(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/09/2023

(21) Application No.202311065889 A
(43) Publication Date : 20/10/2023

(54) Title of the invention : A SYSTEM AND METHOD FOR APPLYING MULTI-COUNTER COMPUTATIONAL PIXEL IMAGERS FOR ENHANCED DIGITAL IMAGING

(51) International classification :G06T0005000000, H04N0005374500, H04N0005355000, H04N0005357000, A61B0005055000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
Embodiments of the present disclosure relates to a system (100) and method (300) for applying multi-counter computational pixel imagers for enhanced digital imaging performance by utilizing advanced computational imaging techniques and optimizing imaging parameters such as dynamic range, low-light sensitivity, and colour fidelity. The system (102) comprises a processor (202) coupled to a memory (204). The memory (204) stores processor-executable instructions. The processor (202) is configured to detect photons at a plurality of wavelengths within a pixel. Next, the processor (202) is configured to accumulate the detected photons in corresponding counters within the pixel. Thereafter, the processor (202) is configured to transfer counter data from the pixel to an image processing unit. In the end, the processor (202) is configured to apply computational imaging techniques to the counter data to generate an enhanced image output.

No. of Pages : 26 No. of Claims : 10