

Post-processing in astrophotography

天文攝影後製

林彥興

What is astrophotography?

什麼是天文攝影

紀錄來自星體資訊的技術



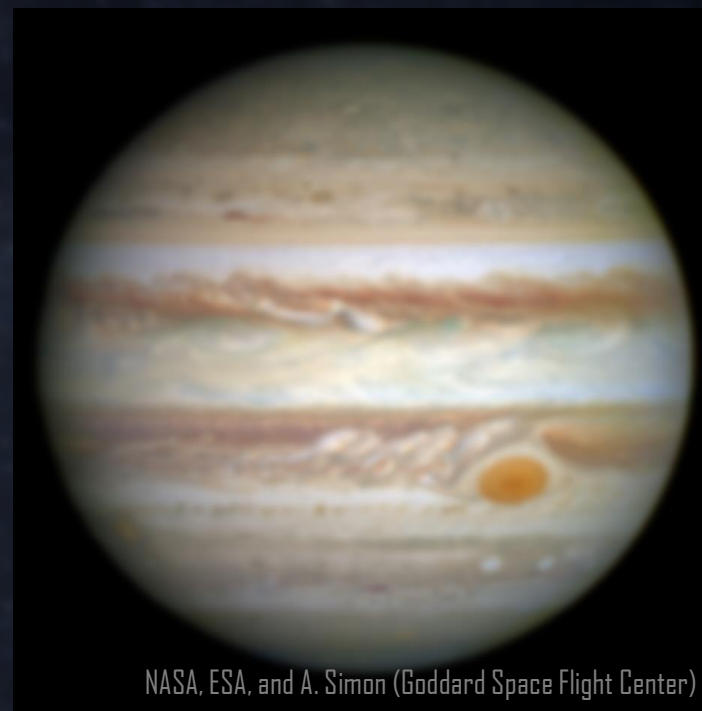
徐安廷

固定攝影



林彥興

直焦攝影

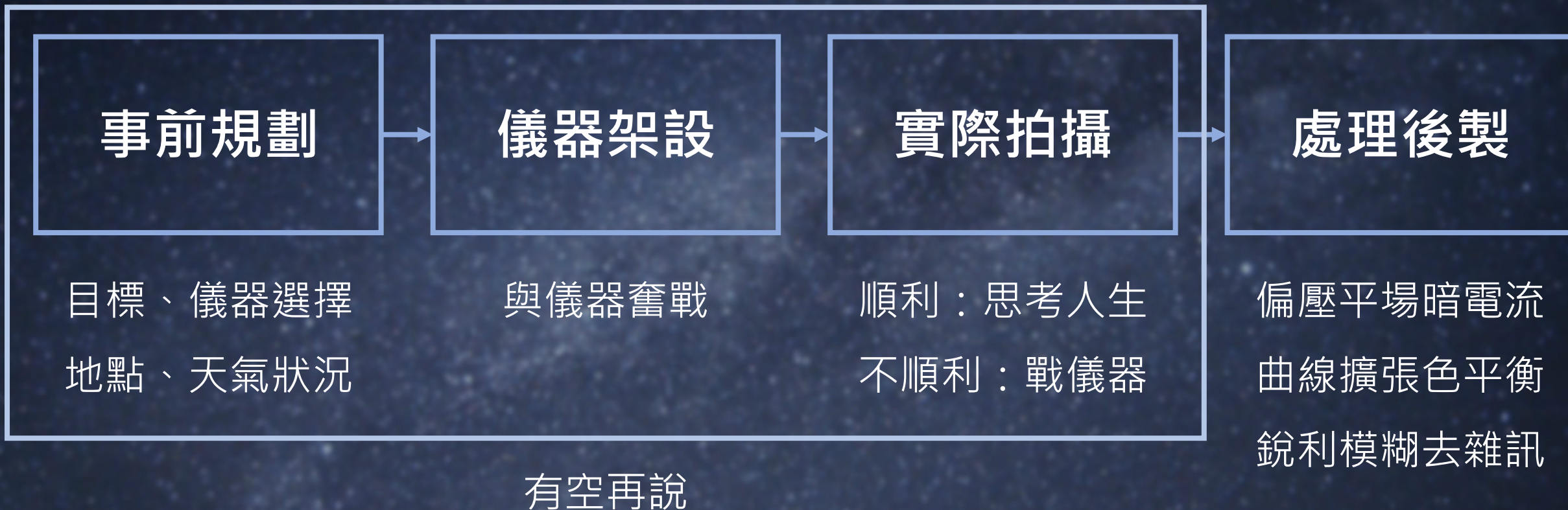


NASA, ESA, and A. Simon (Goddard Space Flight Center)

