

$$C = \alpha F + (1 - \alpha)B$$

$$\arg \max_{F, B, \alpha} P(F, B, \alpha | C)$$

$$\arg \max_{F, B, \alpha} L(C | F, B, \alpha) + L(F) + L(B)$$

Algorithm 1 Bayes-Matting(C, M)

- 1: set foreground and background pixels in α according to M
 - 2: **for all** pixel p marked as unknown in M **do**
 - 3: cluster foreground and background colors in p 's (known) neighborhood
 - 4: **for all** foreground-background cluster pairs **do**
 - 5: solve for best F, B, α given C using alternating iterations
 - 6: calculate resulting likelihood
 - 7: **end for**
 - 8: assign to $F(p), B(p), \alpha(p)$ the results that achieved the maximal likelihood
 - 9: mark p as known
 - 10: **end for**
 - 11: **return** F, B, α
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