

# 5 Questions to Ludvig Emgård, founder of Spotscale



***Spotscale is a young start-up specialised in 3D modelling. Can you tell us a little more about your company?***

We are a tech start-up which is truly devoted to representing buildings and areas in realistic 3D, focusing on 3D reconstruction algorithms to solve known problems in computer vision. The company was founded two years ago. We create state-of-the-art technology and methods for the capture process and tools to deliver high-resolution experiences and usability for city planners and the real-estate sector. The 3D models that we produce usually cover small areas with an immense level of detail.

***Which techniques do you use to collect the data for your 3D models?***

We make use of mid-size multi-rotor UAVs equipped with cameras and other sensors to fly in well-defined patterns around a building. We have developed various capture solutions to enable us to handle different kinds of buildings. Each scene presents different problems so the capturing part must be done right to obtain the best data for input into our process. We capture thousands of high-res images while in the air and have developed advanced codes for selecting the right subsets to use in the reconstruction.

***Which software do you use to generate the 3D models?***

We combine open source software, our own algorithms and commercial components to deliver gigapixel renderings as a final result. In recent months we have focused on improving our in-house structure from motion and texturing algorithms, since we have realised that what is available is not always enough to deliver excellent results. People with reconstruction experience know that many building types and light/weather circumstances present challenges which lead to artefacts. We are devoted to solving the delivery problems by treating each building, feature and scene differently and to achieving the most efficient blend of automation and manual input.

***What are the target groups for your 3D replicas, and what are they used for?***

To summarise, there are three major cases where users prefer realistic models: to visualise or measure changes, to simulate scenarios or to market a building to generate commercial interest. Therefore, real-estate developers, city planners and construction companies are among our customers. Other groups include luxury estate owners and serious gaming providers. Now, at the end of our first year of active sales, we are already working with over 30 customers to constantly improve the products.

***Can you explain to GIM International readers why your company is more than just another one of the many recent UAV-related start-ups?***

So far, most UAV-related start-ups are focusing on mapping terrain, forests or landscapes using fixed-wing UAVs, resulting in terrain models and orthophotos as end products. At Spotscale we are experts in the creation of high-quality models of buildings and complex urban scenes. We have already mapped over a hundred urban scenes and learned that it takes a combination of hardware, maths, processing knowledge and experience to do that successfully. What also makes us different is that we focus on making the vast amounts of image-based 3D data work smoothly on tablets, handsets and laptops.

For more information on Spotscale [see here](#).