

Conservation and H-RTI at The Metropolitan Museum of Art  
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In the winter of 2010, the Sherman Fairchild Center for Objects Conservation at The Metropolitan Museum of Art hosted a four-day intensive workshop on Highlight-based Reflectance Transformation Imaging (H-RTI), led by Carla Schroer, Mark Mudge and Marlin Lum of the San Franciscobased non-profit Cultural Heritage Imaging (CHI). The Metropolitan Museum houses an encyclopedic collection of objects spanning a broad range of materials and cultural contexts. Experimenting with various applications of H-RTI, we have found this technique to be an extremely versatile tool for answering multivalent questions about the materials in the Museum's collection.

As conservators, we are interested in documenting the condition of the artwork as well as its materials and methods of manufacture, and the H-RTI work that we have done has been, by nature, informed by the considerations and concerns of a Museum conservation lab. Issues that H-RTI has helped us to address include: the documentation and analysis of tool marks and other evidence of the manufacturing process, the documentation of an object's current condition, and the visual rendering of obscured detail. In this talk, we will present various case studies that illustrate our use of H-RTI on objects ranging from nearly microscopic to nine-ton sculptures. As we discuss our work, carried out in the conservation lab, Museum galleries, and in the field, we will also give attention to issues we faced during both image capturing and processing and our solutions.

Much of our H-RTI work has focused on stone sculpture and reliefs, especially objects that are particularly difficult to document with conventional photography, such as reflective and semitranslucent stones. This work is part of an on-going study focusing on the documentation and characterization of tool marks on ancient Egyptian hard stone sculpture in the Museum's collection, addressing the need for the systematic characterization of tool marks on stone sculpture, particularly for the benefit of authenticity studies. RTI gives us the ability to look at a carved surface from numerous raking light angles and to find the specific angle that best illustrates the characteristic properties (such as depth, profile, and directionality) of a particular tool mark or group of tool marks.

Our case studies will also include H-RTI capture of Medieval stained glass, European decorative arts and furniture, and metal objects such as an ancient saddle ornament and an engraved copper plate. With each object we were looking to answer different questions, and each project presented its own complexities in capture and processing. Some of the hurdles we encountered were determined by the type of material, the contours of the object, the location of the object within the Museum, and the dimensions of the area we were capturing. The flexibility of H-RTI, in relation to dome-based RTI and other imaging techniques, gave us the freedom to modify our approach based on the requirements of the object. In addition to its value as a documentary and investigative tool for conservation, H-RTI has also been an effective tool for communicating our findings to other museum professionals, improving our ability to work collaboratively within our institution and with colleagues at outside institutions.