

Batch Normalization

Batch Norm at test time

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$$\mu = \frac{1}{m} \sum_{i} z^{(i)}$$

$$\sigma^{2} = \frac{1}{m} \sum_{i} (z^{(i)} - \mu)^{2}$$

$$z^{(i)}_{norm} = \frac{z^{(i)} - \mu}{\sqrt{\sigma^{2} + \varepsilon}}$$

$$\tilde{z}^{(i)} = \gamma z^{(i)}_{norm} + \beta$$

M,
$$\leq^2$$
: estimate wary exponetially weighted average (across wini-bottle).

X 813, \times 814, \times 814, \times 815, \times 815,