SYSTEM ANALYSIS AND AUTOMATIC EYE IMAGING SELECTION FOR OPHTHALMIC DEVICES

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The system automatically selects images acquired from ophthalmic devices using AI-based visual techniques. It is primarily designed to enhance image capture activities in ophthalmics, providing support for ophthalmologists and/or eye surgeons when utilizing their tools, (when grounded in eye imaging).

Protection: Italy, with the possibility of international extension

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INVENTION

The invention is a method for classifying eye features, accompanied by a device and a storage medium. This method is designed to address the challenge of poor classification of eye features in complex real-life context. The method involves an eye image acquisition and four types of labeled data by annotating eye image; this follows to the insertion of training data set in a neural network structure, designed to train an eye features classification model. Finally, the eye image to be classified is inserted into the eye feature classification model, and the output is the classification result

ADVANTAGES

The system is capable of real-time data processing directly on the embedded board, without the need to send data to a server or save images on a physical storage device, such as a hard disk or SSD. Furthermore, it doesn't require expensive hardware. The processing has been implemented to maximize computational efficiency, enabling real-time image classification with high accuracy. The performance peaks at 500 analyzed images per second for embedded systems and further reaches 2000 images per second on high-performance x86 CPUs. According to the state of the art, the system demonstrates a remarkable increase in processing efficiency, achieving high accuracy in classification (>95%)

APPLICATIONS

Multiple low-cost applications can be observed in both industrial and medical fields, primarily aimed at enhancing data acquisition activities or supporting the use of ophthalmic devices by physicians. The acquisition and processing techniques can also be applied to enhance existing ophthalmic systems, such as Optical Coherence Tomography (OCT), Visual Field Analyzer (VFA), Corneal Topographer, or pupillometry system

CONTACTS

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