

Laser-scanned Point Clouds to Visualise Stage Productions



Theatrework UK, a Scottish production company, is using laser scanners and 3D computer modelling technology to help visualise stage productions. Using Pointfuse software, laser scanned data – point clouds – are processed in minutes to create highly accurate 3D models. These models allow production designers to conceptualise ideas within the venue scans and technical staff to visualise touring productions at different venues.

Venues can use the imagery to plan for visiting companies and scans, complete with designed elements, can be shared online using Pointfuse to reduce and enhance the visualisations. The Pointfuse models can be integrated with other types of data and are compatible with mobile and desktop devices and even Virtual Reality applications.

Early on, a number of software applications were evaluated, usually linked to sectors outside of the performing arts, said Stephen Roe, managing director and founder of Theatrework UK. Pointfuse offered an advanced solution for reducing the size of the point cloud data and enhancing its interoperability by converting points to vector models. In addition, existing links with point cloud editing software, such as Rhino and Veesus, made Pointfuse an obvious addition to the workflow of the production company.

3D models of event venues

So far Theatrework has created, using Pointfuse, 3D models of three different venues. With seed funding from the Royal Conservatoire (RSC) of Scotland, a world-leading conservatoire of music, drama, dance, production and film based in Glasgow, Theatrework aims to create a comprehensive database of event spaces in the UK.

Compared to more traditional surveying methods laser scanning provides a fundamental step change in the ease of data capture, the quality and accuracy of measurements and, using Pointfuse, the onward processing and ease of use of scanned data, continued Roe. The process is relevant to the performing arts as it allows designers and technical managers to import scan data into their CAD software, or export their CAD drawings to the venue scans, to visualise design concepts and troubleshoot production problems.

Laser scanned data, captured by Theatrework and processed using Pointfuse, has also been used in a Glasgow School of Art project that centred on the potential of Virtual Reality to re-stage archive performances in cultural settings. The project undertaken by MSc student Nick Bottemley, supported by Theatrework, saw the merging of the Pointfuse model with archive material found at the Pearce Institute Glasgow. This provided an excellent illustration of how Pointfuse vector models can be applied to the archiving of significant cultural events for future generations to experience.