

ID				
Use case name	Computer-aided diagnosis in medical imaging based on machine learning ⁽¹⁸⁸⁾			
Context	Healthcare			
Application domain	Hybrid or other (please specify)			
Status	PoC			
Contributor	Name	Affiliation	Contact	
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Scope	Detecting image anomaly			
Objective(s)	Provide AI ⁽¹¹³⁾ method to alleviate growing burden of histopathological diagnosis by human			
Narrative	Short description (not more than 150 words)	The advances in image recognition technology enable the machine learning system to support diagnosis in medical imaging. This technology is expected to contribute the great reduction of the burden on doctors and the improvement of diagnostic accuracy when it is used for screening and double checking. Specifically, a support system is currently under development that analyzes breast ultrasonography data and histopathological images to automatically detects suspected lesion.		
	Complete description	In histopathological diagnosis, a clinical pathologist discriminates between normal tissues and cancerous tissues. However, recently, the shortage of clinical pathologists is posing increasing burdens on meeting the demands for such diagnoses, and this is becoming a serious social problem. Currently, it is necessary to develop new medical technologies to help reduce their burdens. Therefore, as a diagnostic support technology, this paper describes we propose an extended method of HLAC (Higher-order Local AutoCorrelation) feature extraction for classification of histopathological images into normal and anomaly. The proposed method can automatically classify cancerous images as anomaly by using an extended geometric invariant HLAC features with rotation- and reflection-invariant properties from three-level histopathological images, which are segmented into nucleus, cytoplasm and background. In conducted experiments, we demonstrate a reduction in the rate of not only false-negative errors but also of false-positive errors, where a normal image is falsely classified as an image with an anomaly that is suspected as being cancerous.		
Key performance indicators (KPIs)	ID	Name	Description	Reference to mentioned use case objectives
	1	Precision ^(none)		
	2	Recall ^(none)		
AI features	Taks(s)	Recognition		
	Method(s)	Higher-order Local Auto-Correlation ^(none)		
	Hardware			
	Terms and concepts used	Higher-order Local Auto-Correlation ^(none)		
Challenges and issues				

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In case with (none) may need definitin of the term