

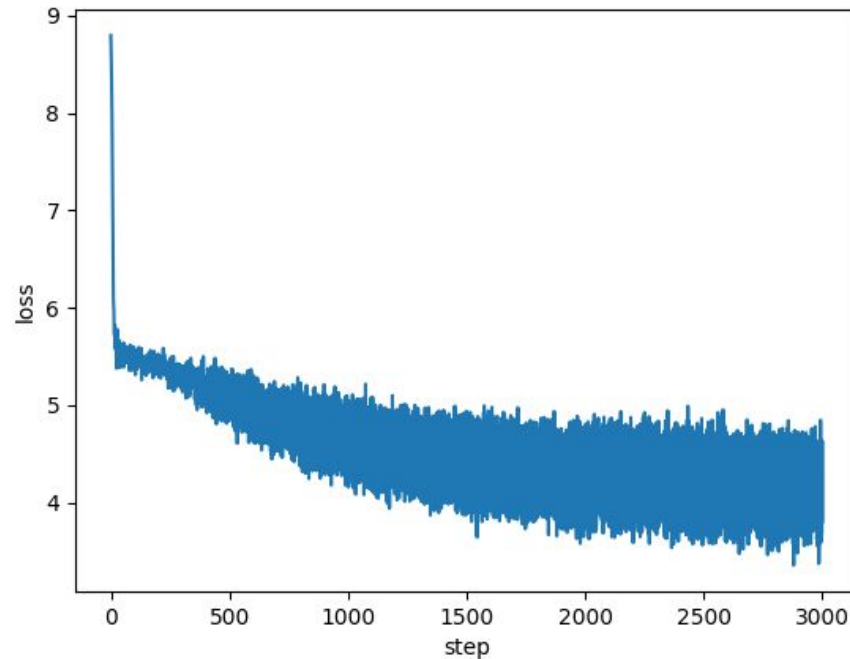


HW 2-1

- Training
 - Training Loss
 - Accuracy
 - Hidden state analysis
- Dataset
 - Different types of data

