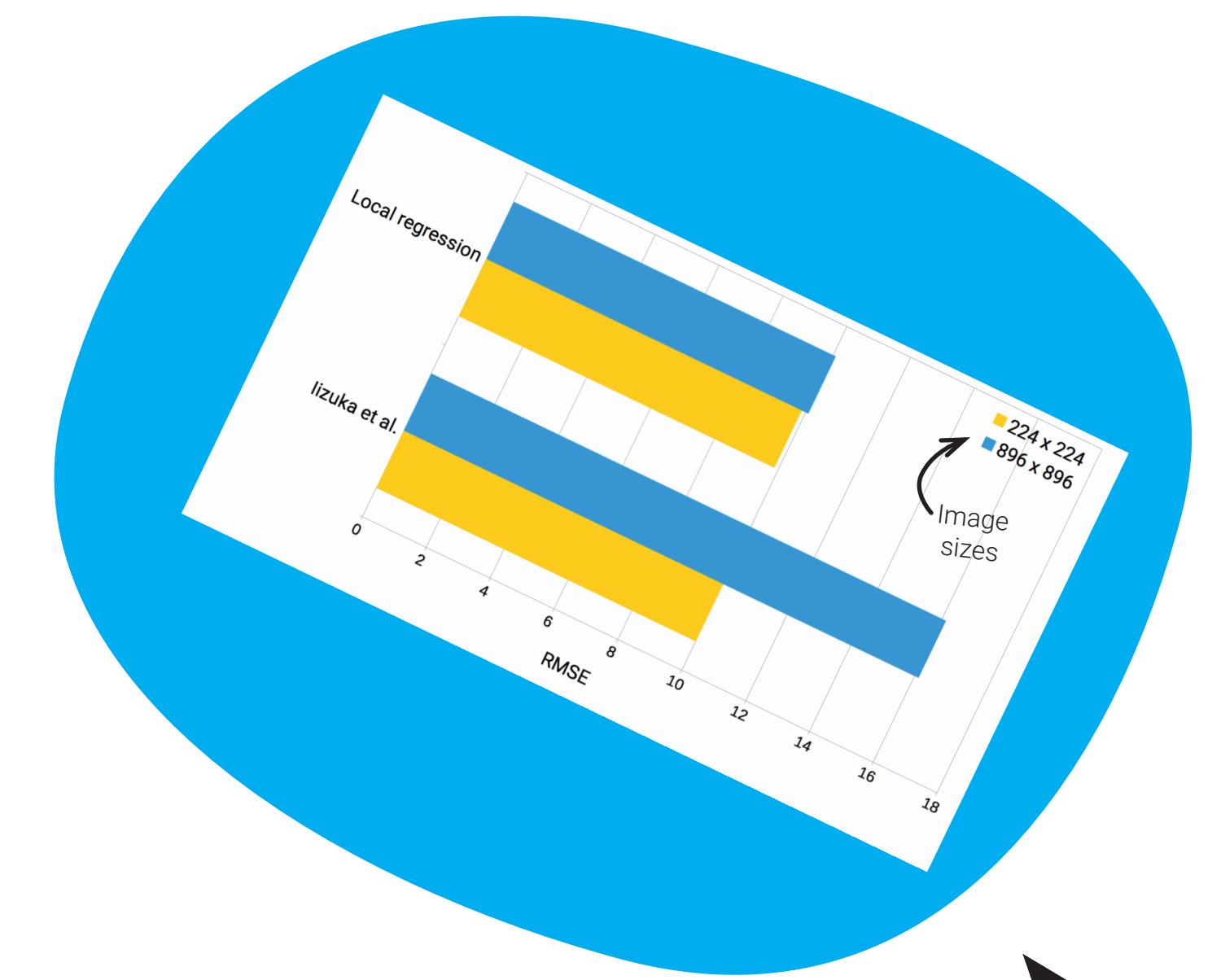