行星攝影

Basic workflow

天文攝影的基本流程

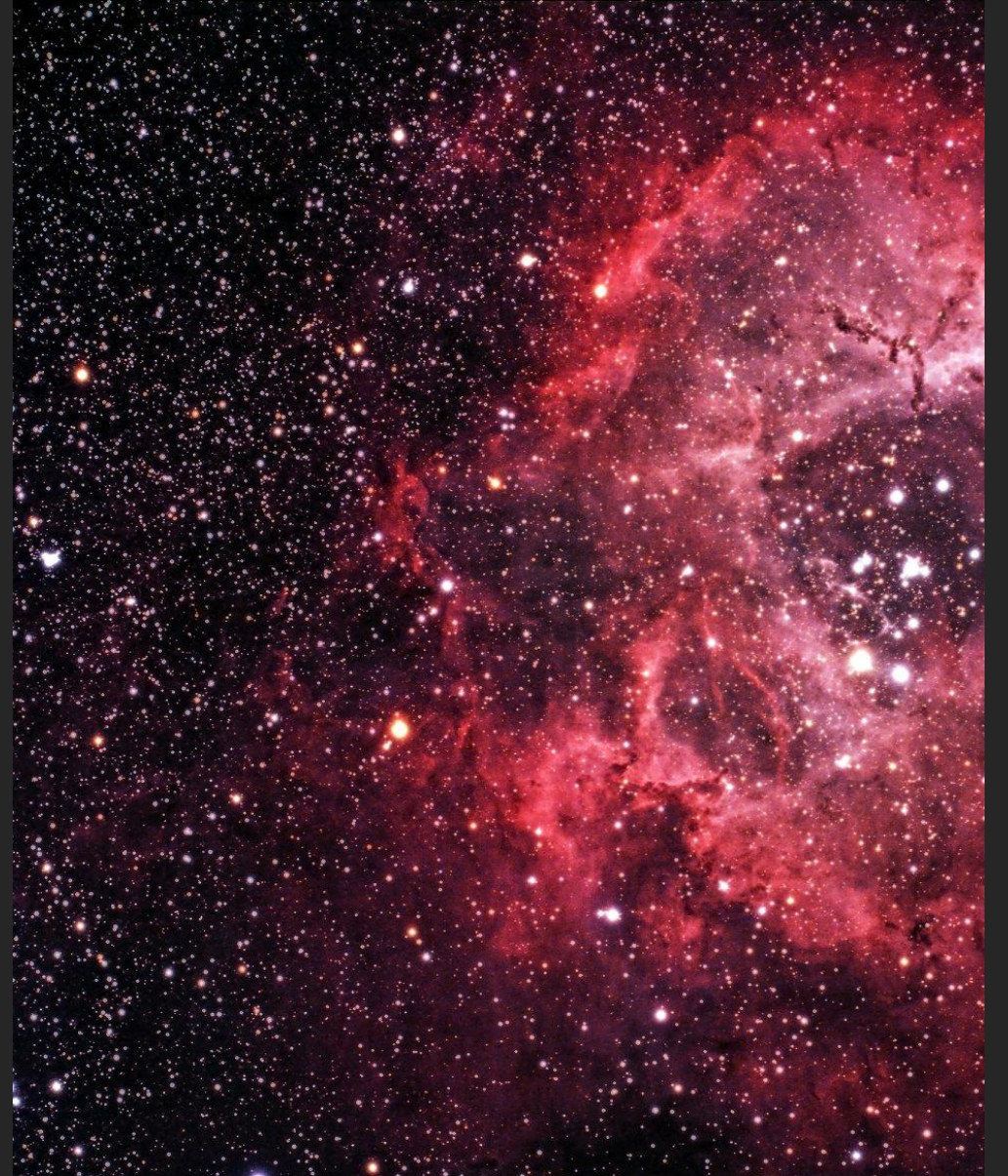


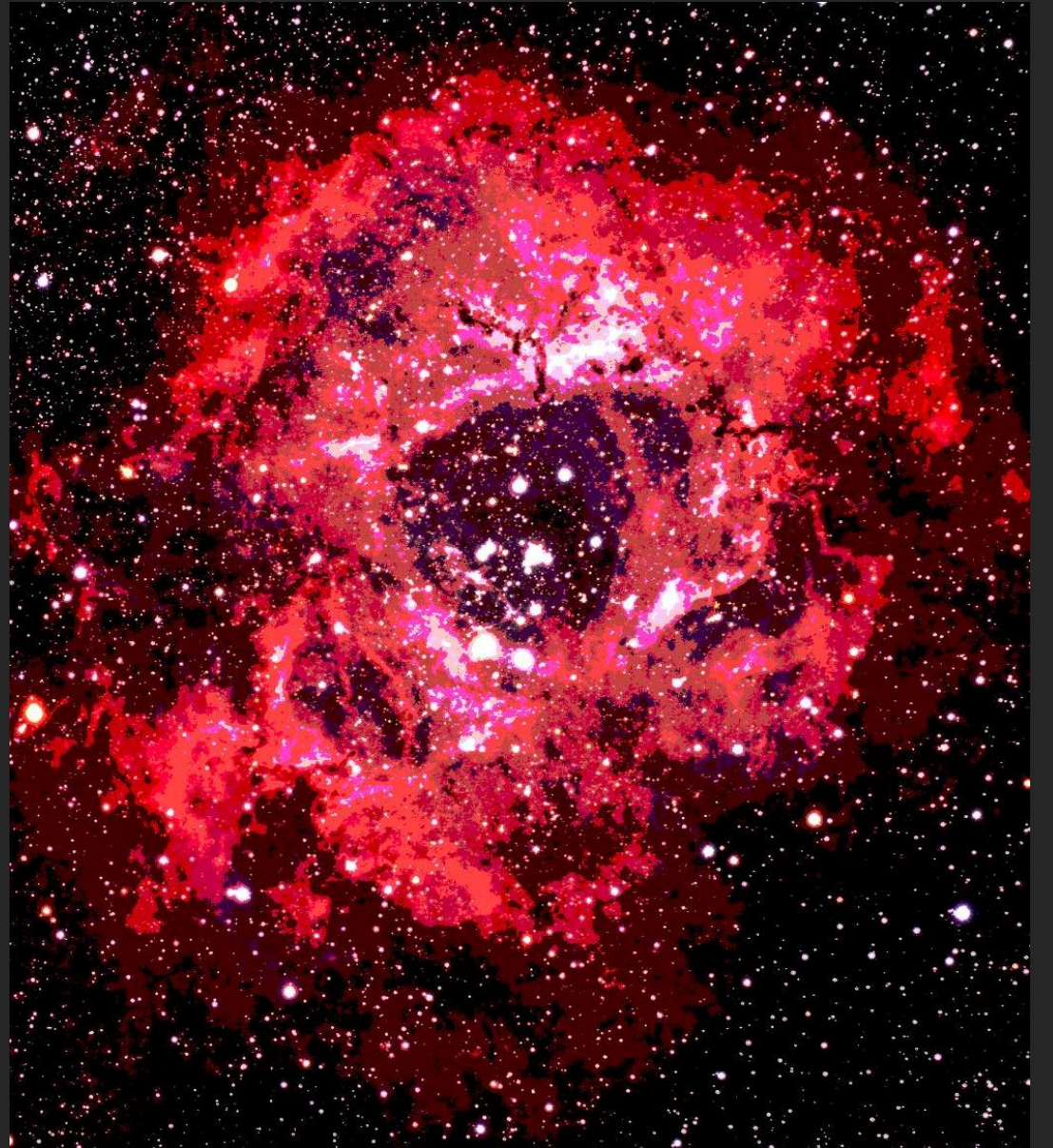
