

Implementing a machine learning scheme for glioma grade classification on magnetic resonance data

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Abstract. Machine learning systems in healthcare are offering great support and assistance for a wide variety of diseases. In oncology, computer-aided diagnosis can help radiologists with glioma grade classification. The grade diagnosis has important impact on the therapeutics and the overall survival of the patient. We will show how automatic systems can give important insights in magnetic resonance image analysis through retro-analysis of the learning system. Using the BRAIn Tumor Segmentation challenge (BRATS) dataset, we will show how we can use learning systems as a tool to further our understanding of data. We will conclude with a discussion about how learning systems affects radiological practices in a human-AI feedback loop.

Keywords: Glioma grading · Machine Learning · Automatic classification · Virtual Biopsy · Radiomics.