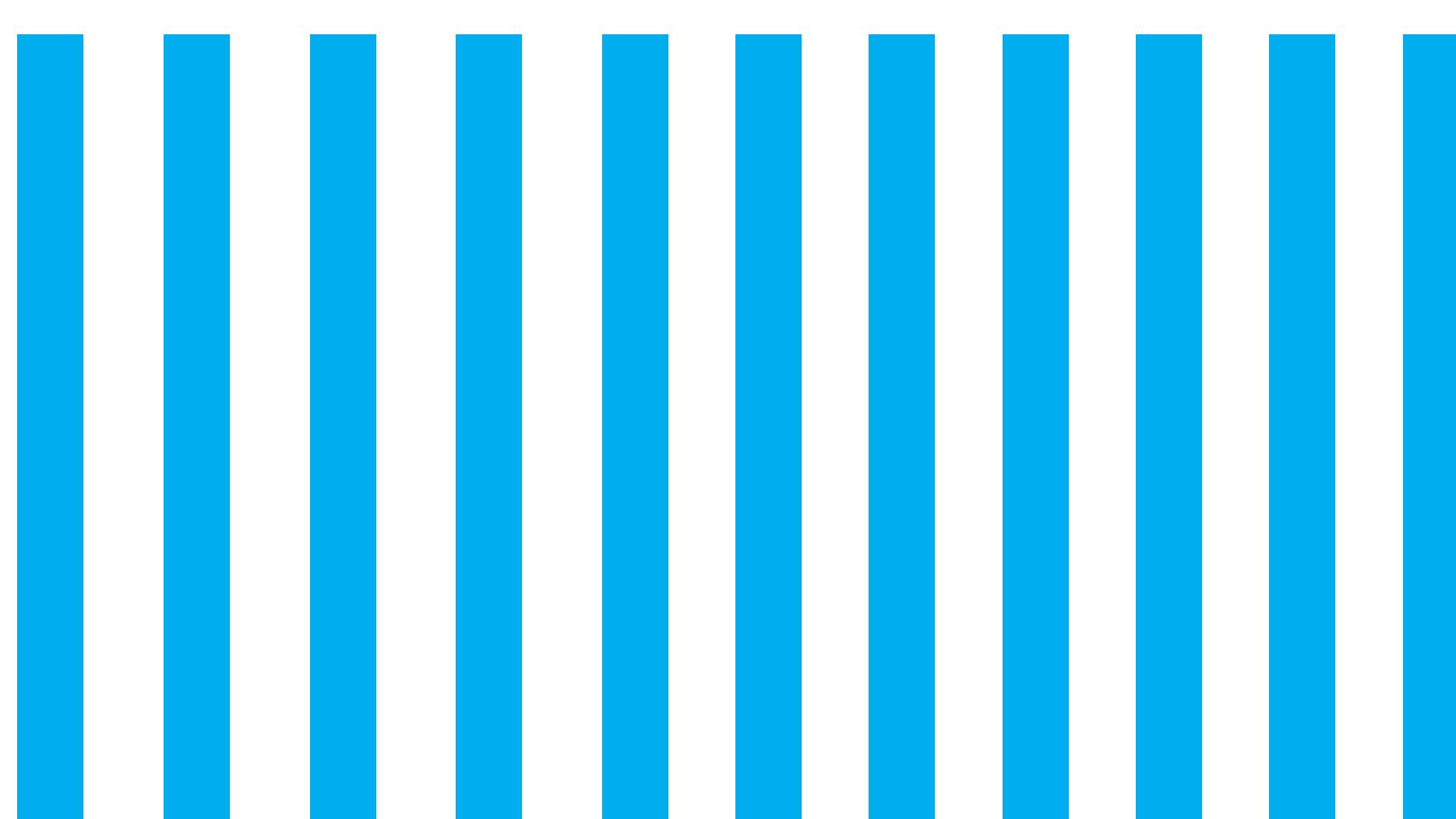
May I color your photographs?



