CAMERA CALIBRATION REPORT

PROJECT DETAILS

Camera: Apple iPhone 13

Filename: C:\Users\Best\Desktop\§@•~/@\1119.aus

Calibration Date: 19/11/2024 15:18pm

METRIC CALIBRATION PARAMETERS

Resolution = 4032 x 3024 pixels

Pixel width = 0.0017mm, Pixel height = 0.0017mm

		VALUE	STANDARD ERROR
Principal distance	c =	5.2518mm	0.001mm
Principal point offset in x-image coordinate	xp =	0.0000mm	< 0.001mm
Principal point offset in y-image coordinate	yp =	-0.0000mm	< 0.001mm
3rd-order term of radial distortion correction	K1 =	-4.05865e-31	2.0993e-19
5th-order term of radial distortion correction	K2 =	-3.22146e-38	2.0993e-23
7th-order term of radial distortion correction	K3 =	-2.48791e-49	2.0993e-29
Coefficient of decentering distortion	P1 =	0.0000e+00	0.000e+00
Coefficient of decentering distortion	P2 =	0.0000e+00	0.000e+00
No significant differential scaling present	B1 =	0.0000e+00	0.000e+00
No significant non-orthogonality present	B2 =	0.0000e+00	0.000e+00
9th-order term of radial distortion correction	K4 =	0.00000e+00	0.0000e+00
11th-order term of radial distortion correction	K5 =	0.00000e+00	0.0000e+00

STANDARD CORRECTION EQUATION

The corrected image coordinates x(corr) & y(corr) can be calculated from the measured coordinates x(meas) & y(meas) by using the formulas:

x = x(meas) - xp

y = y(meas) - yp

x and y are now with respect to the principal point,

r^2 = x^2 + y^2

dr = K1•r^3 + K2•r^5 + K3•r^7 + K4•r^9 + K5•r^11

x(corr) = x(meas) - xp + x•dr/r + P1•(r^2 + 2x^2) + 2•P2•x•y

y(corr) = y(meas) - yp + y•dr/r + P2•(r^2 + 2y^2) + 2•P1•x•y

Camera self-calibration determined in a network of 22 images and 104 points, to an image measurement accuracy (RMS 1-sigma) of 0.98 pixels or 1.66 um, and qf of 1.0.

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GAUSSIAN RADIAL DISTORTION CORRECTION PROFILE (dr)

For principal distance c, Gaussian radial distortion correction dr (microns) is given for any radial distance r (mm) as:

dr = K1•r^3 + K2•r^5 + K3•r^7 + K4•r^9 + K5•r^11

correction dx = x•dr/r

correction dy = y•dr/r

	VALUE	STANDARD ERROR
c =	5.252mm	0.0013mm
K1 =	-4.05865e-31	2.0993e-19
K2 =	-3.22146e-38	2.0993e-23
K3 =	-2.48791e-49	2.0993e-29
K4 =	0.00000e+00	0.0000e+00
K5 =	0.00000e+00	0.0000e+00

r(mm)	dr(microns)
0.00	-0.0
0.25	-0.0
0.50	-0.0
0.75	-0.0
1.00	-0.0
1.25	-0.0
1.50	-0.0
1.75	-0.0
2.00	-0.0
2.25	-0.0
2.50	-0.0
2.75	-0.0
3.00	-0.0
3.25	-0.0
3.50	-0.0
3.75	-0.0
4.00	-0.0
4.25	-0.0

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BALANCED RADIAL DISTORTION CORRECTION PROFILE(dr)

For 'balanced' principal distance cb, radial distortion correction dr (microns) is given for any radial distance r (mm) as:

dr = K0•r + K1•r^3 + K2•r^5 + K3•r^7 + K4•r^9 + K5•r^11

cb = 5.2518mm

K0 = 3.65279e-30

K1 = -4.05865e-31

K2 = -3.22146e-38

K3 = -2.48791e-49

K4 = 0.00000e+00

K5 = 0.00000e+00

r(mm)	dr(microns)
0.00	0.0
0.25	0.0
0.50	0.0
0.75	0.0
1.00	0.0
1.25	0.0
1.50	0.0
1.75	0.0
2.00	0.0
2.25	0.0
2.50	0.0
2.75	0.0
3.00	-0.0
3.25	-0.0
3.50	-0.0
3.75	-0.0
4.00	-0.0
4.25	-0.0

