

# Supplementary Materials

## Anonymous EMNLP submission

### 1 Implementation Details

In our model, the default initial parameters of all generators follow a Gaussian distribution  $\mathcal{N}(0, 1)$ . The total number of adversarial training epochs is 200 and the sampling temperature is set to 1.0. We set  $\lambda = 1.0$  and  $\alpha = 0.1$ , and  $G_d$  is a seq2seq model based on single-layer RNN-GRU and Luong attention.  $\hat{\lambda}$  is set to 1.0, and the number of all epochs  $k = 200$ , based on performance.  $G$  is a single-layer RNN-GRU network and can be easily extended to other types of generators as well. We implement our model based on Pytorch and use a TITAN X graphic card for learning.

#### 1.1 Generated Cases

In Table 2, we show example sentences generated by different models trained on a real-world dataset. From the examples, we see that: 1) Although the sentence produced by the MLE method is longer, it may have unreadable and unreasonable problems. 2) The sentences generated by LeakGAN and TextGAN are more readable, but they are not diversified and relatively short. 3) In particular, compared with all benchmark methods, the sentences produced by our model are more readable, diversified and of better quality.

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111		a store is blue sink in a water bottle . ( <i>Unreasonable</i> )	161
112		serious air force jet mid flight during a cobblestone day , where a flooded street	162
113		a simple bathroom with some wood cupboards .	163
114	MLE	a girafee is standng in the spot for a village in parking spot with four hinged cakes trees	164
115		a jet jet flying away on the runway , in the sky .	165
116		a fat orange motorcycle is low building .	166
117		a bathroom with a sink , a sink , refrigerator and the walls . ( <i>Unreadable</i> )	167
118		a living room with a blue roof and green traffic lights blue .	168
119		person sitting in a commercial plane at night .	169
120	LeakGAN	a view of a parking desk with two plungers	170
121		a desk with multiple large monitors . ( <i>Very short</i> )	171
122		a woman wearing a glass is sitting on a cupboard .	172
123		a kitchen with a shelf area .	173
124		a man tinkers with his ear .	174
125		a white stove top open from a wood oven .	175
126		a group of men talking .	176
127		a kitchen with a shelf area . ( <i>Repeated</i> )	177
128		two people sitting on .	178
129	TextGAN	a man riding a motorcycle . ( <i>Very short</i> )	179
130		is to a bathroom with a sink . ( <i>Unreadable</i> )	180
131		a man is on a motorcycle .	181
132		a white toilet a sink .	182
133		with a sink and a table .	183
134		a motorcycle in a blue sky .	184
135		a bathroom with a sink .	185
136		a man is sitting on a motorcycle . ( <i>Repeated</i> )	186
137		a bathroom with a sink .	187
138	SLGAN	a group of people sat in front of the house together .	188
139		several people stood in front of the bicycle .	189
140		a person is holding a monitor range in the kitchen .	190
141		a woman is riding a motorcycle on the street .	191
142		three adults sat in his car with hats .	192
143		two people in a public parking lot .	193
144		white bathtub , toilet and basin under the bathroom wall .	194
145		an old brick building with a wooden manufacturer next to it .	195
146		a motor scooter parked in the street with a crowd waiting for a parade.	196
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Table 1: Example sentences generated by different models.