

NCTU DLP

Lab5-Conditional sequence-to-sequence VAE

complementary materials

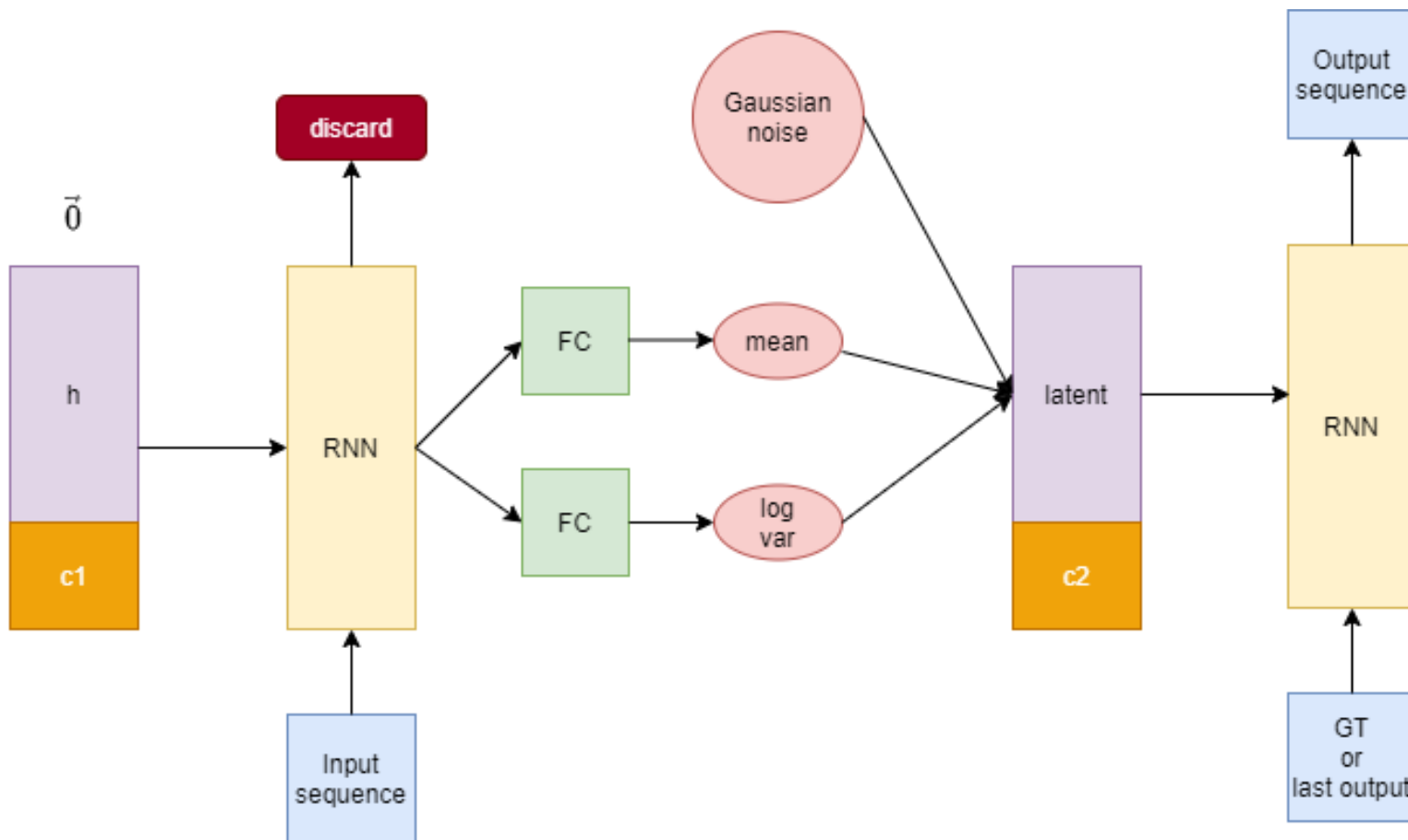
