

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局



(10) 国际公布号
WO 2025/131069 A1

(43) 国际公布日
2025 年 6 月 26 日 (26.06.2025)

(51) 国际专利分类号:
H04N 17/00 (2006.01)

(21) 国际申请号: PCT/CN2024/141010

(22) 国际申请日: 2024 年 12 月 20 日 (20.12.2024)

(25) 申请语言: 中文

(26) 公布语言: 中文

(30) 优先权:
202311770051.8 2023 年 12 月 21 日 (21.12.2023) CN

(71) 申请人: 苏州镁伽科技有限公司 (SUZHOU MEGAROBO TECHNOLOGIES CO., LTD.) [CN/CN];
中国江苏省苏州市中国 (江苏) 自由贸易试验区苏州片区苏州工业园区玲珑街 88 号 215000 (CN)。

(72) 发明人: 朱小明 (ZHU, Xiaoming); 中国江苏省苏州市中国 (江苏) 自由贸易试验区苏州片区苏州工业园区玲珑街 88 号 215000 (CN)。周振兴 (ZHOU, Zhenxing); 中国江苏省苏州市中国 (江苏) 自由贸易试验区苏州片区苏州工业园区玲珑街 88 号 215000 (CN)。

(74) 代理人: 北京集佳知识产权代理有限公司 (UNITALEN ATTORNEYS AT LAW CO., LTD.); 中国北京市朝阳区建国门外大街 22 号赛特广场七层 100004 (CN)。

(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ,

(54) Title: EXPOSURE TIME CALIBRATION METHOD AND APPARATUS, AND DEVICE AND STORAGE MEDIUM

(54) 发明名称: 一种曝光时间校准方法、装置、设备及存储介质

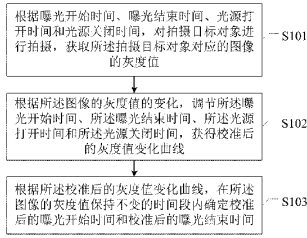


图 1

S101 Photograph a target photographing object on the basis of an exposure starting time, an exposure ending time, a light source turn-on time and a light source turn-off time, and acquire a grayscale value of an image corresponding to the target photographing object
S102 On the basis of changes in the grayscale value of the image, adjust the exposure starting time, the exposure ending time, the light source turn-on time and the light source turn-off time, so as to obtain a calibrated grayscale value change curve
S103 On the basis of the calibrated grayscale value change curve, determine a calibrated exposure starting time and a calibrated exposure ending time during a period of time when the grayscale value of the image remains unchanged

(57) Abstract: Disclosed in the present application are an exposure time calibration method and apparatus, and a device and a storage medium. The method comprises: photographing a target photographing object on the basis of an exposure starting time, an exposure ending time, a light source turn-on time and a light source turn-off time, and acquiring a grayscale value of an image corresponding to the target photographing object; on the basis of changes in the grayscale value of the image, adjusting the exposure starting time, the exposure ending time, the light source turn-on time and the light source turn-off time, so as to obtain a calibrated grayscale value change curve; and on the basis of the calibrated grayscale value change curve, determining a calibrated exposure starting time and a calibrated exposure ending time during a period of time when the grayscale value of the image remains unchanged. In the present application, a measurement of time is converted into a measurement of a grayscale value of an image, and an exposure time is calibrated on the basis of the grayscale value of the image, thereby improving the accuracy of exposure time calibration.

(57) 摘要: 本申请公开了一种曝光时间校准方法、装置、设备及存储介质, 通过根据曝光开始时间、曝光结束时间、光源打开时间和光源关闭时间, 对拍摄目标对象进行拍摄, 获取所述拍摄目标对象对应的图像的灰度值; 根据所述图像的灰度值的变化, 调节所述曝光开始时间、所述曝光结束时间、所述光源打开时间和所述光源关闭时间, 获得校准后的灰度值变化曲线; 根据所述校准后的灰度值变化曲线, 在所述图像的灰度值保持不变的时间段内确定校准后的曝光开始时间和校准后的曝光结束时间。本申请中将对时间的测量转换为对图像的灰度值的测量, 基于图像的灰度值对曝光时间进行校准, 提高了对曝光时间校准的准确性。

[见续页]

LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN,
MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA,
PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD,
SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW。

- (84) 指定国(除另有指明，要求每一种可提供的地区
保护): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ,
NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚
(AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,
HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO,
PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN,
TD, TG)。

本国际公布:

- 包括国际检索报告(条约第21条(3))。