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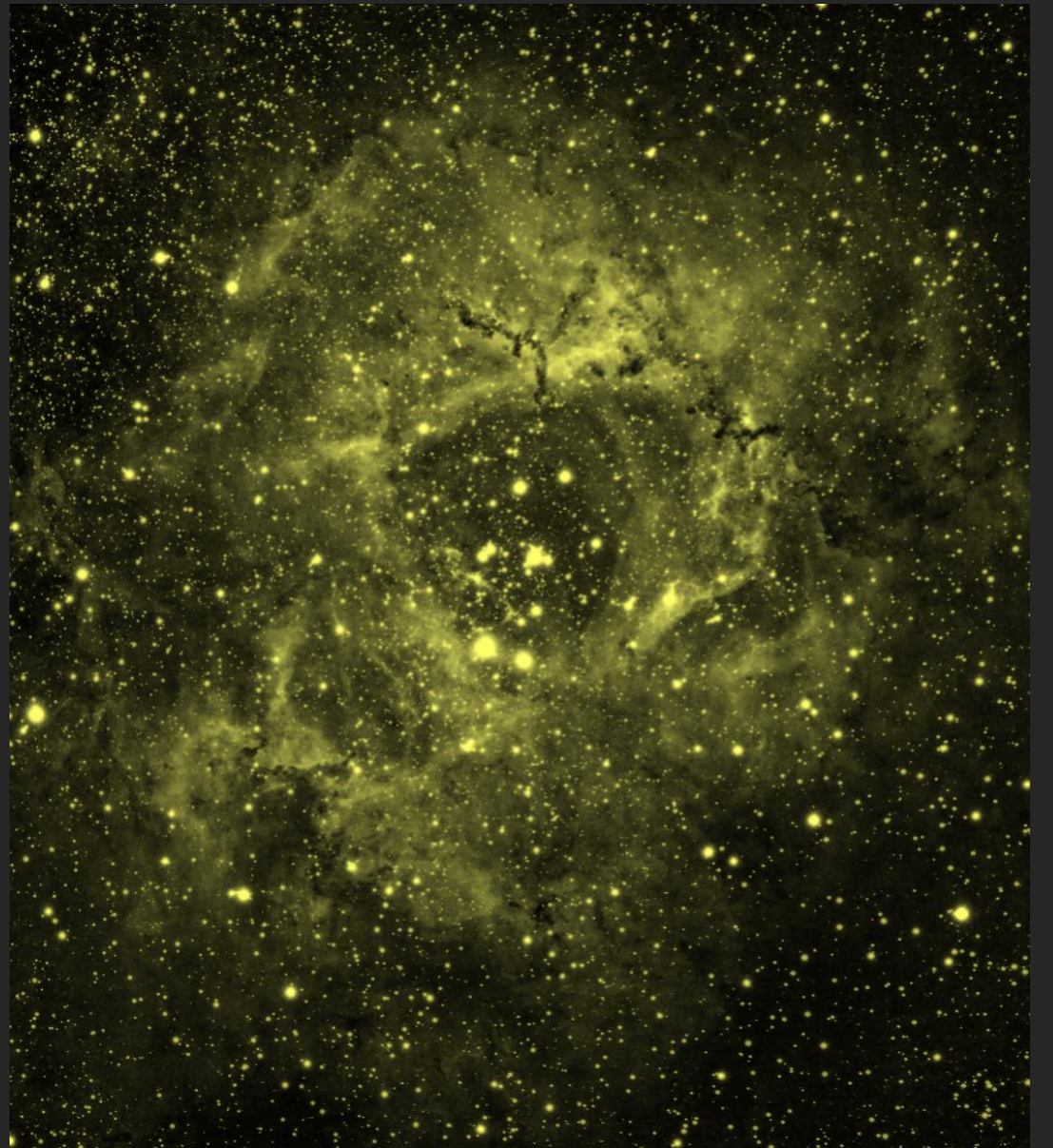


