

1. Make a brief introduction about variational autoencoder (VAE). List one advantage comparing with vanilla autoencoder and one problem of VAE.

Ans:

U-Net. Reference: <https://kknews.cc/zh-tw/tech/6aggyzl.html>

Pro: 結構簡單、穩定。由於feature map的維度沒有改變，因此完整地保留的資料特徵。而拼接更允許模型選擇淺層特徵或深層特徵，因此對語意分割任務具有優勢。

Con: multi-scale skip connection使用了不必要的資訊，也浪費了計算資源。這也是Enhancing U-Net模型被提出的動機——Khanh, Trinh Le Ba, et al. "Enhancing U-Net with spatial-channel attention gate for abnormal tissue segmentation in medical imaging." Applied Sciences 10.17 (2020): 5729.



STUDENT

梁峻璋

TOTAL POINTS

1.5 / 4 pts

QUESTION 1

Make a brief introduction about variational autoencoder (VAE). List one advantage comparing with vanilla autoencoder and one problem of VAE. R **0 / 2 pts**

QUESTION 2

Train a fully connected autoencoder and adjust at least two different element of the latent representation. Show your model architecture, plot out the original image, the reconstructed images for each adjustment and describe the differences. **1.5 / 2 pts**