Distortion profile is 'balanced' (dr = 0.0) about a radial distance of r = 3.0mm

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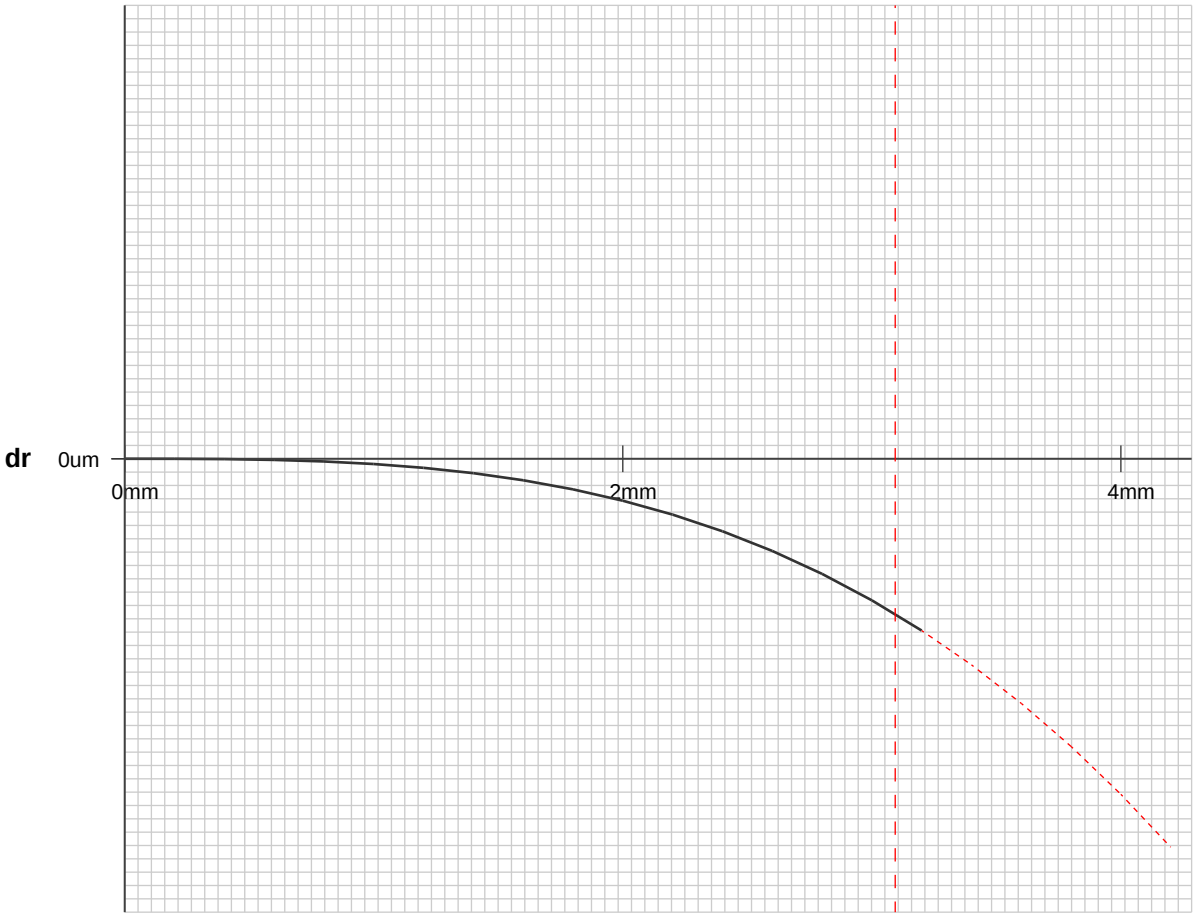
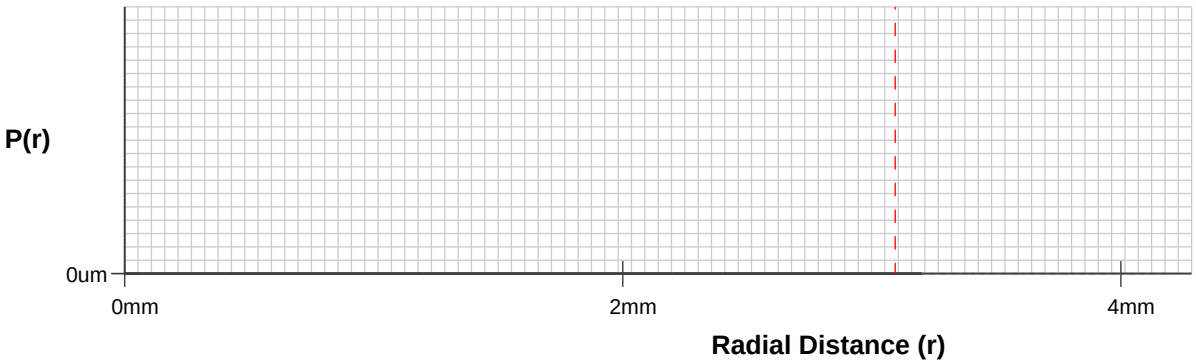
GAUSSIAN RADIAL DISTORTION PLOT [dr shown in micrometres]