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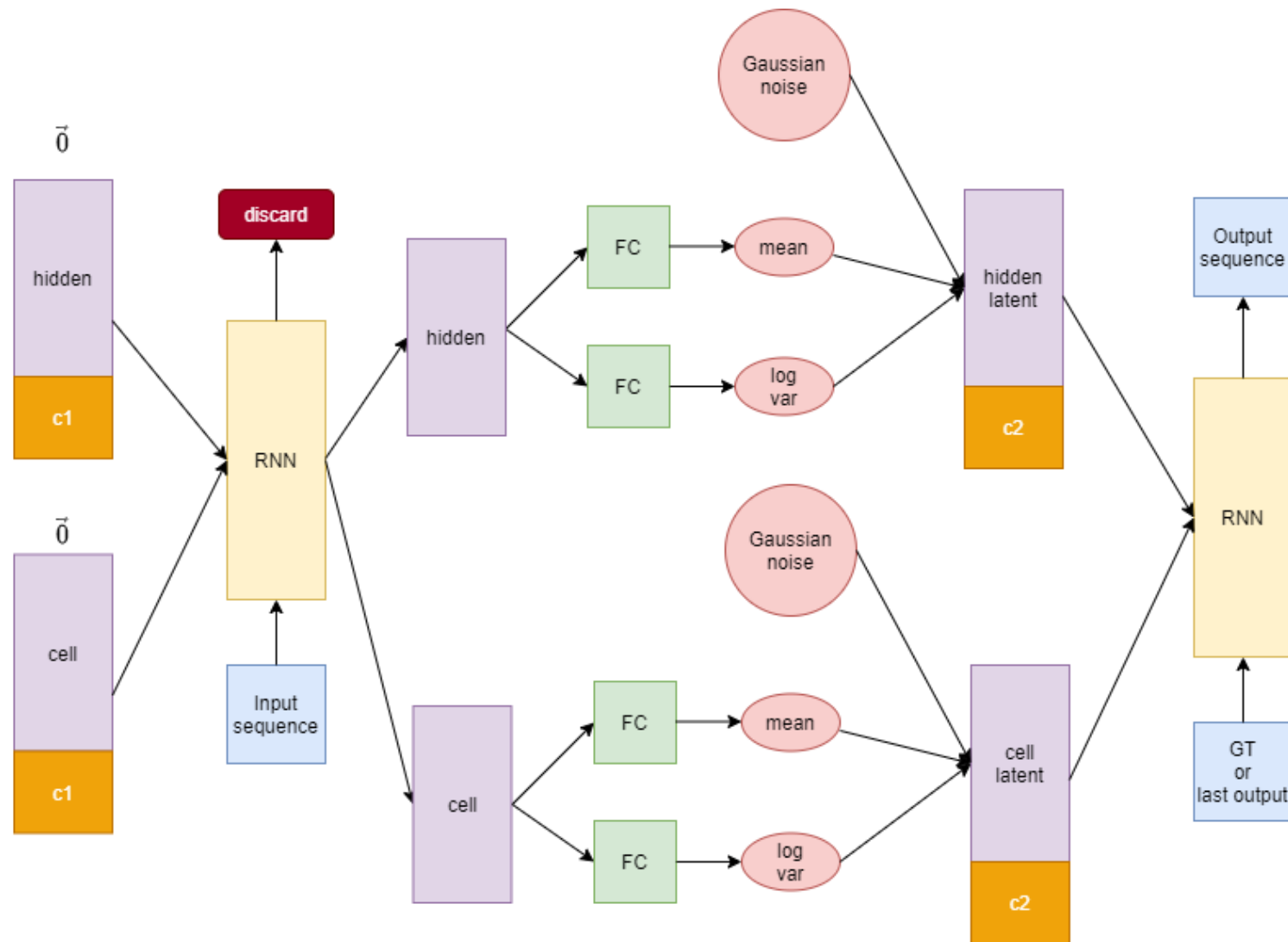
Outline

