ASSESSMENT OF IRIS RECOGNITION RELIABILITY FOR EYES AFFECTED BY OCULAR PATHOLOGIES

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This paper presents an analysis of how the iris recognition is impacted by eye diseases and an appropriate dataset comprising 2996 iris images of 230 distinct eyes (including 184 illness-affected eyes representing more than 20 different eye conditions). The images were collected in near infrared and visible light during a routine ophthalmological practice. The experimental study shows four valuable results. First, the enrollment process is highly sensitive to those eye conditions that make the iris obstructed or introduce geometrical distortions. Second, even those conditions that do not produce visible changes to the iris structure may increase the dissimilarity among samples of the same eyes. Third, eye conditions affecting iris geometry, its tissue structure or producing obstructions significantly decrease the iris recognition reliability. Fourth, for eyes afflicted by a disease, the most prominent effect of the disease on iris recognition is to cause segmentation errors. To our knowledge this is the first database of iris images for disease-affected eyes made publicly available to
researchers, and the most comprehensive study of what we can expect when the iris recognition is deployed for non-healthy eyes.

**Słowa kluczowe: biometria**

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