Black and white image



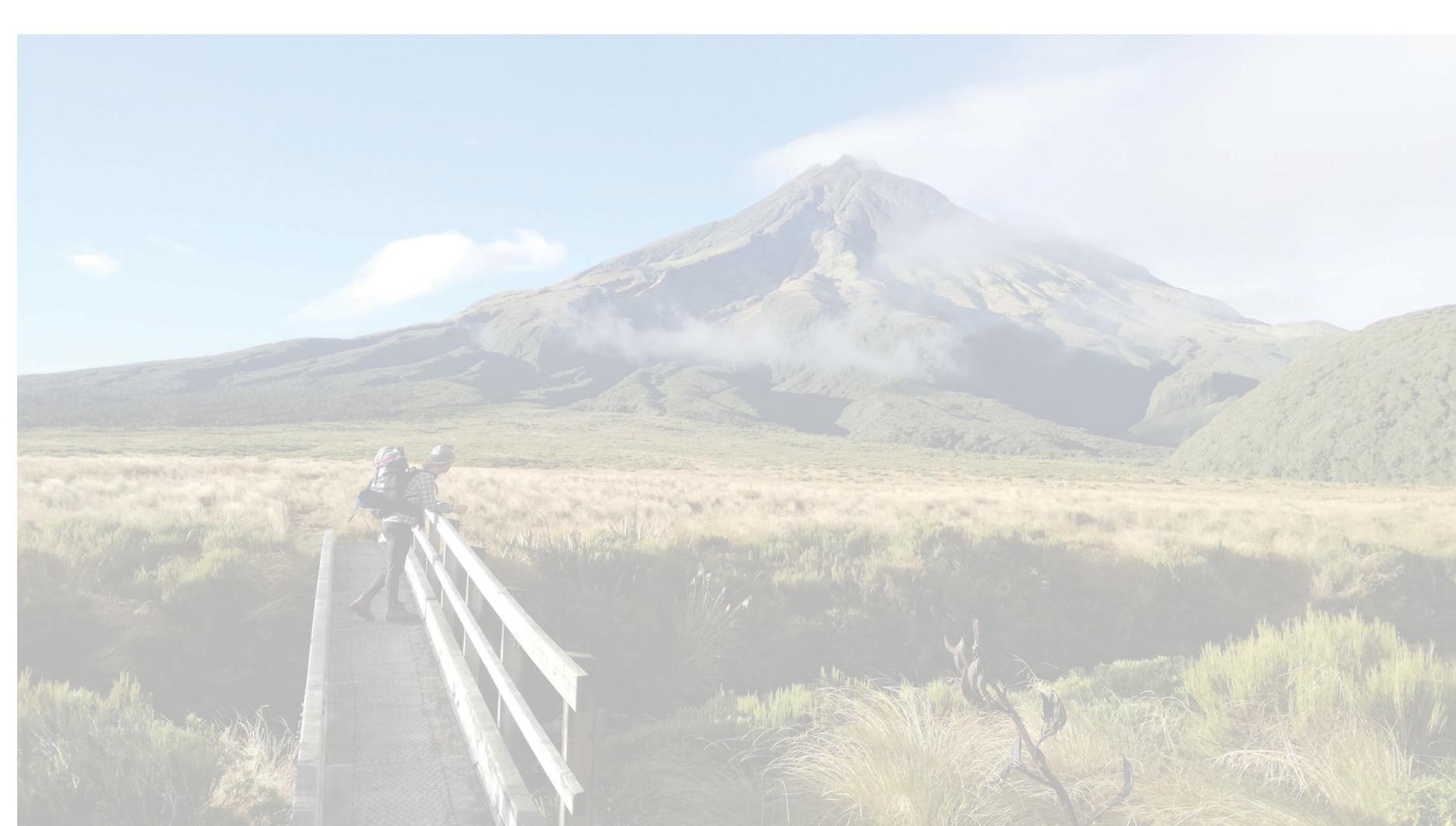
Neural network



Local or global approach

The local approach colors image patches with size 32×32 pixels while the global approach considers the whole image. The global approach is, in general, more accurate while the local approach colors images that differ from the size of training images more accurately. The training of a local network is faster while the network has fewer weights and one patch is enough to learn the concept of bigger part of image.

