

Historical Restoration by Image Inpainting

Incorporating multiple modalities and prior knowledge

MSc Thesis Project

The goal of this project is to study image inpainting techniques for historical restoration, or from a more computer vision / machine learning / deep learning perspective the goal is to incorporate prior knowledge to (deep) inpainting and/or the use of multiple modalities for inpainting. The prior knowledge stems from known handwritings and calligraphy, while the multiple modalities are obtained from different chemical analyses of the object.

The research is in close collaboration with the Rijksmuseum and concerned about a plaque from the so-called 'Merkelsche Tafelaufsatz' from Wenzel Jamnitzer in 1549, (figure on the right). This is one of the most famous masterpieces in goldsmithing from the sixteenth century. Recently this object has been extensively studied and one of the most interesting findings concerned the so far undiscovered remnants of a largely removed etched text on the silver plaque fixed to the bottom of the piece (Fig 1.a).



The ultimate goal of the research would be to make the text of the plaque visible again. In order to do so, we study inpainting techniques (or other relevant computer vision / machine learning techniques). The main novelty could be two-fold, first we could consider using prior knowledge about the missing text (style, letters, calligraphy, etc), second from the plaque multiple (non-destructive) analyses are done (see Fig 1.b – 1.c), the inpainting could make use of the different observations of the same plaque to draw its conclusions.

Requirement: MSc AI (ML/CV/DeepLearning), interest in history.

Starting date: ASAP

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More information about the Merkelsche Tafelaufsatz:

- <https://www.rijksmuseum.nl/nl/collectie/BK-17040-A>
- <https://www.researchgate.net/publication/274705547>



Fig 1.a: Original plaque



Fig 1.b: X-Ray observation

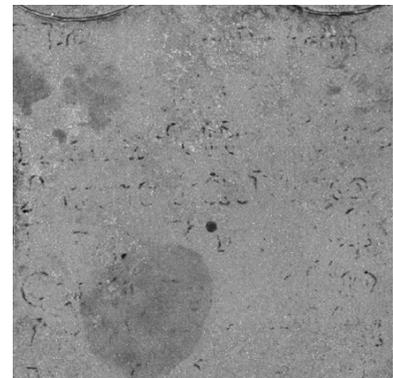


Fig 1.c: Copper measurements