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100 Years of Humanities and Social Sciences in Higher Education in
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Faculty of Arts
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Towards an approach for the digitization of two-dimensional (2D) artefacts for conservation

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Conservation is an area in science. It is one of the main areas in the context of cultural heritage. The cultural heritage includes two main categories: tangible cultures such as buildings, monuments, landscape, books, work of arts, 2D artefacts, and intangible cultures such as traditions, language, and knowledge in society. This paper will focus on the conservation of two-dimensional (2D) artefacts. This research aims to propose a better approach for the digitization of conserving 2D artefacts. A survey was conducted in the conservation unit of the Colombo National Museum to identify conservation techniques to safeguard the artefacts through a literature review to observe the issues in this area. Based on the findings, it was observed that all objects can be classified into two broad categories as inorganic and organic and that conservation is a complex process. Furthermore, it was identified that digitization is a crucial area for conservation and image stitching was recognized as one of the main techniques in the area of computer vision, which is used for the digitization of 2D artefacts for conservation. Therefore, authors evaluated the image stitching technique using available software tools to propose a better algorithm for the conservation of two-dimensional artefacts using digital technology. The proposed algorithm consists of five steps: reading input images, creating an array of digital images, creating panorama using a standard stitching method, fine-tuning the panorama, and displaying the panorama. Authors evaluated the quality of 5x3 panoramic images developed using the three main algorithms: Photoshop, Hugin, and the developed software of the proposed algorithm by using a Likert scale questions with image demonstrations. The proposed algorithm shows higher accuracy in the quality than the algorithms in Photoshop and Hugin for panoramic image creation. Further, it can be concluded that the proposed approach is not a complex mechanism for 2D conservation.

Keywords: *conservation, two-dimensional artefacts, digital technology, image stitching*