Boosting of training samples

Boosting is done on the fly during training based on a probabilistic approach. Before each training sample $\chi_j$ is considered in a training step, it is transformed to $\text{boost}(\chi_j)$ as shown in Eq 1 where: $\text{flip}_h(q, x)$ is horizontal flipping of image $x$ with probability $q$, $\text{flip}_v(q, x)$ is vertical flipping of image $x$ with probability $q$, $\text{rot}(z, y, x)$ is a random rotation between $z$ and $y$ degrees of image $x$, and $\text{blur}(q, z, y, x)$ is Gaussian blur of image $x$ with a probability of $q$ and a random sigma between $z$ and $y$.

$$\text{boost}(\chi_j) = \text{blur}(0.5, 0.0, 2.0, \text{rot}(-180, 180, \text{flip}_v(0.5, \text{flip}_h(0.5, \chi_j)))) \quad (1)$$