## Transmission Map

## Qingyun Li

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Last time, we talked about DCP. Due to this doscovery, the transmission  $\operatorname{map}\tilde{t}(x)$  is obtained from the DCP accordding to the equation:

$$\tilde{t}(x) = 1 - \min_{y \in \Omega(x)} (\min_{c} \frac{I^{c}(y)}{A^{c}})$$
(1)

However, in fact, the pixel value of dark channel,  $J^{dark}(x)$ , is not equivalent to zero completely. So, in order to make the image looked natural, we need to retain a small amount of haze by using a constant  $\omega$  (0< $\omega$ <1):

$$\tilde{t}(x) = 1 - \omega \min_{y \in \Omega(x)} (\min_{c} \frac{I^{c}(y)}{A^{c}})$$
 (2)

And inadvertently, we compensate for the under-estimation of  $\tilde{t}(x)$  by multiplying  $\omega$ .



Figure 1: haze image



Figure 2: transmission map