玫瑰星雲 NGC2244

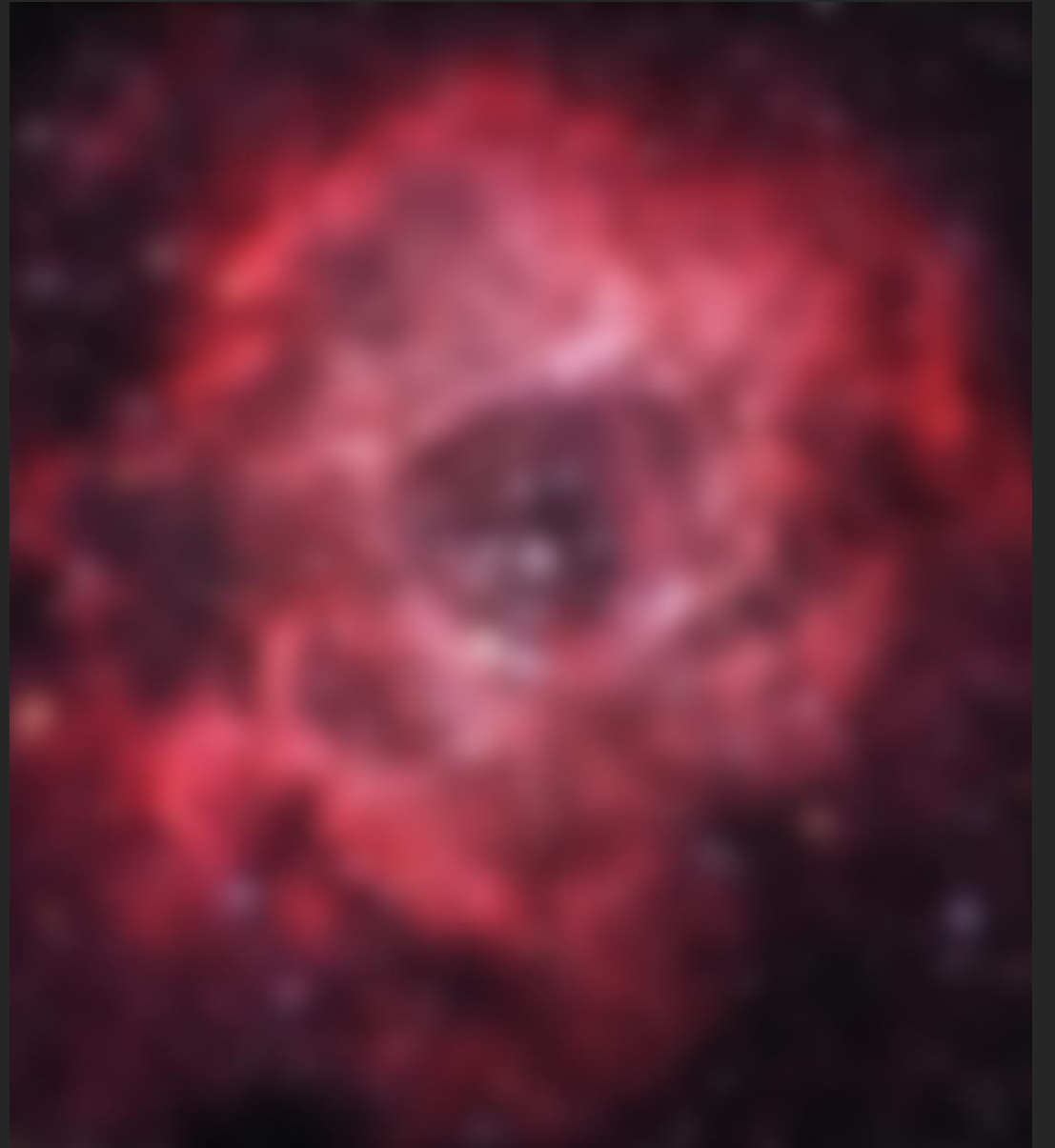
王立宇 @合歡山昆陽停車場













平衡的構圖 ⇒ 視野範圍 / 指向精度

豐富的明暗 ⇒ 亮度階調連續

耀眼的色彩 ⇒ 正確色彩平衡

滑順的畫面 ⇒ 高訊噪比

清晰的細節 ⇒ 高空間解析力

分析 一張照片好看背後的原因

理解 每個原因背後的物理原理

用**正確**且**高效**的手段完成目標

Image Processing

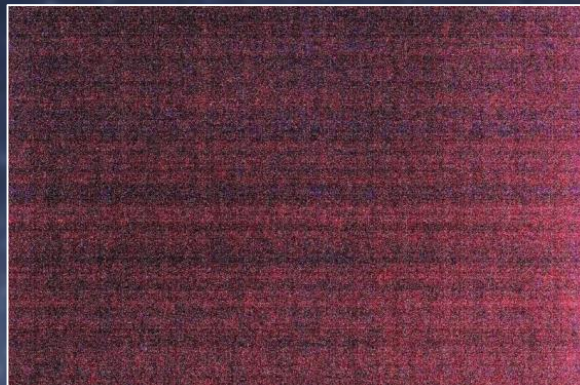
影像後製處理

Quick Review

快速複習



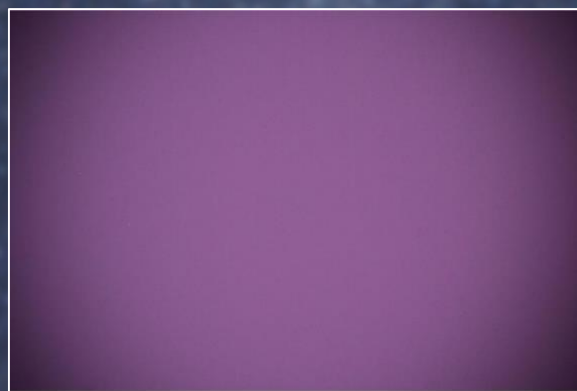
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P.C. 王立宇





一般而言

處理好的影像大概會長這樣.....

