

Case Study: the Bayer Colour Imaging Array

Reto Kromer • AV Preservation by reto.ch

Open-Source Tools and Resources for Audio-Visual Archives

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1

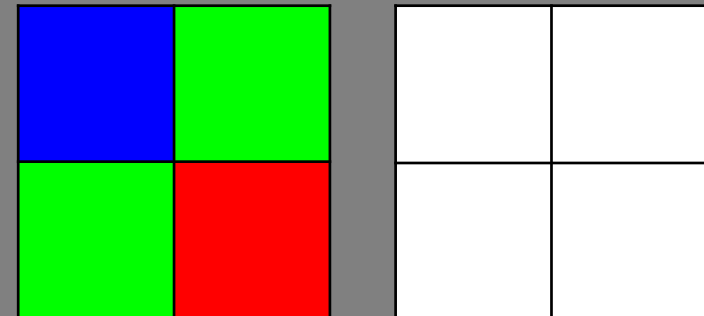
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1001011101010010101010001011010101
1110010101010101010000101110101010
0111010100101010100010110101011110
0101010101010101001101010100000001
0010100010101010101001010101010101
```

3

Uncomfortable Truths

- sensors are colour blind
- Bayer sensors do not generate full RGB

2



4

000000000000 000000000000 110101010101	000000000000 010100001011 000000000000
000000000000 101010011010 000000000000	101001010101 000000000000 000000000000

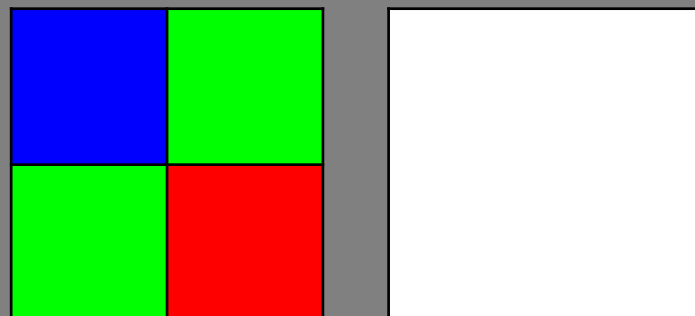
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011000111001 101010011010 100001010111	101001010101 010011011110 010100010111

5

0 0 B	0 G ₁ 0
0 G ₂ 0	R 0 0

R G B	R G ₁ B
R G ₂ B	R G B

6

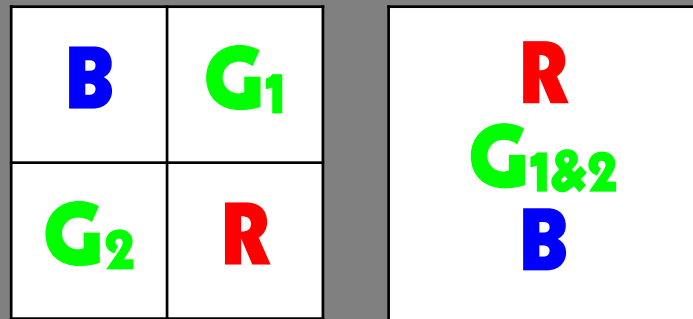


7

110101010101	10100001011
101010011010	101001010101

101001010101 011111010010 110101010101
--

8



9

Two ways to use Bayer data

digital blow-up to RGB

- 3 times the amount of the generated data
- the file has the full sensor resolution
- only $\frac{1}{3}$ of the data are real

digital reduction to RGB

- $\frac{3}{4}$ the amount of the generated data
- the file has $\frac{1}{2}$ of the sensor resolution
- all data are real

10

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11

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12