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Abstract.

Keywords:

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YY YY YY YY YY

b k b b k^* k k^* b b b k^* b

YY b

$$p\ x|\Theta_k \quad \sum_{i=1}^{k}\alpha_i p\ x|\theta_i \quad \sum_{i=1}^{k}\alpha_i p\ x|\mu_i,\Sigma_i\ ,$$

k b $\alpha_i \geq$ $\sum_{i=1}^{k}\alpha_i$ $p\ x|\theta_i$

$$p\ x|\theta_i \quad p\ x|\mu_i,\Sigma_i \quad \frac{}{\pi\ ^{2}|\Sigma_i|^{\frac{1}{2}}}e^{-\frac{1}{2}(x-\mu\ )\ \Sigma\ ^{1}(x-\mu\ )},$$

μ_i Σ_i Θ_k b Θ_k $\theta_i,\cdots,\theta_k,\alpha_1,\cdots,\alpha_k$

N $\mathcal{X}$ $\{x_t\}_{t=1}^{N}$

$$p \ \mathcal{X}|\Theta_k \quad \prod_{t=1}^{N} p \ x_t|\Theta_k \quad \sum_{t=1}^{N} \quad \sum_{i=1}^{k} \alpha_i p \ x_t|\theta_i \ ,$$

b Θ_k

$$\alpha_i^{+} \quad \frac{}{n}\sum_{t=1}^{N} P \ i|x_t \ \ \mu_i^{+} \quad \sum_{t=1}^{N} x_t P \ i|x_t \ / \sum_{t=1}^{N} P \ i|x_t$$

$$\Sigma_i^{+} \quad \sum_{t=1}^{N} P \ i|x_t \ \ x_t - \mu_i^{+} \ \ x_t - \mu_i^{+} \ {}^{T} / \sum_{t=1}^{N} P \ i|x_t \ ,$$

$P \ i|x_t \quad \alpha_i p \ x_t|\theta_i \ / \sum_{i=1}^{k} \alpha_i p \ x_t|\theta_i$ b b

b b

b b

YY

YY b $x \in X \subset \mathcal{R}^d$

$y \in Y \subset \mathcal{R}^m$ b

$p \ x, y \quad p \ x \ p \ y|x \quad q \ x, y \quad q \ y \ q \ x|y$

Y Y $D_x \quad \{x_1, \cdots, x_n\}$

Y b YY

$p \ y|x \ p \ x \ q \ x|y \ q \ y$

b

$$H \ p \,\|\, q \quad \int p \ y|x \ p \ x \quad q \ x|y \ q \ y \ dxdy.$$

y b b b

$y \quad \{ \ , \cdots, k\} \subset R$ YY

$$p \ x \quad p_0 \ x \quad \frac{}{N}\sum_{t=1}^{N} G \ x - x_t \quad p \ y \quad i|x \quad \alpha_i q \ x|\theta_i \ / q \ x|\Theta_k$$

$$q \ x|\Theta_k \quad \sum_{i=1}^{k} \alpha_i q \ x|\theta_i \quad q \ y \quad q \ y \quad i \quad \alpha_i > \quad \sum_{i=1}^{k} \alpha_i \quad ,$$

G · q $x|y$ i q $x|\theta_i$
J q y b b q $x|y$
p $y|x$ q y q $x|y$

α_i … $\epsilon >$

Step 1: … k … Θ_k … l

Step 2: … Θ_k l

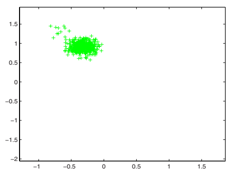
Step 3: … Θ_k l … Θ'_{k-1} l … Θ'_{k+1} l

Step 4: $Acc\ M$ $J\ \Theta'_{k-1}\ l - J\ \Theta_k\ l$ … $Acc\ M >$ … Θ'_{k-1} l

Step 5: $Acc\ S$ $J\ \Theta'_{k+1}\ l - J\ \Theta_k\ l$ … $Acc\ S >$ … Θ'_{k+1} l

Step 6: … $\epsilon >$ … k … l l

… k … k …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