

The work focuses on the analysis of paintings to determine the painting techniques. Specifically, it focuses on the localization of the underdrawing by comparing images taken in the spectra with different penetration depth. Defines the problem associated with the capture of the compared images in different spectra. Specifies methods that determine the dependence between two parts of the spectrum (mainly RGB and IR) and based on the dependence approximates conversion between these two parts of the spectrum (*Red spectral component projection, Colour intensity, Weighted average of spectral components, Table conversion, Linear regression, PCA analysis and Edge decomposition*). Work also describes more general problems that complicate solving tasks, such as noise, non-uniform illumination and adding the same type of radiation. Problems at work are thoroughly analyzed. We design a *Calculation of illumination parameters using a neural network, Approximation of illumination by blur, Polynomial approximation of illumination and TWMJ approximation of illumination* for suppressing non-uniform illumination. Define methods *Estimation by edge decomposition and Local least squares method* solving adding the same type of radiation. In addition, we describe the *Gaussian filter, the Averaging, Median filter, Conservative smoothing and Trimmed Averaging* for noise removal. The proposed methods are experimentally compared.