Color components



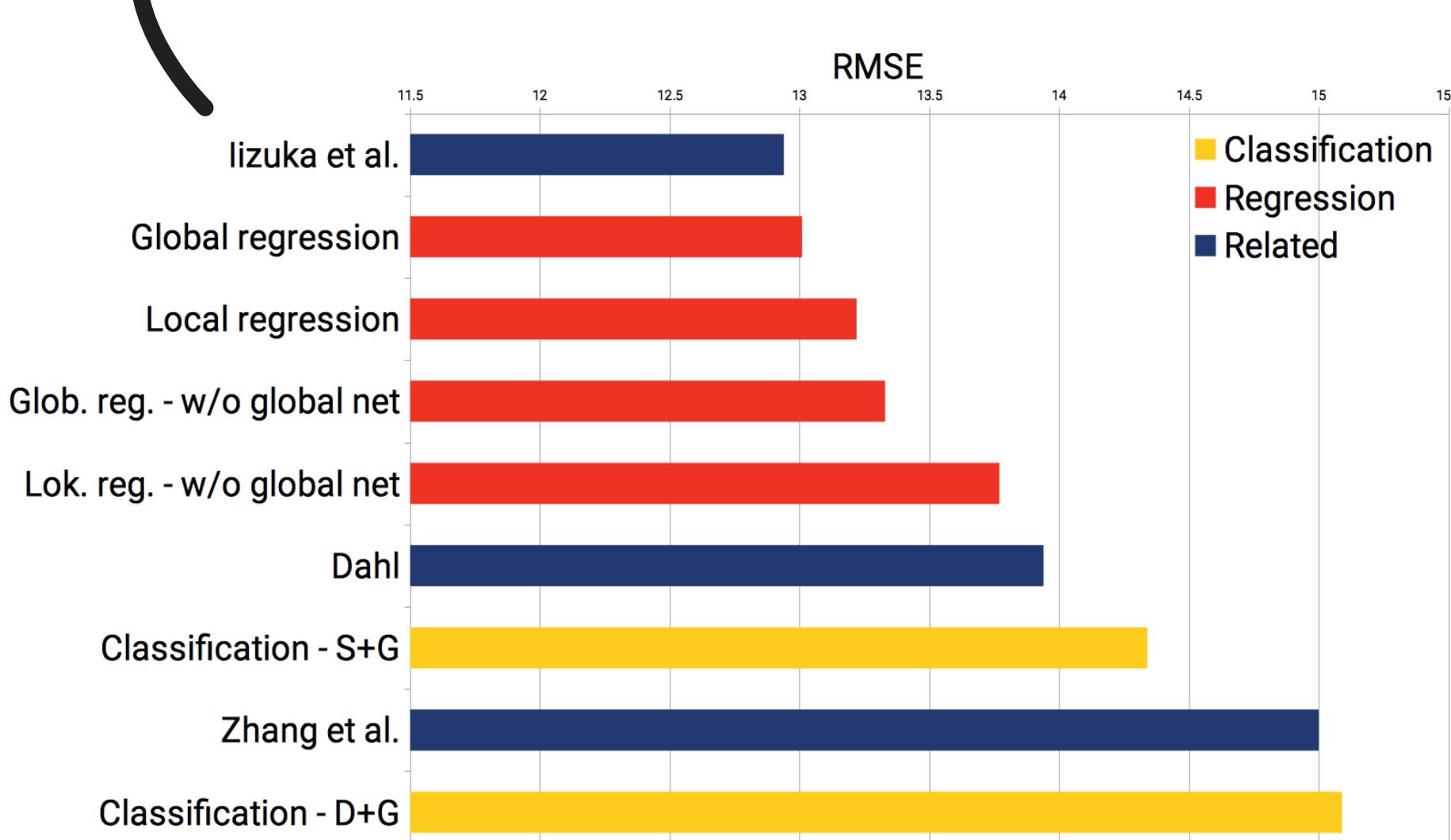
The network predicts only color components a^*b^* of the $L^*a^*b^*$ color space which are joined together with the grayscale input image to retrieve the colored image.

Best
approach

Regression or classification

Regression accepts the gray-scale image and returns the color values a^*b^* in the $L^*a^*b^*$ colorspace.

Classification outputs probabilities vector for 400 color classes per pixel. Colors with the highest probabilities are taken as the result.



We have reimplemented and compared some recently published approaches. A regression coloring approach based on the work by Izuka et al. was most accurate in experiments. Our implementations are available at github.com/PrimožGodec/ImageColorization.

Colored image

