

GIScience integrated with computer vision for the spatial examination of historical visual sources

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Old maps, drawings and photographs are important sources in cultural heritage studies. However, the accuracy and inclusiveness of these sources are often questionable and must be verified carefully. In this study, we use GIScience methods with computer-vision capabilities to interrogate old visual sources and as well as to develop a new approach for extracting spatial information from these scenic artworks. We have inspected four old depictions of Jerusalem and Tiberias (Israel) created between the 17th and 19th centuries. Using visibility analysis and a RANSAC algorithm we identified the locations of the artists when they drew the artworks and evaluated the accuracy of their final products. Finally, we re-projected 3D map digitized features onto the drawing canvases, thus embedding features not originally drawn. These were then identified, enabling potential extraction of the spatial information they may reflect.