Typically, the data we gather often has some "empty cells", which means that some attributes are not measured. Let us describe here three such cases we have encountered, which motivated the origination of our project.

1. *Medical data:* Innovative medical tests are very expensive, time-consuming and in some cases they cannot be successfully completed due to the patient's condition. As a result most research databases contains many empty cells, like in case of the database of angiological data. Therefore it is important to determine the optimal tests required to distinguish between healthy and sick patients.

2. *Chemical compounds:* The databases contain only a small number of compounds with known activity. Moreover, even if the activity is measured for a one protein, we do not have the information about its activity with respect to other very similar biological targets. Both situations can be interpreted in the sense of missing or ambiguous attributes (or equivalently labels), for which the solution can help construct new drugs.

3. *Partially destroyed images:* Existing methods for image classification assume that analyzed images are good quality. Naturally, one of the possible solution is to used inpainting algorithms to fill the missing pixels. However, such approaches duplicate the most similar regions of the image, what in result can lead to inaccurate classification (as some of the keypoints are duplicated).

Figure 1: Restoration of an old photograph.

The general aim of the project is to improve the knowledge how to work with the data which has some missing attributes. Observe that the ability to deal with the first and second case (giving the right medical diagnosis or computer aided constructing of the drugs which have the desired effects) can be of even possibly life-issue for some future patients.