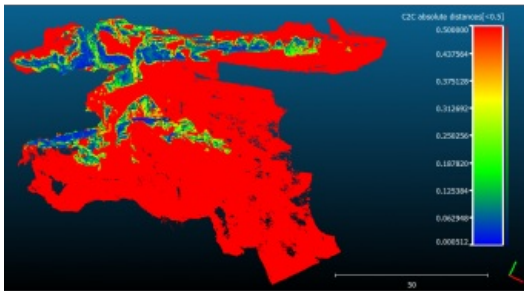
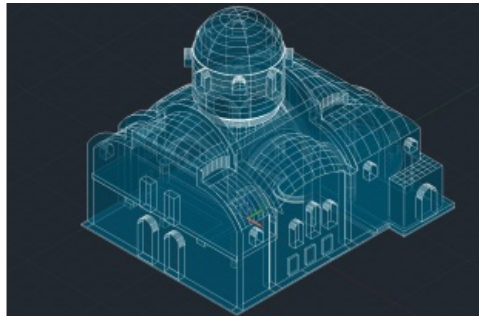


COMPANY'S VIEW: SPM3D

High-quality Modelling of 3D Point Clouds



Headquartered in Kiev, Ukraine, SPM3D provides a wide range of solutions for advanced processing of laser scanning and photogrammetry data. The company brings together young scientists from within Ukraine and Germany. It is aimed at satisfying the high-quality data processing needs of European customers.



SPM3D was founded as a private company in October 2015 by Thomas Luhmann, Denys Gorkovchuk and Julia Kravchenko. Its international team of scientists come from both Ukraine and Germany. Participation in international programs and implementation of educational projects have resulted in a fruitful cooperation in the business and the formation of a joint start-up company.

Despite the political instability in Ukraine,

the founders decided to headquarter the company in Kiev due to the following aspects:

- constant rise in the number of IT professionals on the job market: according to the publication *IT Outsourcing News* this number will increase up to 200,000 by 2020
- wide range of technical capabilities offered by Ukrainian specialists: export turnover of Ukraine's software development industry reached USD2.5 billion in 2015
- slow but sustainable harmonisation of Ukrainian national quality standards with European: a guarantee of high-quality products on the technology services market
- lower salaries compared to most European countries: in terms of wages, Ukraine is currently ranked 170th out of 210 countries.

In recent years laser scanning has increased its fields of application, spanning geological, archaeological and architectural surveys, for example, and encompassing real-time monitoring and rapid prototyping. Every year laser scanners become faster, lighter, more precise and more intelligent. However, processing the scan data is still the most complicated and time-consuming aspect of the scanning task.

The main aim of creating the private company SPM3D is to meet the growing demand of customers in terms of technological solutions for processing point clouds from laser scanning and photogrammetric data. The company is based on the advanced technical and educational skills of its specialists. SPM3D conducts projects in the field of laser scanning that include the entire cycle of data processing:

- Initial point-cloud processing: registration, cleaning, optimising, exporting
- Design: CAD drawings, mesh generation, solid modelling
- Analysis: deformations, curvature, comparison with reference models.

Experience

The specialists at SPM3D have been working with laser scanning and photogrammetry for over three years and the portfolio now includes more than 60 projects in various fields – architecture, construction, mapping, surveying, urban planning, mining, power engineering and the oil and gas industry. The company has considerable experience in modelling of cultural heritage objects. It has participated in scanning of The Holy Dormition Kiev-Pechersk Lavra for calculating the areas of ancient drawings. A model of the Cathedral of the Transfiguration

of the Saviour (Kiev, Ukraine) was made for designing the interior frescos. A combination of photogrammetry and laser scanning was applied to model the Tustan Rocks historical complex in Lviv Region, Ukraine. Preservation of cultural and historical heritage required a 3D representation of rocks, but it was impossible to scan the whole rock complex. The object has very steep slopes and is surrounded by a lot of trees which prevent placement of the scanner. Therefore, only some parts of the rocks were scanned; everything else was captured by digital cameras. Different point clouds were acquired from laser scanning and photogrammetry, analysed for deviations and combined into one single model. The generated model was used by archaeologists to analyse the level of decay and to make a 3D reconstruction of an ancient castle which existed on the rocks in the 14th century, using the grooves in the stones.

International and global scope

Ukraine's formation of foreign economic relations in the field of technological innovation and laser scanning is a good example of the transformation process in the country's economy and has extremely important significance for the integration of Ukraine into the European market. SPM3D, founded by scientists, demonstrates the potential of Ukrainian experts and offers new solutions and approaches for modelling of complex real-world objects to solve the problems of interdisciplinary applications. Since its foundation, SPM3D has already established successful business connections with a number of German surveying offices.

View of the future

The company focuses on the continuous development and improvement of the skills and competence of its specialists. SPM3D strives to realise projects which bring together education and technologies, science and business. Knowledge transfer from research academic centres to practical applications and thus to end users is a promising way to attract investment into high-tech industries such as laser scanning and photogrammetry. In this regard, the company has established stable relationships with universities both in Kiev and in Oldenburg, Germany, and it employs MSc students, PhD students and young scientists. [SPM3D](https://www.gim-international.com/content/article/high-quality-modelling-of-3d-point-clouds) is committed to providing an exciting and innovative work environment for specialists in Ukraine by encouraging and promoting the advancement of its employees. The company's future activities will concentrate on enhancing the business to a wider range of international customers across Europe in the fields of architecture, building information modelling, mobile mapping and cultural heritage.

<https://www.gim-international.com/content/article/high-quality-modelling-of-3d-point-clouds>
