3D-Web Service for OpenStreetMap Data

Three Dimensional (3D) data is available for real-world objects on a global scale. This data is increasingly viewed using mobile devices, presenting challenges for data transfer and client processing. A global 3D web service has been developed and realised which creates 3D renderings of OpenStreetMap data using a multiperspective rendering technique. Tiles with colour, depth, surface normals and ambient-occlusion information are created for oblique viewing angles, using the open source ray tracing software pyRT. These tiles can be used in combination with other geospatial data or converted to single perspective views without loss of quality or accuracy.
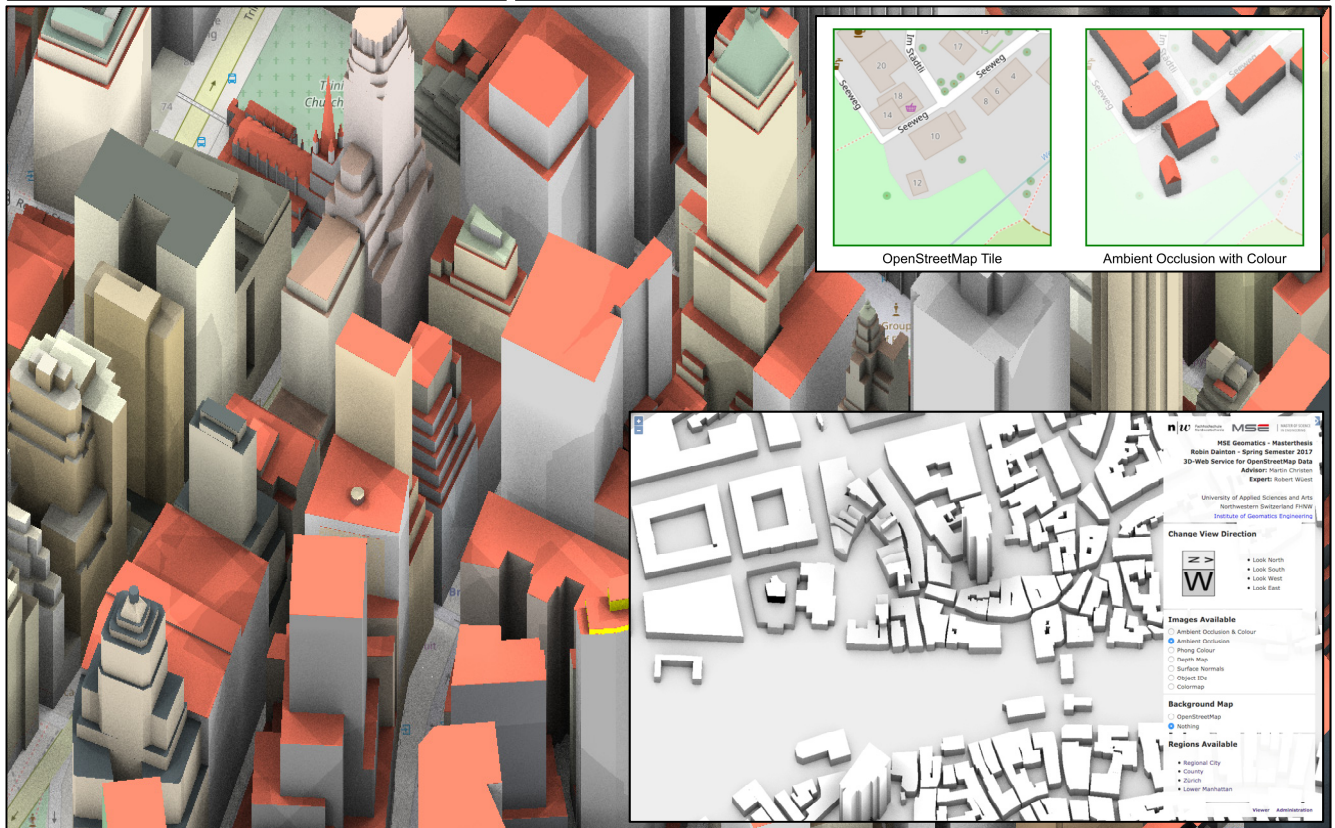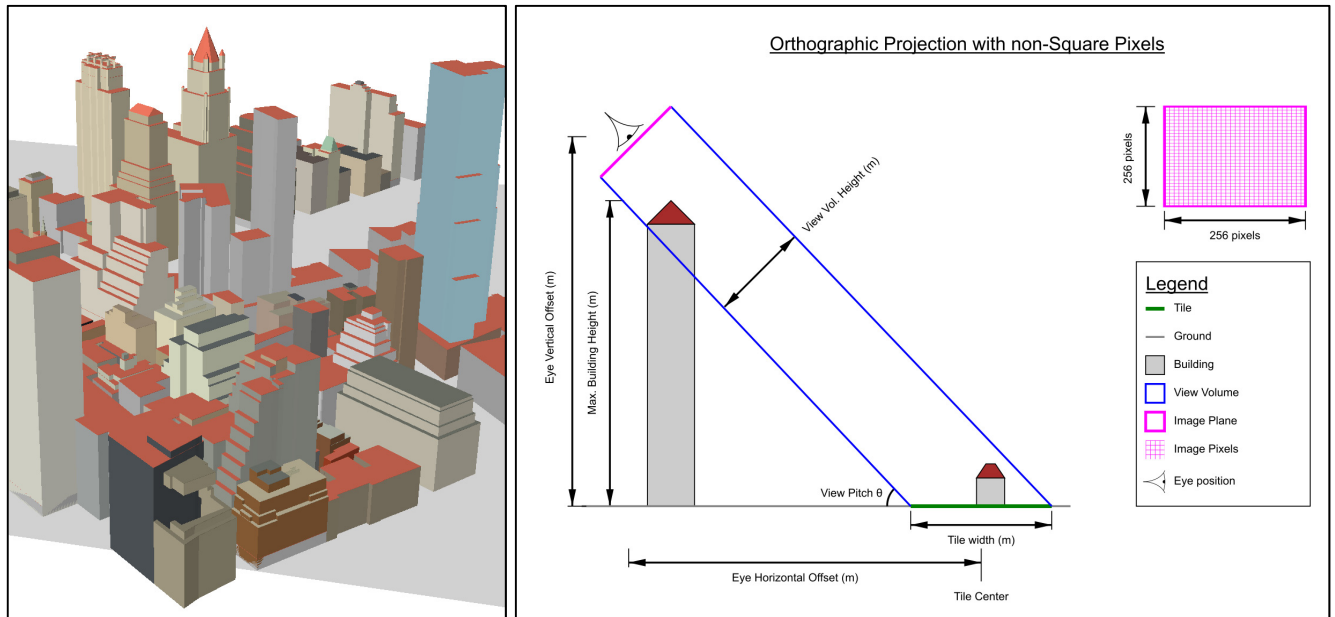

Figure top-left: Example tile 3D model created from OpenStreetMap data. **Figure top-right:** Non-square pixel orthographic projection developed for rendering of 3D models. **Figure bottom:** Web client view of ambient occlusion with colour tiles from Lower Manhattan, USA. **Inset top:** Use of transparency to allow overlay on OpenStreetMap tiles. **Inset bottom:** Web client view of ambient occlusion tiles from Zürich, CH.

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