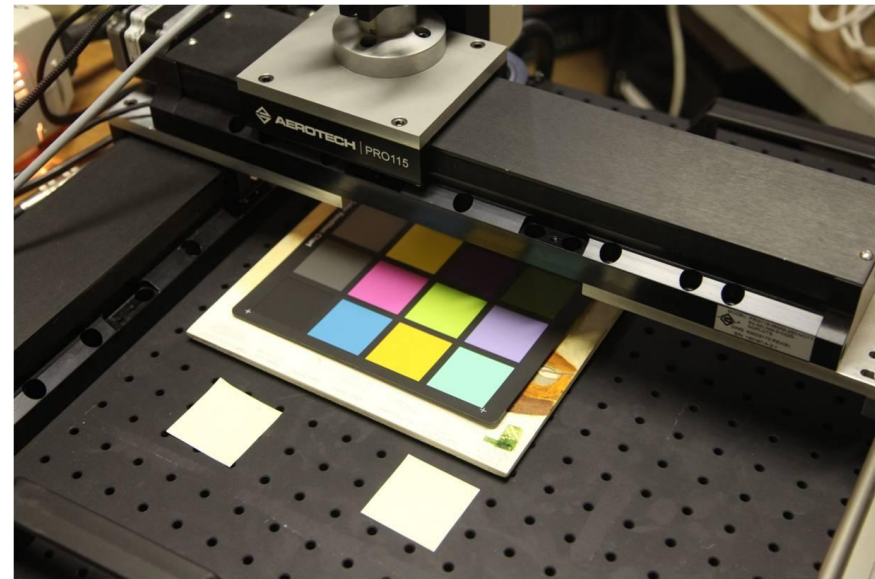
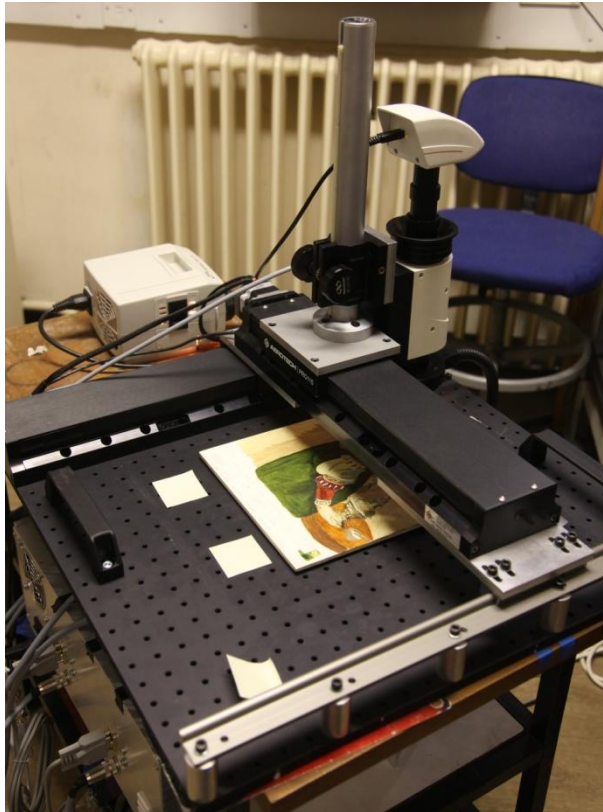


Digital Art Capture - Large Area High Resolution Images

- The project's aim is to develop a two dimensionally travelling microscope digital camera with optical fibre bundle illumination system which can automatically scan a flat art work taking thousands of overlapping photographs and to seamlessly combine them to allow a viewer to see the large area of the art work at high resolution.
- Novel image processing software solves the correspondence problem and automatically aligns and merges the images.
- The British Government-funded Technology Strategy Board (TSB) is investing over £50,000 over one and half years towards the total project budget of £100,000 under its Collaborative R&D Fast Track Feasibility Project initiative for *highly innovative collaborative research* in the application of digital technologies - for creation, preservation, interaction, personalization and increasing the competitive advantage of creative industry products, services and experiences.
- Such a system is also of interest for other automatic inspection applications such as for automated quality control of printed circuit boards having fine features across a large area.

Digital Art Capture - Consortium

- The project consortium consists of AutoEye Ltd., University College London (UCL), Northumbria University, Tate, Glasgow School of Art, Natasha Marshall Ltd. and The Henry Moore Foundation, Angela Flowers Gallery Plc.



DAC - Application

- The Creative arts sectors have an urgent requirement for a low cost means to digitise art and textiles to include the finest detail for use by large art galleries and individual artists in their studios.
- There is a need to display artworks and textiles on the internet for potential customers and for scholars to study.
- A precise image of the current state of an art work in art galleries must be recorded so that future degradation due to aging caused by humidity, temperature, dust, organic debris and illumination conditions, accidental damage, subsequent retouching, vandalism can be assessed and the art work can then be restored to its original condition.
- Art scholars, galleries and auction houses require such images as they must study the art works in the finest detail to discern the hand of the artist for authentication.
- Art and design students also require such detailed images to study artefacts and materials via the internet when they cannot easily travel to the art works location or when the art work is too fragile or valuable to display in public.

Examples of aligned and merged photomosaics



3 × 1 photomosaic of hand made painted paper by Natasha Marshall Ltd.



6 × 1 images (each 375 × 281 pixels) of an etching by Angela Geary, Northumbria University.

4



6 × 1 images (each 375 × 281 pixels) of a textile by Natasha Marshall Ltd.



6 × 1 images (each 375 × 281 pixels) of a laser burnt and pencil coloured print by Angela Geary, Northumbria University

4

Example of aligned and merged photomosaic



5 × 2 photomosaic (each 2084 × 1536 pixels) of a small part of a watercolour by JMW Turner (Tate Collection)

Example of aligned and merged photomosaic



9 × 9 (each 2084 × 1536 pixels) of part of art work by Joyce Townsend,
Tate Britain

DAC link to Kao

- The digital art capture system makes use of an optical fibre bundle to take illumination from a source to a ring illuminator around the microscope objective lens.
- This is important to provide a uniform circularly symmetric illumination.
- The flexibility of the fibre bundle allows the optical source to remain fixed and yet the illumination to move across a large area over the art work.
- The fibres also preserve much of the colour spectrum of the source.