別看它其貌不揚

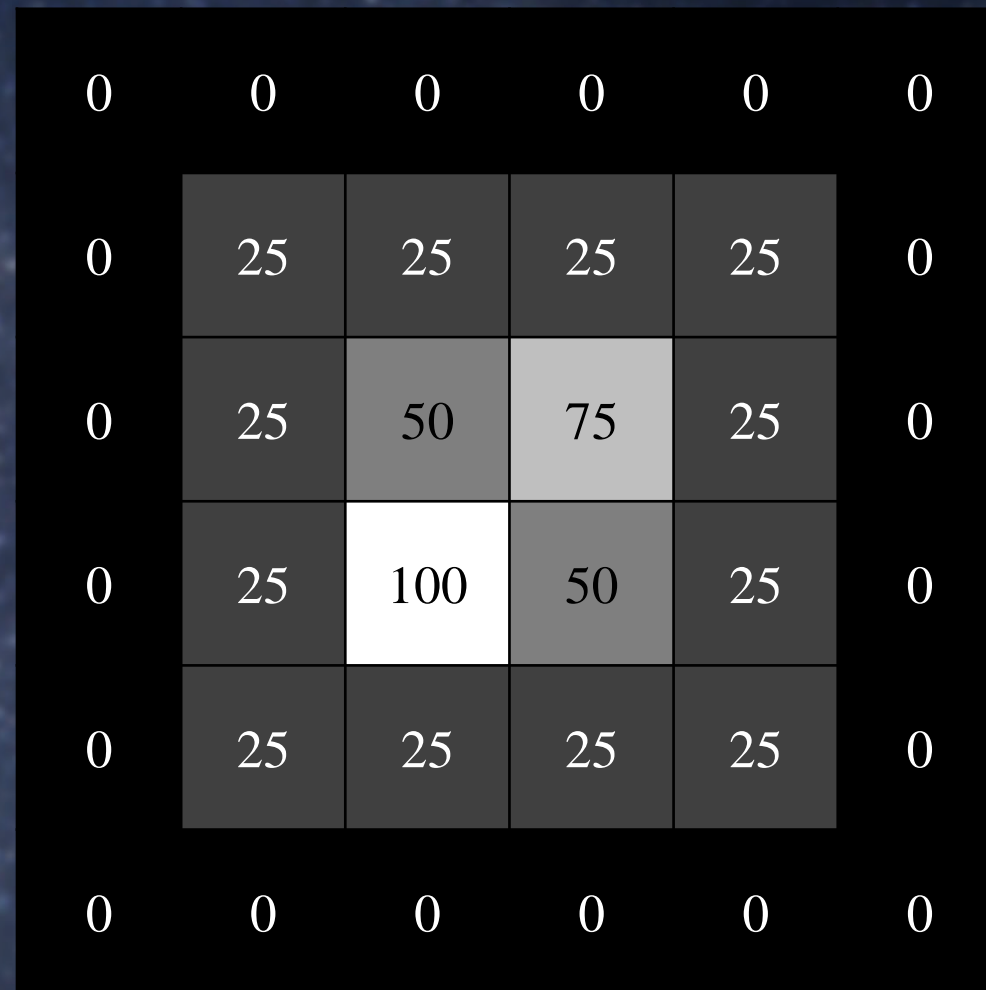
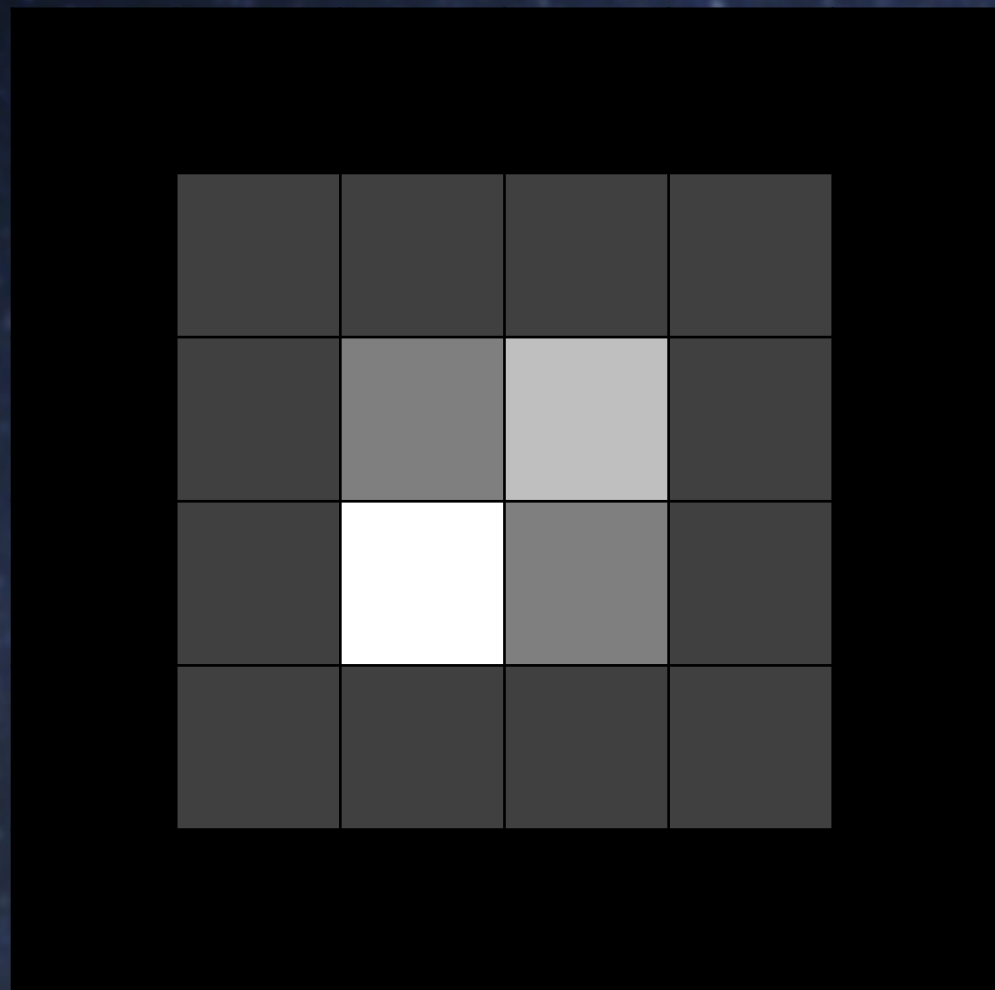
這實際上是一張「高品質」的影像

只是不好看而已

影像的後製處理

就是要把這塊原石打磨成寶石

What is the nature of images?
什麼是影像？



0	0	0	0	0	0
0	25	25	25	25	0
0	25	50	75	25	0
0	25	100	50	25	0
0	25	25	25	25	0
0	0	0	0	0	0



10	10	10	10	10	10
10	50	50	50	50	10
10	50	75	90	50	10
10	50	100	75	50	10
10	50	50	50	50	10
10	10	10	10	10	10

