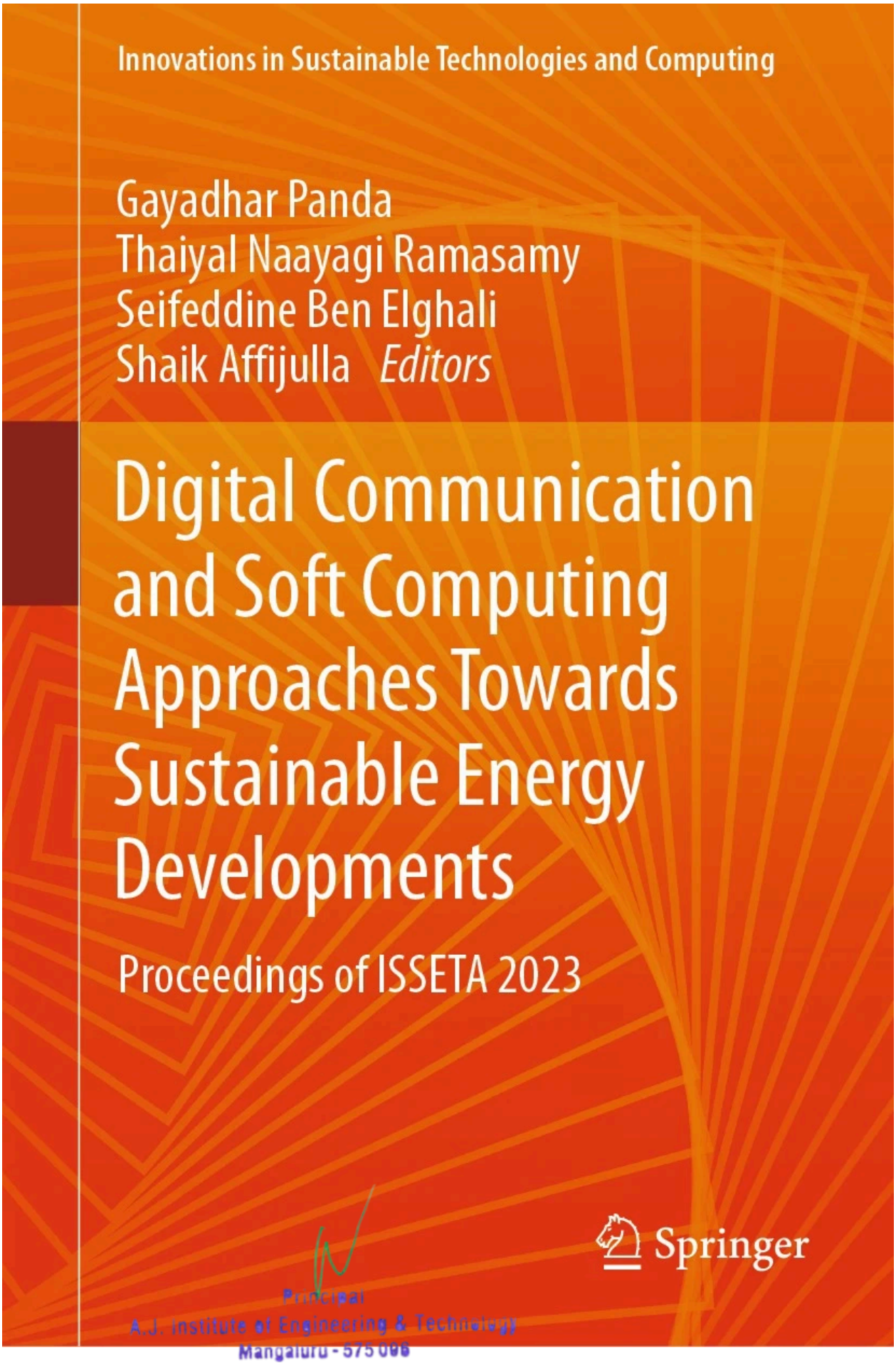

Severity Analysis Automation for Detection of Non-Proliferative Diabetic Retinopathy

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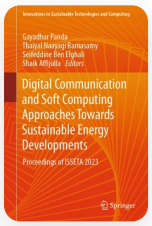

Digital Communication and Soft Computing Approaches Towards Sustainable Energy Developments

(ISSETA 2023)

Anil Kumar Neelapala, Gnane Swarnadh Satapathi & Satya Anuradha Mosa

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Abstract

The most significant eye condition that results in blindness, according to the World Health Organization (WHO), claim is 135 million people with diabetes may increase by the number 300 million by 2025. This results in the same incremental rate of diabetic retinopathy (DR) of non-proliferation. Regular retinal examinations help in the early diagnosis of DR, which enables prompt treatment that can successfully stop permanent vision loss. The early detection and monitoring of DR can be aided by automatic lesion recognition in Fundal retinal imagery. One of the major symptoms of DR is microaneurysms. Expertise in microaneurysms can be detected and investigated with hemorrhages. Therefore, the primary prerequisite for diagnosing the progression of DR is the identification of these microaneurysms. In this study, an automated system for evaluating and classifying the severity of non-proliferative diabetic retinopathy (NPDR) is proposed with hemorrhage count. The proposed study is an analysis carried out automatically using a variety of imaging processing approaches based on the count of microaneurysms found in the fundus samples. The work's accuracy performance has been demonstrated to be 96%. Compared to the outcome of region-based image processing techniques, appears to be the most successful.

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