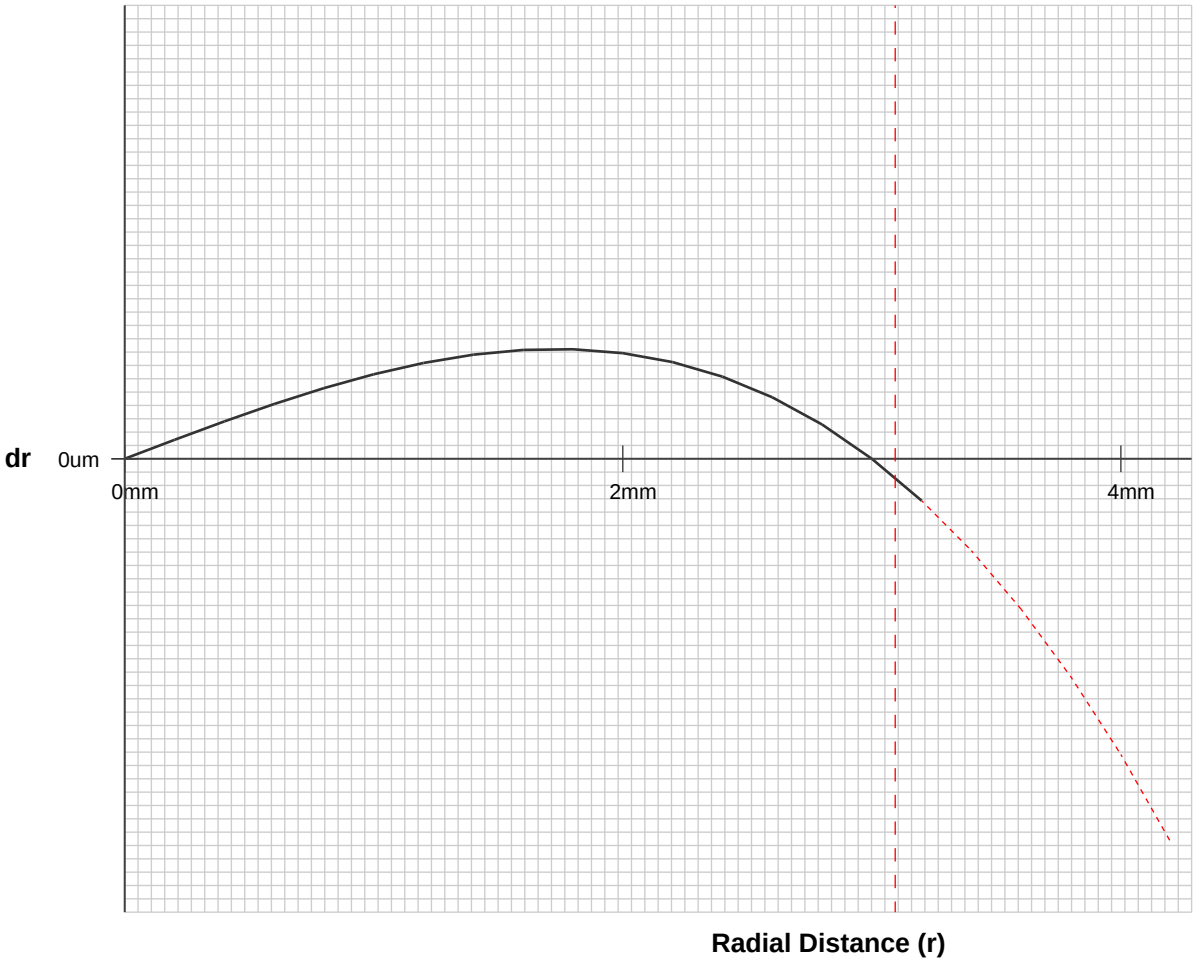
DECENTRING DISTORTION PLOT [P(r) shown in micrometres]



(If present, – – – – – indicates the maximum radial distance encountered in the self-calibration.)

CAMERA CALIBRATION REPORT

BALANCED RADIAL DISTORTION PLOT [dr shown in micrometres]



(If present, – – – – – indicates the maximum radial distance encountered in the self-calibration.)