修圖：用各種方法改變每個像素的數值



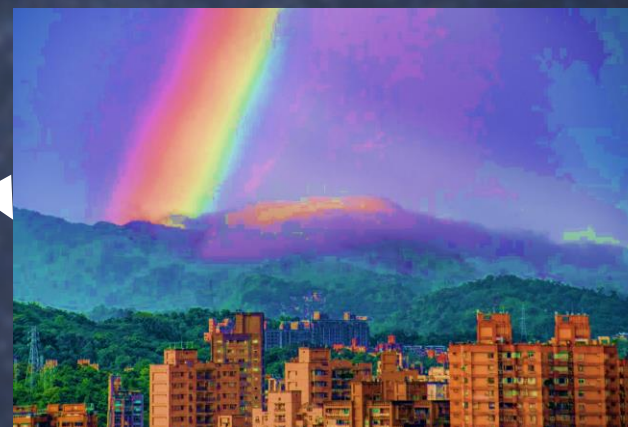
P.C. 陳子翔



對比



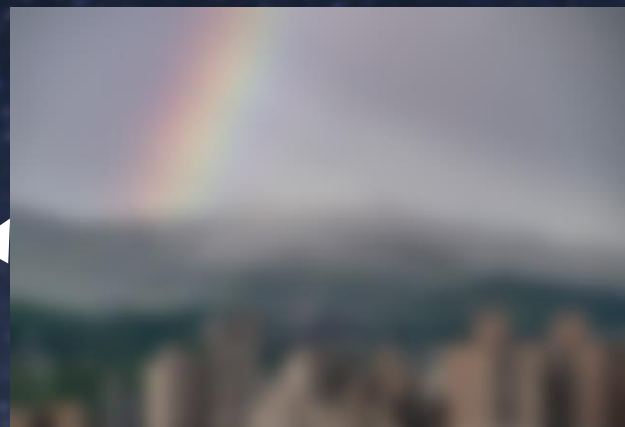
亮度



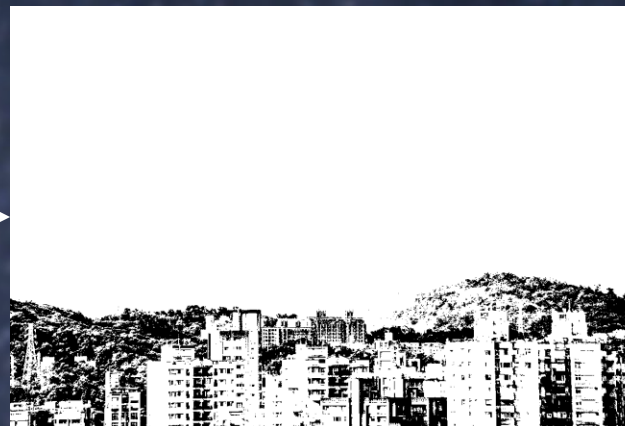
飽和度



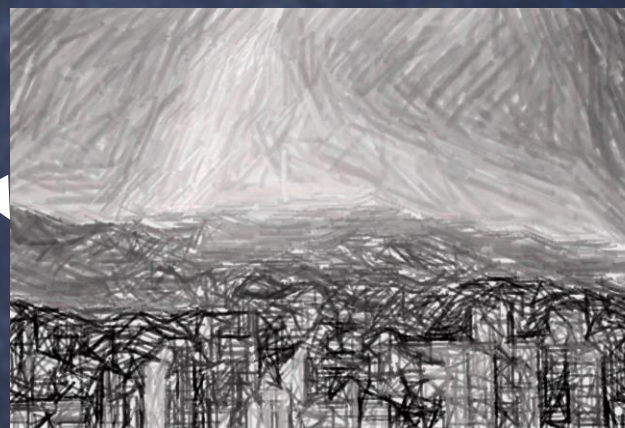
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模糊
銳利化



