

# Explaining Machine Learning Solutions for Histopathology Images

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## Abstract

Machine Learning may have huge benefits for the medical practice. The problem with accepting the machine learning solutions is that it is difficult for the medical staff to understand their decision and because of this they are not able to trust them as a helpful system for the day-to-day medical practice. In this article we review the methods that are used to explain machine learning algorithms for detecting cancerous tissue that can be found on patches from WSI files generated from actual glass slides prepared by expert pathologists. Further, a solution that consists in maps that will present the areas from where the main tissue has abnormal changes will be proposed. We will use machine learning models as well as image processing algorithms for image pre-processing. The aim is to make the decision area clear for the specialists and to guide them in better understanding the model. The study is conducted on a set of patches provided by NCT-CRC-HE-100K dataset. The explanations provided by the XAI solution for ML will offer the medical staff the chance to better understand the way these algorithms' function and how they come up with their recommendations and will help them to evaluate the disease faster.

**Keywords:** Machine Learning (ML); Histopathology; XAI