公式(7)和(8)的推导，推导过程中请注意 a_k 与 b_k 在窗口 w_k 中是恒定的：

$$
\begin{aligned}
0=\frac{\partial E}{\partial b_k} &= \sum_{i\in w_k} 2(a_k I_i + b_k - p_i) \\
b_k &= \sum_{i\in w_k} (p_i - a_k I_i) \\
&= \sum_{i\in w_k} p_i - a_k \sum_{i\in w_k} I_i \\
&= \overline{p}_k - a_k \mu_k
\end{aligned}
\tag{1-1}
$$

$$
\begin{aligned}
0=\frac{\partial E}{\partial a_k} &= \sum_{i\in w_k} (2(a_k I_i + b_k - p_i) I_i + 2\varepsilon a_k) \\
&= \sum_{i\in w_k} ((a_k I_i + b_k - p_i) I_i + \varepsilon a_k) \\
&= \sum_{i\in w_k} ((a_k I_i + \overline{p}_k - a_k\mu_k - p_i) I_i + \varepsilon a_k) \\
&= \sum_{i\in w_k} ((a_k I_i^2 + \varepsilon a_k - a_k\mu_k I_i) + (\overline{p}_k - p_i) I_i) \\
a_k &= \frac{\sum_{i\in w_k} (p_i - \overline{p}_k) I_i}{\sum_{i\in w_k} (I_i^2 + \varepsilon - \mu_k I_i)} \\
&= \frac{\sum_{i\in w_k} p_i I_i - \overline{p}_k \sum_{i\in w_k} I_i}{\sum_{i\in w_k} (I_i^2 + \varepsilon - \mu_k I_i)} \\
&= \frac{\frac{1}{|w|}\sum_{i\in w_k} p_i I_i - \frac{1}{|w|}\overline{p}_k \sum_{i\in w_k} I_i}{\frac{1}{|w|}\sum_{i\in w_k} (I_i^2 + \varepsilon - \mu_k I_i)} \\
&= \frac{\frac{1}{|w|}\sum_{i\in w_k} p_i I_i - \overline{p}_k \mu_k}{\frac{1}{|w|}\sum_{i\in w_k} (I_i^2 - \mu_k I_i) - \varepsilon} \\
&= \frac{\frac{1}{|w|}\sum_{i\in w_k} p_i I_i - \overline{p}_k \mu_k}{\frac{1}{|w|}\sum_{i\in w_k} I_i^2 - \frac{1}{|w|}\mu_k \sum_{i\in w_k} I_i - \varepsilon} \\
&= \frac{\frac{1}{|w|}\sum_{i\in w_k} p_i I_i - \overline{p}_k \mu_k}{\frac{1}{|w|}\sum_{i\in w_k} I_i^2 - \mu_k^2 - \varepsilon} \\
&= \frac{\frac{1}{|w|}\sum_{i\in w_k} p_i I_i - \overline{p}_k \mu_k}{\delta_k^2 - \varepsilon}
\end{aligned}
\tag{1-2}
$$