黑白 25%



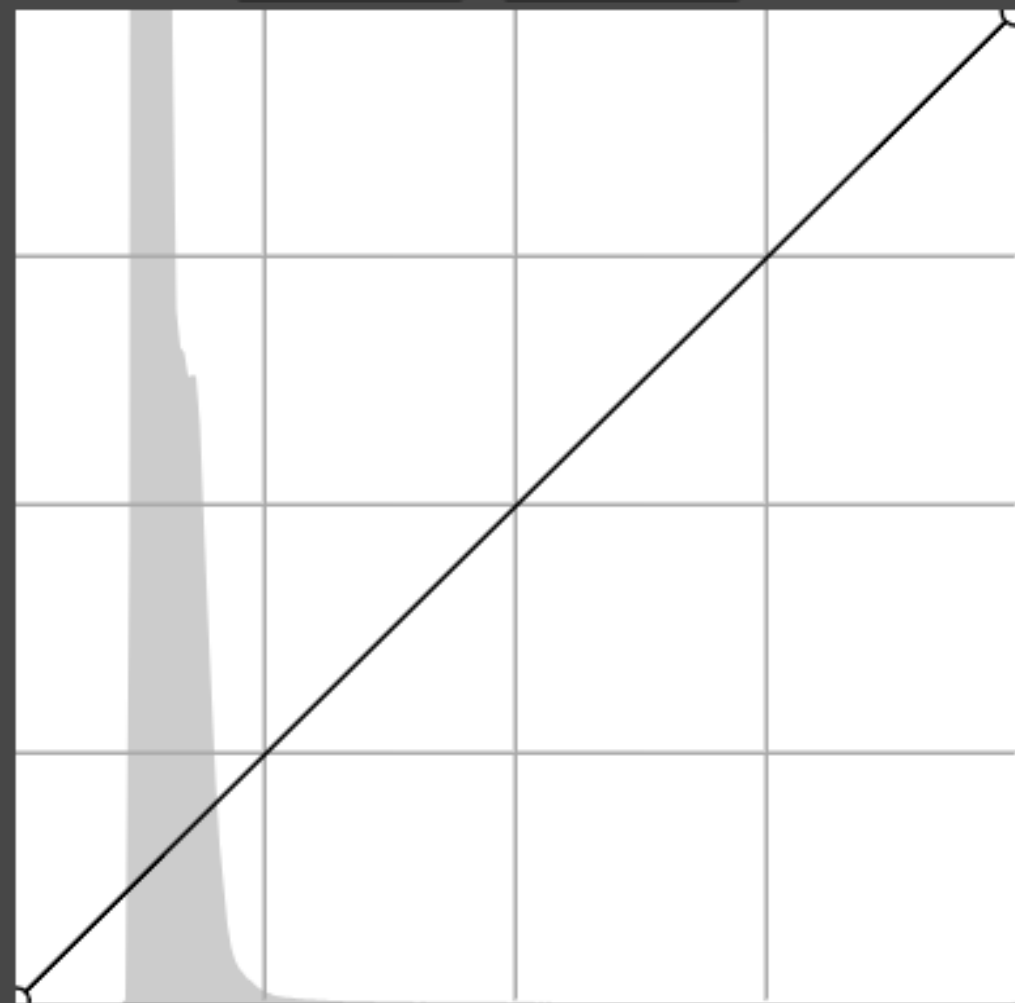
鉛筆特效

Curves

曲線

Curves

Channel: RGB ▾ Spline ▾



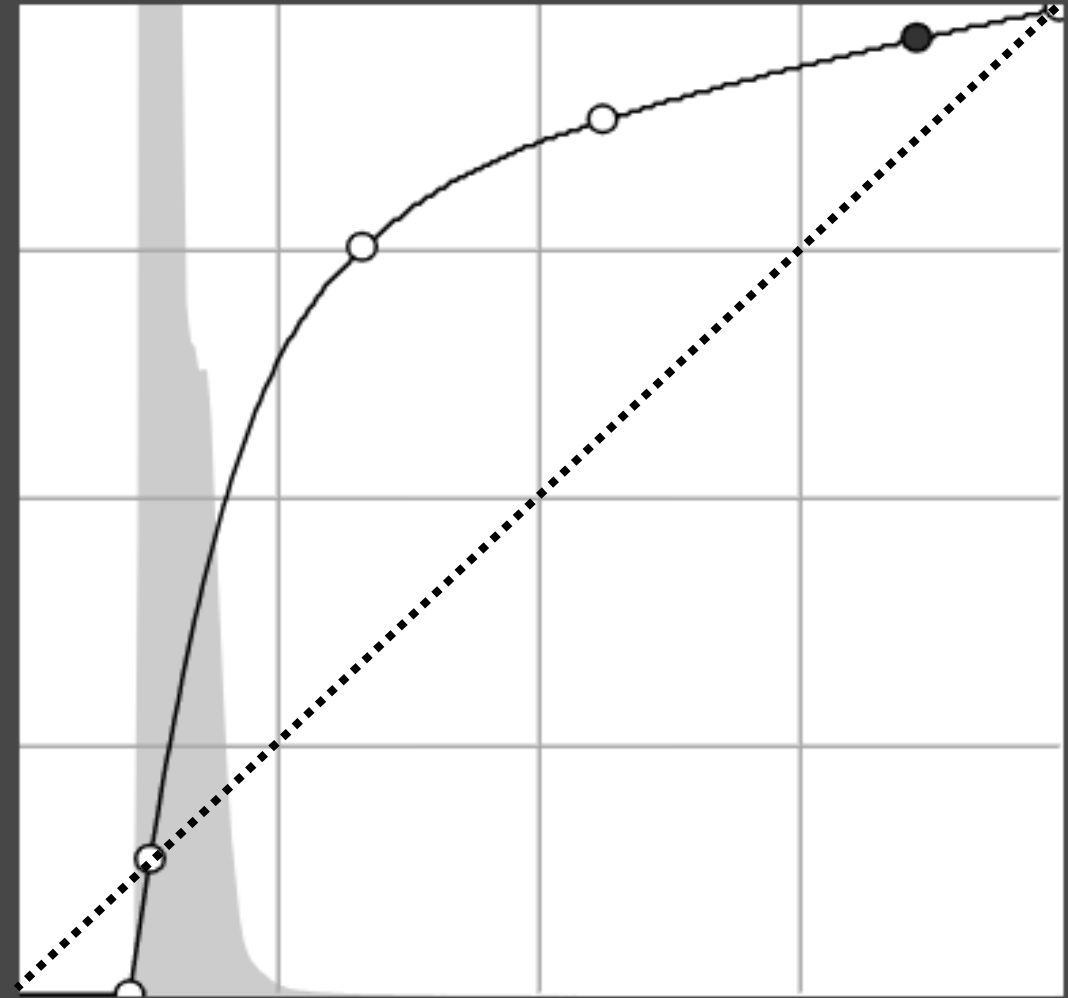
Sample from image:



Curves

Channel: RGB

Spline



Sample from image:

