**Project Title**: Towards Imagery of climate change

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**Project Description**:

* Making historic and contemporary climate change real and tangible to the public is a priority to altering perceptions and behaviours.
* Using machine learning and big-data analytics we will showcase temporal and spatial climate change and its variability through both: (1) famous photographs and art; and (2) the art and photographs of everyday citizens. The manifestation of climate in art has been well documented (e.g., Bonacina, 1939; Neuberger, 1970; Thornes, 2000; Robinson, 2005) both in terms of the intensity of the blue tones in the sky and depiction of cloud coverage.
* We will use advanced deep learning techniques (e.g., convolutional neural networks) for image segmentation, object identification and localization to find areas of sky or clouds in photographs, extracting invariant descriptors of their colours, shapes and textures. The descriptors will capture such things as: (1) the variability and intensity of the blue tones in the sky; (2) percentage of cloud cover; and (3) the variability in cloud colour shades.
* The outcome will be a technical report on the machine learning techniques developed to tackle the problem of extracting features of the sky and clouds from images, feeding into a publication in a respected machine learning conference and journal.
* The recruited RA will be responsible of producing the above outcome with guidance from the two academics in charge of this project.
* The project will pave the way towards large scale analysis of images contributed to by the general public, and linking their characteristics with climate change, forming a core of a publication in a high profile venue like Scientific Reports.

**Research Assistant:** an experienced **Graduate Research Assistant** with strong technical background and machine learning experience. The project will run between mid-Jan 2017 and Jul 2017. Additional fund will be thought during the project to cover extra hours during the same period.

**Hourly rate:** £12.12

**Number of hours:** 198 hours

**References**

Bonacina, L.C.W., 1939. Landscape meteorology and its reflection in art and literature. Quarterly Journal of the Royal Meteorological Society 65, 485-498.

Neuberger, H., 1970. Climate in art. Weather 25, 46-56.

Thornes, J.E., 2000. A brief history of weather in European landscape art. Weather 55, 363-375.

Robinson, P.J., 2005. Ice and snow in paintings of Little Ice Age winters. Weather 60, 37-41.