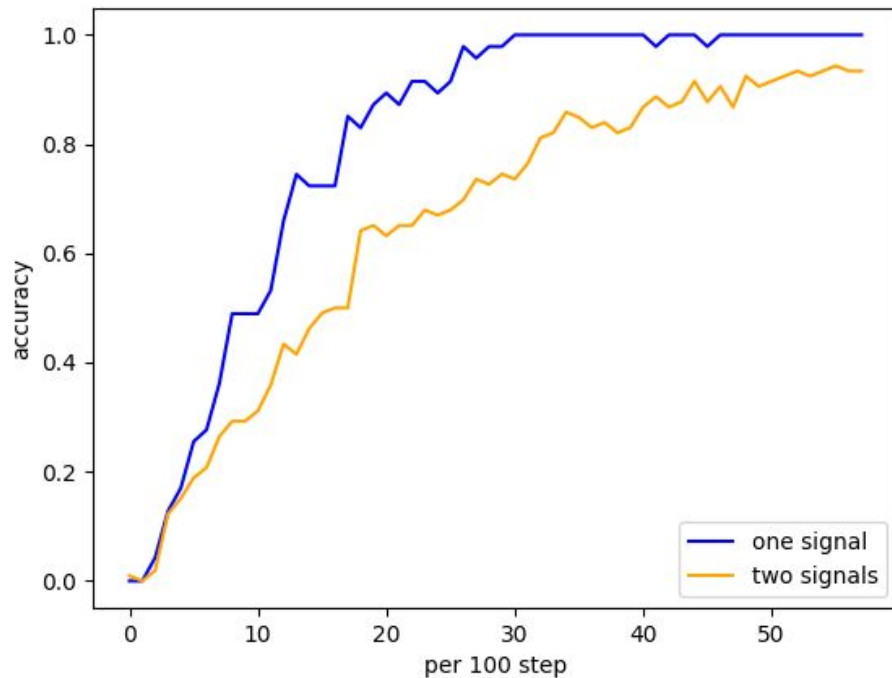
Training loss per step

- hw 2 - 1.1
- Encoder/Decoder: 2 layers GRU
- batch size: 128



Accuracy per step

- hw 2 - 1.2
- Encoder/Decoder: 2 layers GRU
- batch size: 128

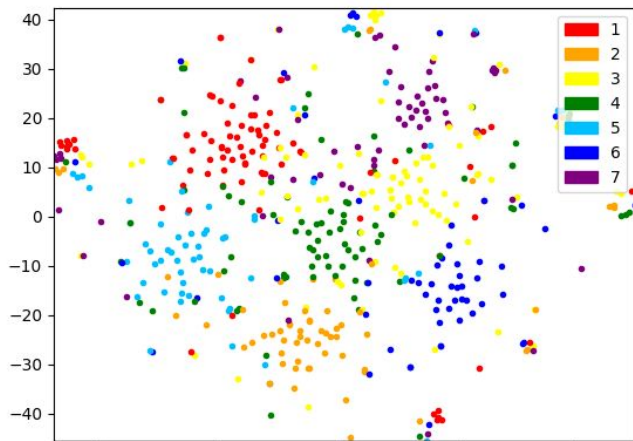




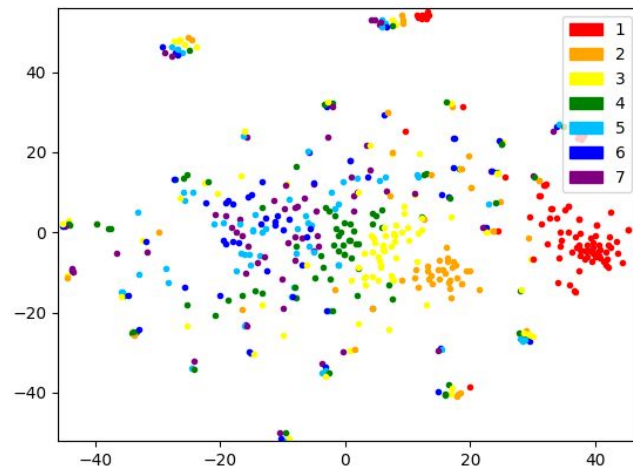
Hidden state analysis

- Last encoder hidden state
- PCA + TSNE visualization

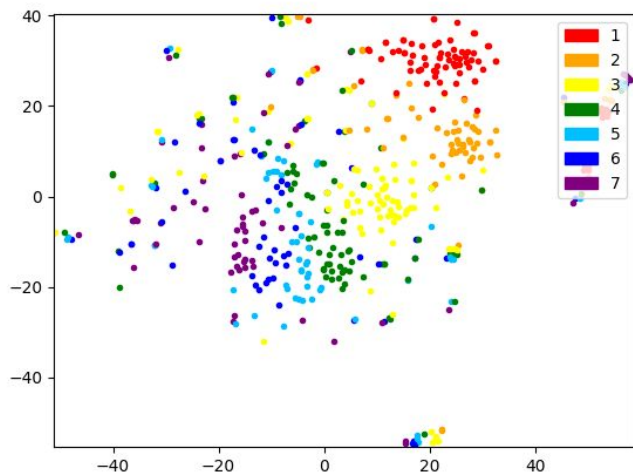
step = 0



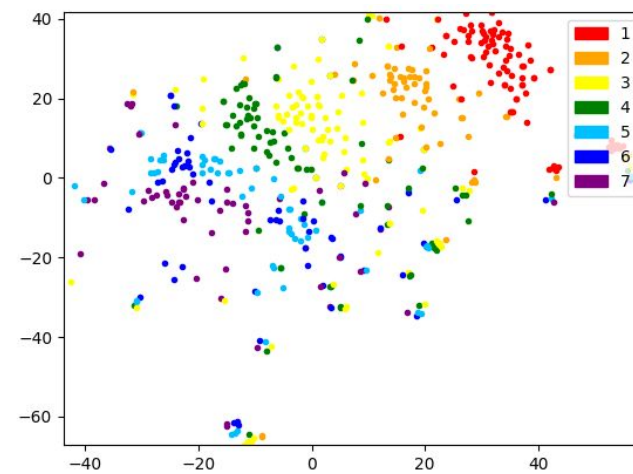
step = 500



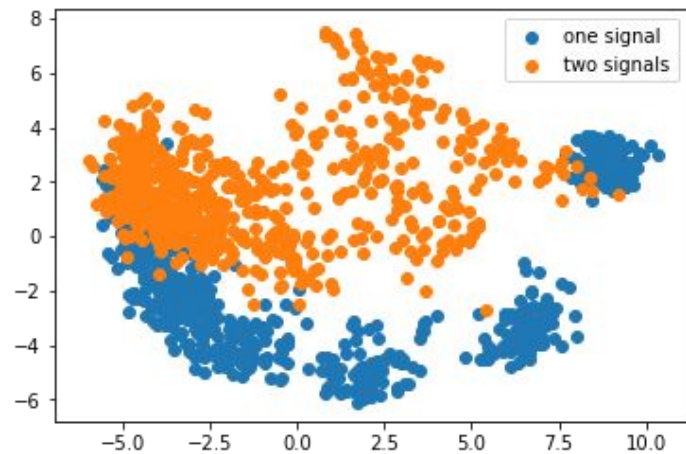
step = 1000



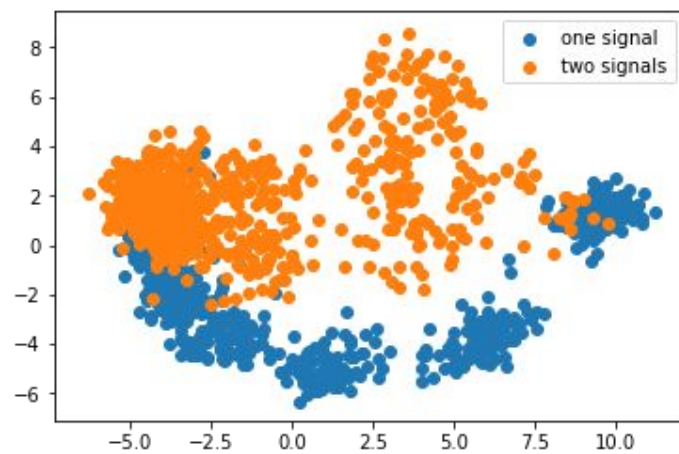
step = 1500



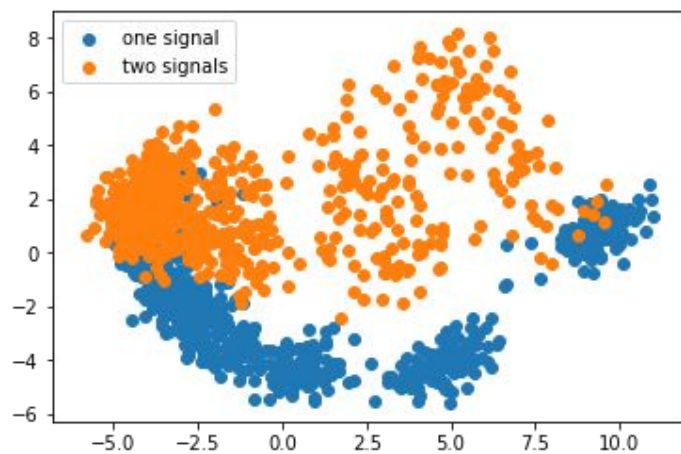
epoch = 1



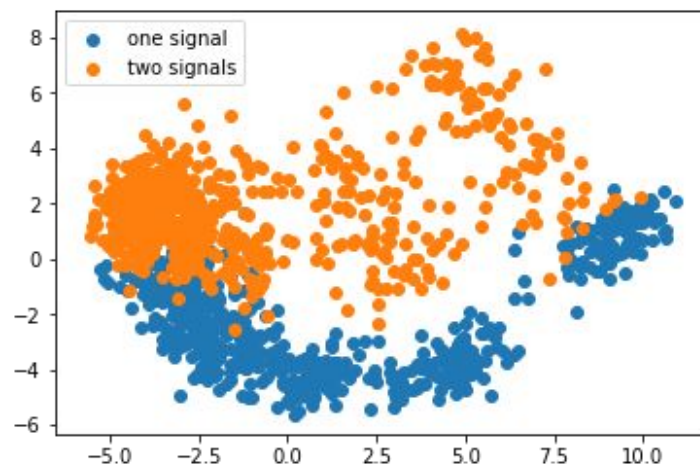
epoch = 2



epoch = 5



epoch = 10





Different types of data

a. delete signal position

- Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 也不需要伴侣 <EOS> 离', <SOS> 只要能离开伤痛的记忆 <EOS>

b. switch position of signal position

- Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 也不需要伴侣 <EOS> 离 4', <SOS> 只要能离开伤痛的记忆 <EOS>



Result

- delete signal position
 - high accuracy: 0.8959
 - lower LM score: 19.46 (Origin: 41.51)
 - usually output the same words ex. “我我我我我”
- switch position of signal position
 - high accuracy: 0.96962 (Origin: 0.962)



Different types of data

- a. switch position of control signal (before <SOS>)
 - Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