- Common Problems
- Training

Common Problems - GRU to LSTM

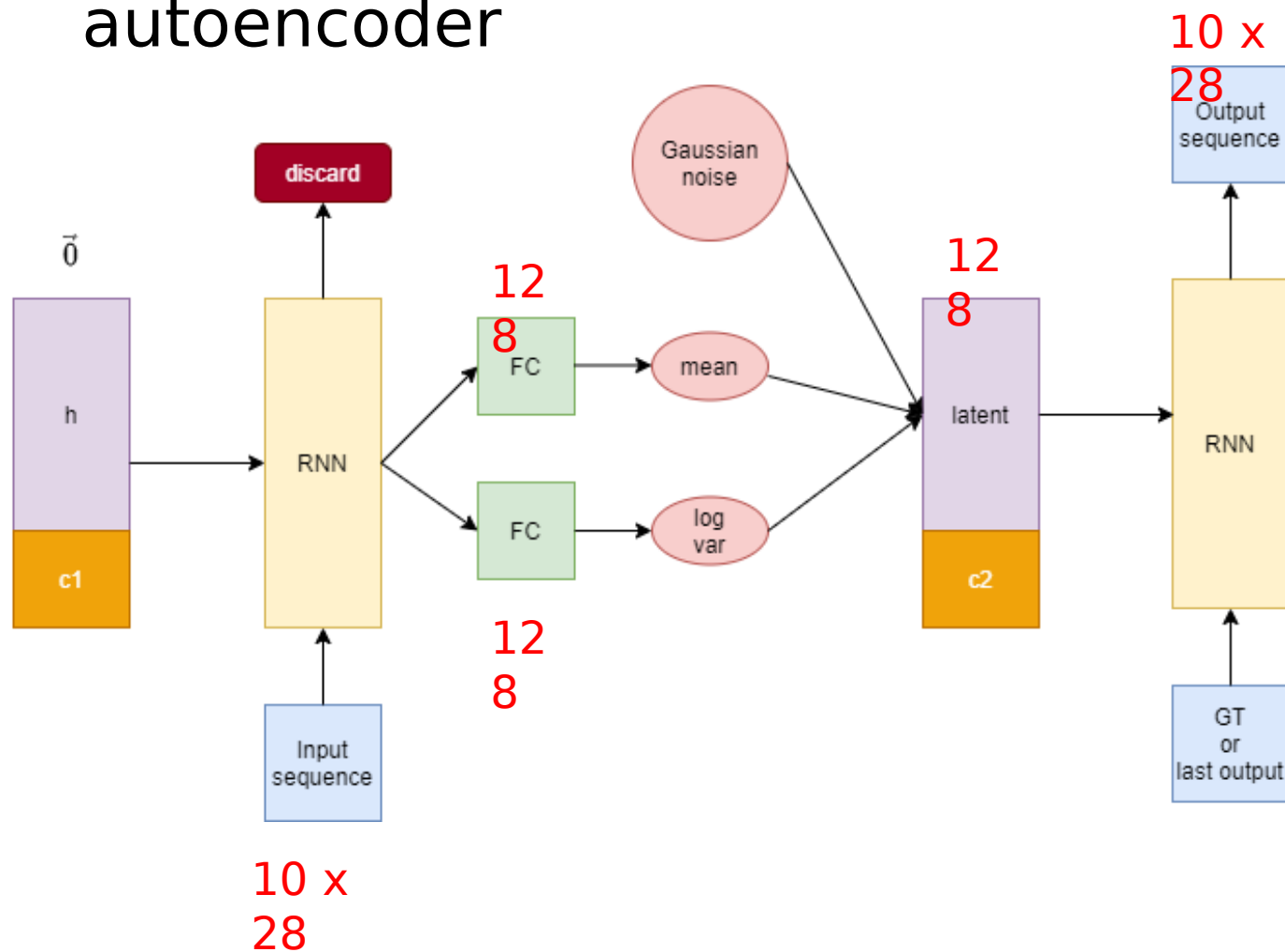


Common Problems - GRU to LSTM (cont'd)



Common Problems - Condition

- Information loss of autoencoder



4	0	1	2	3	4	5	6	7	8	9
9	0	1	2	3	4	5	6	7	8	9
5	0	1	2	3	4	5	6	7	8	9
4	0	1	2	3	4	5	6	7	8	9
2	0	1	2	3	4	5	6	7	8	9
7	0	1	2	3	4	5	6	7	8	9
5	0	1	2	3	4	5	6	7	8	9
1	0	1	2	3	4	5	6	7	8	9
7	0	1	2	3	4	5	6	7	8	9
1	0	1	2	3	4	5	6	7	8	9

Common Problems - Loss

$$\underbrace{E_{\mathbf{Z} \sim q(\mathbf{Z}|\mathbf{X}; \boldsymbol{\theta}')} \log p(\mathbf{X}|\mathbf{Z}; \boldsymbol{\theta})}_{\text{Reconstruction}} - \underbrace{\text{KL}(q(\mathbf{Z}|\mathbf{X}; \boldsymbol{\theta}') || p(\mathbf{Z}))}_{\text{Regularization}}$$

Reconstruction

Regularization

Cross Entropy
Loss

Reconstruction
result

BLEU score

KL-divergence
Loss

Generation result

Gaussian score

Training

- Hidden size : 256
- Learning rate : 0.007
- Training iterations : 150k

