

## Examples of software implementing SfM-MVS

Software	url (valid on 17 May, 2014)	Notes
<i>Freely available</i>		
Bundler Photogrammetry Package <sup>a, b</sup>	<a href="http://blog.neonascend.net/archives/bundler-photogrammetry-package/">http://blog.neonascend.net/archives/bundler-photogrammetry-package/</a>	Used in James & Robson (2012). Script-based, no graphical user interface (GUI). Windows OS only.
SFMTToolkit <sup>a, b</sup>	<a href="http://www.visual-experiments.com/demos/sfmtoolkit/">http://www.visual-experiments.com/demos/sfmtoolkit/</a>	Similar software to above.
Python Photogrammetry Toolbox (PPT) <sup>a, b</sup>	<a href="http://code.google.com/p/osm-bundler/">http://code.google.com/p/osm-bundler/</a>	Formerly OSM-bundler. Python-driven GUI and scripts, with a Linux distribution.
VisualSFM <sup>b</sup>	<a href="http://www.cs.washington.edu/homes/ccwu/vsfm/">http://www.cs.washington.edu/homes/ccwu/vsfm/</a>	Advanced GUI with Windows, Linux and Mac. OSX versions. Georeferencing options, but camera model is more restricted than that used in Bundler.
3DF Samantha	<a href="http://www.3dflow.net/technology/samantha-structure-from-motion/">http://www.3dflow.net/technology/samantha-structure-from-motion/</a>	SfM only, but with more advanced camera models than all above (Farenzena et al 2009). Provides output compatible with several dense matching algorithms.
<i>Web sites and services</i>		
Photosynth	<a href="http://photosynth.net/">http://photosynth.net/</a>	Evolved from Bundler. SfM only, no dense reconstruction. Can incorporate a very wide variety of images, but does so at the cost of reconstruction accuracy. Vergauwen and Van Gool [2006]
Arc3D	<a href="http://www.arc3d.be/">http://www.arc3d.be/</a>	
CMP SfM Web service <sup>a</sup>	<a href="http://ptak.felk.cvut.cz/sfmservice/">http://ptak.felk.cvut.cz/sfmservice/</a>	
Autodesk 123D Catch	<a href="http://www.123dapp.com/catch/">http://www.123dapp.com/catch/</a>	
Pix4D	<a href="http://pix4d.com/">http://pix4d.com/</a>	Also available as standalone software.
My3DScanner	<a href="http://www.my3dscanner.com/">http://www.my3dscanner.com/</a>	
<i>Commercial</i>		
PhotoScan	<a href="http://www.agisoft.ru/products/photoscan/">http://www.agisoft.ru/products/photoscan/</a>	Full SfM-MVS-based commercial package.
Acute3D	<a href="http://www.acute3d.com/">http://www.acute3d.com/</a>	
PhotoModeler	<a href="http://www.photomodeler.com/">http://www.photomodeler.com/</a>	Software, originally based on close-range photogrammetry, now also implements SfM.
3DF Zephyr Pro	<a href="http://www.3dflow.net/">http://www.3dflow.net/</a>	Underlying SfM engine is 3DF Samantha

<sup>a</sup> uses Bundler (<http://phototour.cs.washington.edu/bundler/>) to compute structure from motion

<sup>b</sup> uses PMVS2 (<http://grail.cs.washington.edu/software/pmvs/>) as a dense multi-view matcher

Vergauwen, M. and Van Gool, L. (2006) Web-Based 3D Reconstruction Service, Machine Vision Applications, 17, 411-426.

Farenzena, A. M., Fusiello, A. and Gherardi. R. (2009) Structure-and-Motion Pipeline on a Hierarchical Cluster Tree. Proc.IEEE Int. Workshop on 3-D Digital Imaging and Modeling, Kyoto.