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学位論文題目	Investigation of historical forms by modelling—on the forms associated with human hands（モデリングによる歴史的造形の調査—一人の手にまつわる形）
論文審査委員	（主 査） 教 授：寺内 文雄 （副 査） 教 授：平沢 岳人 教 授：植田 憲 教 授：久保 光徳 （審査協力者） 田内 隆利 千葉大学准教授

論 文 内 容 の 要 旨

This study is composed with the three research (the Buddhism handprint, the winnowing basket, and the motion trajectory of wrist during winnowing) in which the fundamental meanings of the three events of the two historical artefacts have been cleared by using the way of modeling.

The handprints of Kuhonbutsu, which is in the Joshin temple Setagaya-ku, are transformed to 3D-models to investigate the function of transmitting the religious significance as described in the Buddhism classics. It was verified that the Kuhonbutsu handprints could convey certain specific religious meanings in an impression evaluation to the 3D models simplified in which the detailed information of the surface has been removed.

The winnowing baskets collected by the Tokyo Cultural Properties Research Institute were reconstructed as numerical surfaces with the feature (NURBs) curves extracted from the original forms of the baskets to measure the geometrical properties and to make clear morphological classification. As an interesting result, it was suggested that the extracted feature curves reproducing the whole morphology of the baskets as well as the local one tend to reflect even the difficulties in making the baskets. Moreover, in order to focus the motion of hands of the craftsmen who make or use the baskets, a 2D motion skeleton of the hand during the use of the baskets was extracted by Openpose and it was combined with the 3D-pose-baseline algorithm to predict the 3D human motion trajectory.

As the result, it was suggested that to use the way of the modeling is effective to understand the essential engineering characteristics and the nature of the historical artefacts and the relative events as they tend to be not the ideal mode for implementing scientific observation due to a lot of complicated information of the original forms.