purely 3D but far more than 2D). Jean-François Rauzier works in Paris. Today, these two works of art are talking to us much more due to the COVID situation we all have encountered in 2020, and all these empty cities.



The QR Code provided here allows you to experience the Hyper Photo in this specific picture, which is currently [exhibited at the Chateau de Vascoeuil](#) in Normandy (France).



« CITÉ IDÉALE »
 (SÉRIE PREMIÈRES OEUVRES)
 2007
 120 X 370 CM
 TIRAGE PHOTOGRAPHIQUE
 SUR DIBOND

In the fall, the NEA/GIF may have the pleasure of exhibiting in its offices one of the artist's creations. We will of course keep you informed if such were the case.

Last but not least, the English painter Patrick Hughes creates what he defines as "Reverspective". He adds a "new dimension" to the perspective, or as quoted: "When the principles of perspective are reversed and solidified into sculpted paintings something extraordinary happens; the mind is deceived into believing the impossible, that a static painting can move of its own accord". These works of art cannot be reproduced with a 2D representation, you may see them by video (please click on the artist's webpage) or better yet: seen in real, they are so impressive. The result is absolutely fascinating, the paintings become alive!

<http://www.patrickhughes.co.uk/>

The work of Patrick Hughes can be found in [public collections](#), such as the Baker Museum, the Birmingham Museum and Art Gallery, the Denver Art Museum, the Würth Museum or in several hotels around the world. (private collections).

To be continued...