Brightness splitter full-motion low-light processing

Overview

To explore the joint task, we first establish real-world datasets for event-guided low-light enhancement and deblurring using a hybrid cam-era system based on beam splitters. Subsequently, we introduce an end-to-end framework to efectively handle these tasks. While event cameras offer potential solutions with superior low-light sensitivity and high temporal resolution, existing fusion methods typically employ staged strategies, limiting their effectiveness against combined low-light and motion blur degradations. They provide two key advantages: capturing scene details well even in low light due to their high dynamic range, and efectively capturing motion information during. The Low Light Image Enhancement (LLIE) task has been a hotspot in low-level computer vision research. e 10 different conditions) with 12 object classes (similar to PASCAL VOC) annotated on both image class level and local object bounding boxes. A small amount of unpaired images for testing.

Article Content

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Nanophotonic color splitters for high-efficiency imaging

In this work, we computationally explore the design process and performance of fully dielectric, low-index nanophotonic color splitters for imaging applications, with the splitter element

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Awesome Low Light Image Enhancement

Introduction Low light imaging and low light image enhancement have wild applications in our daily life and different scientific research fields, like night

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In consideration of traditional improvement algorithms'' faults, and under the precondition of studying low-light improvement techniques in image signal processing (ISP) systems, deep

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In low-light image processing, brightness and contrast are two crucial parameters in human visual perception. To ensure that the processed image enhances weak details while maintaining

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Building on this analysis, this paper proposes the MGIE algorithm for image brightness enhancement, accompanied by an FPGA-based acceleration scheme. This combination not only

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FPGA-based low-light image enhancement using

This paper introduces an FPGA-based system utilizing the Retinex algorithm for low-light image enhancement, implemented on a Coarse-Grained

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From Sim-to-Real: Toward General Event-based Low

This approach utilizes the internal statistics of a sequence to handle degraded event data under low-light conditions, improving the generalizability to

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However, the use of global methods for processing images with a large brightness difference does not allow one to achieve a significant improvement in the detail of low-contrast objects, global methods

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Low-light color images are limited in their application in fields such as security monitoring and autonomous driving due to issues such as dim brightness and blurry details.

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Utilizing a pretrained model, adaptive brightness information is extracted and mapped from low-light images, which is then enhanced through a

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By leveraging the holistic representation capability of complex-valued neural networks, CompEvent achieves full-process spatiotemporal fusion, maximizes complementary learning

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A comprehensive review of low-light image enhancement methods

As a result, enhancing the quality of low-light images has become a crucial research focus in image processing. To this end, this paper provides a comprehensive review that not only traces

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Enhanced low-light image fusion through multi-stage processing with ...

This manuscript introduces an innovative multi-stage image fusion framework that adeptly integrates infrared (IR) and visible (VIS) spectrum images to surmount the difficulties posed by low

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The DE-branch adopts a combination of DiffIR and LEDNet to reduce noise and enhance brightness while the DP-branch utilizes a novel Light Full-Former (LFF) method which comprises 20 Full

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Digital Light Processing and its Future Applications

DLP-based displays have inherently low flicker because all pixels are updated at the same time (there is no line-to-line temporal phase shift) and because the PWM bit-splitting algorithm produces short

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Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

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Deep learning has been widely applied in many domains including image enhancement , image generation , and image captioning . In image enhancement, it has been very effective for low

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Efficient polarization beam splitter based on the optimized ...

The significant advantages of the SLP can find important applications in low-light-level nonlinear optics, photonic quantum information processing without a cavity, and the efficient spatial

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LLISP: Low-Light Image Signal Processing Net via Two-Stage Network

In order to remove heavy noise, correct color bias and enhance details more effectively, we propose a two-stage Low Light Image Signal Processing Network named LLISP. The design of

Oct 07, 2025

arXiv:2408.14916v1 [cs.CV] 27 Aug 2024

In low-light conditions, capturing videos with frame-based cameras often requires long exposure times, resulting in motion blur and reduced visibility. While frame-based motion deblurring and low-light en

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Phase-only spatial light modulators are ideal for the generation of beam splitter profiles to parallelize a variety of laser processes. A novel approa

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Gradient and Brightness Guided Low-Light Enhancement with

Low-light image enhancement aims to reconstruct images with insufficient illumination into visually appealing representations with natural brightness. While most existing methods tend to focus on

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Full HD Low-Light Video Real-Time Enhancement for General

Aiming at the poor observation effect of video images due to insufficient light source or unbalanced illumination, and the difficulty of real-time performance o

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Low-light enhancement method with dual branch feature fusion and ...

To solve this problem, we propose a two-stage size-controllable low-light enhancement method, named Dual Fusion Enhancement Net (DFEN). The whole algorithm is built on a double U

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FPGA-based low-light image enhancement using

Proposed approach This paper aims to address these gaps by introducing an FPGA-based low-light image enhancement system that combines

Jan 09, 2026

Phydiisp: a physics-guided differentiable pipeline for low-light ...

In low-light environments, machine vision tasks often suffer from performance degradation because traditional Image Signal Processing (ISP) pipelines are primarily optimized for image quality

Dec 12, 2025

Towards Real-world Event-guided Low-light Video Enhancement and

To simultaneously capture normal-light images, low-light images, and the corresponding event stream, we designed a triple-axis beam-splitter-based camera system, as shown in Fig. 2.

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: https://www.regen-power.co.za
Email: info@regen-power.co.za
Phone: +49 176 845 2036
Address: Taunusanlage 15, 60325 Frankfurt am Main, Germany

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