

# Software Converts 2-D Digital Photographs Into Stunning 3-D Mosaics

University of Washington



Suppose you've taken a series of photographs of the Notre Dame cathedral — now what? Using a software program developed by the University of Washington, you can meld those photographs into a three-dimensional mosaic, zooming effortlessly from an aerial view to a close-up ground level view and back again.

The software, called Photo Tourism, was invented by computer science and engineering department doctoral student Noah Snavely, associate professor Steven Seitz, and affiliate professor and Microsoft researcher Rick Szeliski, Ph.D. Research was funded in part by the National Science Foundation, the Achievement Rewards for College Scientists Foundation, Microsoft Research, and the UW Advanced Technology Initiative. Photo Tourism was disclosed in 2005 and licensed to Microsoft the following year.

“ *The program creates a three-dimensional mosaic using random viewpoints from a collection of digital photographs. The underlying three-dimensional computer model is generated automatically, and the photos are placed as a mosaic over this model.* ”

The collection of photos can then be navigated by interacting with the model, creating an immersive, 3-D experience. This technology offers an innovative way to arrange, navigate, and search through collections of digital images. It can also be used to create high-fidelity computer models of sculptures, buildings and other structures.

Photo Tourism is an important part of Microsoft Live Lab's Photosynth technology, which has been used by NASA to show 3-D Web views of the space shuttle Endeavour and parts of the space program rarely seen. Microsoft is further testing the technology in more rigorous, complex environments before releasing the software more broadly.

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