 - New: '4 离 <SOS> 也不需要伴侣 <EOS>', <SOS> 只要能离开伤痛的记忆 <EOS>
- b. switch position of control signal (before <EOS>)
 - Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
 - New: '<SOS> 也不需要伴侣 4 离 <EOS>', <SOS> 只要能离开伤痛的记忆 <EOS>



Different types of data

a. reverse signal position

- Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 也不需要伴侣 <EOS> 7 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 冬天冻住了忧伤 <EOS> 2 歌', <SOS> 我们努力的歌唱 <EOS>

b. reverse signal position + length information

- Origin: '<SOS> 也不需要伴侣 <EOS> 4 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 也不需要伴侣 <EOS> 9 7 离', <SOS> 只要能离开伤痛的记忆 <EOS>
- New: '<SOS> 冬天冻住了忧伤 <EOS> 7 2 歌', <SOS> 我们努力的歌唱 <EOS>



Result

- ground truth
 - <SOS> 浑浑噩噩又到尽时<EOS>, <SOS>好想好想旧戏重现纵重现再重现<EOS>
 - <SOS> 也不需要伴侣<EOS>, <SOS>只要能离开伤痛的记忆<EOS>
- reverse signal position
 - <SOS> 浑浑噩噩又到尽时<EOS> 5 重 2 重, <SOS> 重重重重重<EOS>
 - <SOS> 也不需要伴侣<EOS> 7 离, <SOS> 离开的离开的<EOS>
- reverse signal position + length information
 - <SOS> 浑浑噩噩又到尽时<EOS> 13 5 重 2 重, <SOS> 我着的的的的的重重的重逢<EOS>
 - <SOS> 也不需要伴侣<EOS> 10 7 离, <SOS> 我不你离开你我的的你<EOS>



Result

- accuracy : correctness of control signal

| Type of data | accuracy |
|--|---------------|
| Origin | 0.9513 |
| switch position of control signal (before <SOS>) | 0.9629 |
| switch position of control signal (before <EOS>) | 0.9490 |
| reverse signal position | 0.5876 |
| reverse signal position + length information | 0.9567 |