



LONG LIVE THE NEW KING

THE REIGN OF 2D MAPS IS COMING TO AN END AND 3D DATA IS SET TO TAKE THEIR CROWN. AS A RESULT, GIS VISUALISATION TOOLS NEED TO STEP UP THEIR GAME, SAYS HANNAH MANN

In 2001, when (European) Space Imaging announced the launch of the Ikonos satellite, delivering 1m-resolution satellite imagery covering 100km² with a file size of 200MB, developers of GIS visualisation tools were challenged with a new level of quality. The same thing happened again in 2014, when Google acquired Skybox Technologies, a maker of small, simple and more affordable satellites that branded itself 'Earth Observation 2.0... where satellites are simply sensors and the magic is in harnessing scalable computing and unbounded analytics.' Progress is also being made in the field of 3D mapping, with sensors attached to road or aerial vehicles collecting 3D close-ups of life in the streets, buildings or areas of land; their quality is constantly improving. Earlier this year, NASA's Shuttle Radar Topography Mission (SRTM) released a digital elevation model (DEM) with 30m postings that depicted nearly the entire surface of the Earth in 3D, upgrading SRTM's previous global terrain data which had merely 90m postings.

These are only a few developments among many others that show we can expect increasingly higher quality, more scalable remote sensing data to be made available to a growing audience in the near future.

Benefactors of remote sensing data exist in a multitude of fields, ranging from local to multinational companies, land-developers and

urban planners. When consumers are able to create individualised 3D scenes, by opening and combining a multitude of qualitative images, DEMs, photogrammetry and point clouds, they will potentially be able to include significantly more information than even the most sophisticated 2D map can contain. However, many traditional GIS visualisation tools still rely on 2D capabilities. They often lack satisfactory 3D visualisation capabilities, which will limit consumers' access to a large part of the information that remote sensing data has to offer.

Yet a few providers of GIS visualisation tools are taking a new route. In a recent interview, Tim Lemmon of Trimble mentioned that a key trend was "using rendering engines and large data handling out of the gaming industry and applying it to geospatial data types," and that Trimble was "enhancing [its] software".

First created in 2006, Blaze Terra is almost entirely powered by the graphic processing unit (GPU) of a computer's video card, rather than its more familiar CPU. The result is that Blaze gives GIS data a game-like look and feel, enabling users to drag and drop open 3D data and instantly create highly informative 3D scenes and manoeuvre scenes seamlessly to extract maximum insights. Combined with other unique technological solutions, the software is able to manipulate scenes encompassing the

entire globe, without compromising on efficiency or speed. In addition, a set of 3D measurement tools, interacting with the imported remote sensing data, adds to the level of insights attained by a user from their data. Such tools range from distance between two points to volumetric measurements, merging the world of GIS features with visual capabilities.

Modern tools set an example in user-friendliness: they have an easily understood interface that minimises the complications for the user and maximises the clarity of use. But this user-friendliness also has other technical challenges to overcome. For example, the processing of remote sensing data needs to occur behind the scenes and appear fast and effortless to the user, as does any interaction with it, such as the use of measurement tools.

In the light of increasing scalability and consumerisation of remote sensing, and to further encourage its widespread use in everyday business, visualisation tools need to leave the realm of being an expert software and become high performance, interactive 3D GIS machines, user-friendly to the extent that every consumer can create and manage powerful and informative 3D scenes to an individualised extend. There are several solutions out there that already allow consumers to extract the most out of remote sensing data. But for many GIS visualisation tools, there's still a long way to go.

TO FURTHER ENCOURAGE REMOTE SENSING'S WIDESPREAD USE IN EVERYDAY BUSINESS, VISUALISATION TOOLS NEED TO LEAVE THE REALM OF BEING AN EXPERT SOFTWARE AND BECOME HIGH PERFORMANCE, INTERACTIVE 3D GIS MACHINES

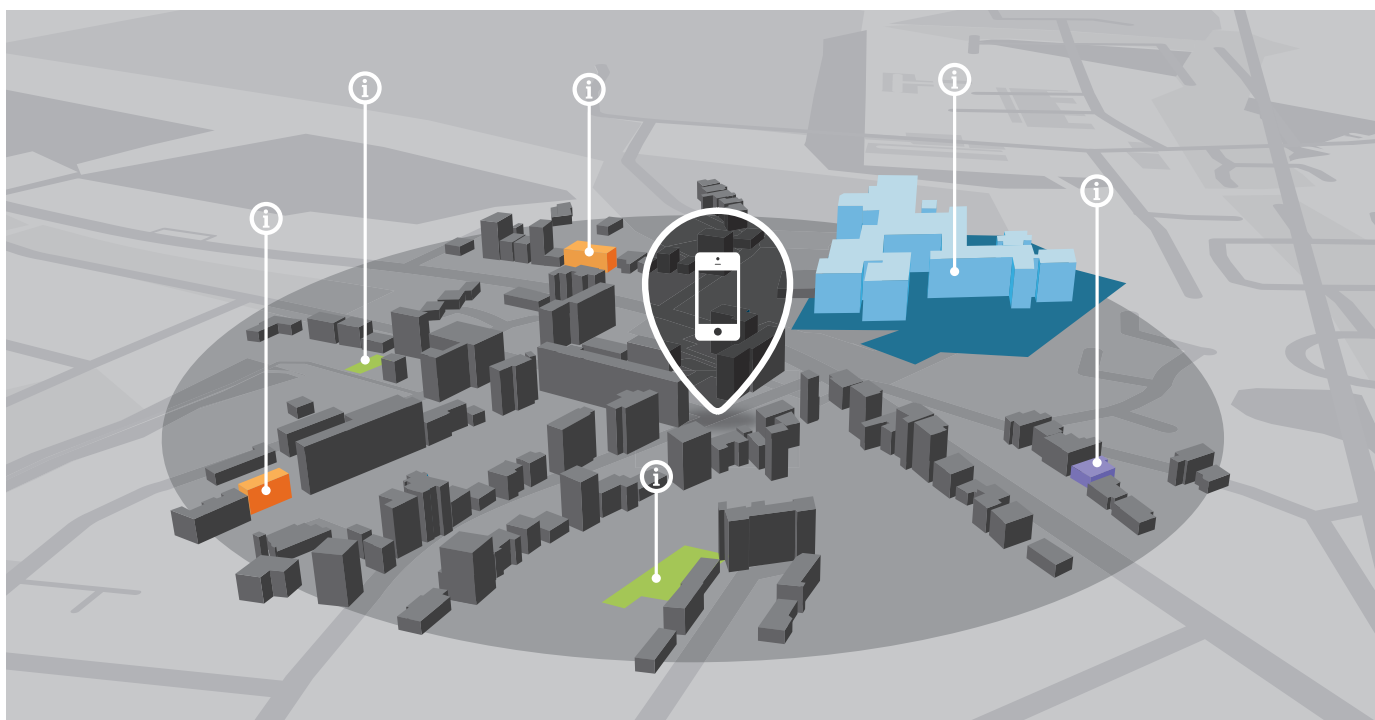
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High-quality urban visualisation data on top of a raster image in Blaze Terra



A large dataset of shape files extruded to 3D on top of a raster image in Blaze Terra



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