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# CHATBOT

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A PREPRINT

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## ABSTRACT

Building open-domain chatbots is a challenging area for machine learning research. While prior work has shown that scaling neural models in the number of parameters and the size of the data they are trained on gives improved results, we noticed that other ingredients are important for a high-performing chatbot. Good conversation requires a number of skills that an expert conversationalist blends in a seamless way: providing engaging talking points and listening to their partners, and displaying knowledge, empathy and personality appropriately, while maintaining a consistent persona. We show that large scale autoregressive models can learn these skills. We then discuss the limitations of this work by analyzing failure cases of our models.

**Keywords** First keyword · Second keyword · More

## 1 Introduction

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## 2 Headings: first level

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\*Use footnote for providing further information about author (webpage, alternative address)—*not* for acknowledging funding agencies.

## 2.1 Headings: second level

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$$\xi_{ij}(t) = P(x_t = i, x_{t+1} = j | y, v, w; \theta) = \frac{\alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}{\sum_{i=1}^N \sum_{j=1}^N \alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})} \quad (1)$$

### 2.1.1 Headings: third level

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**Paragraph** Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

## 3 Examples of citations, figures, tables, references

### 3.1 Citations

Citations use natbib. The documentation may be found at

<http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf>

Here is an example usage of the two main commands (`citet` and `citep`): Some people thought a thing [Kour and Saabne, 2014a, Hadash et al., 2018] but other people thought something else [Kour and Saabne, 2014b]. Many people have speculated that if we knew exactly why Kour and Saabne [2014b] thought this...

### 3.2 Figures

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### 3.3 Tables

See awesome Table 1.

The documentation for booktabs (‘Publication quality tables in LaTeX’) is available from:

<https://www.ctan.org/pkg/booktabs>

<sup>2</sup>Sample of the first footnote.



Figure 1: Sample figure caption.

Table 1: Sample table title

Part		
Name	Description	Size ( $\mu\text{m}$ )
Dendrite	Input terminal	$\sim 100$
Axon	Output terminal	$\sim 10$
Soma	Cell body	up to $10^6$

### 3.4 Lists

- Lorem ipsum dolor sit amet
- consectetur adipiscing elit.
- Aliquam dignissim blandit est, in dictum tortor gravida eget. In ac rutrum magna.

### References

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