

UCS664 - NLP

CHATBOT

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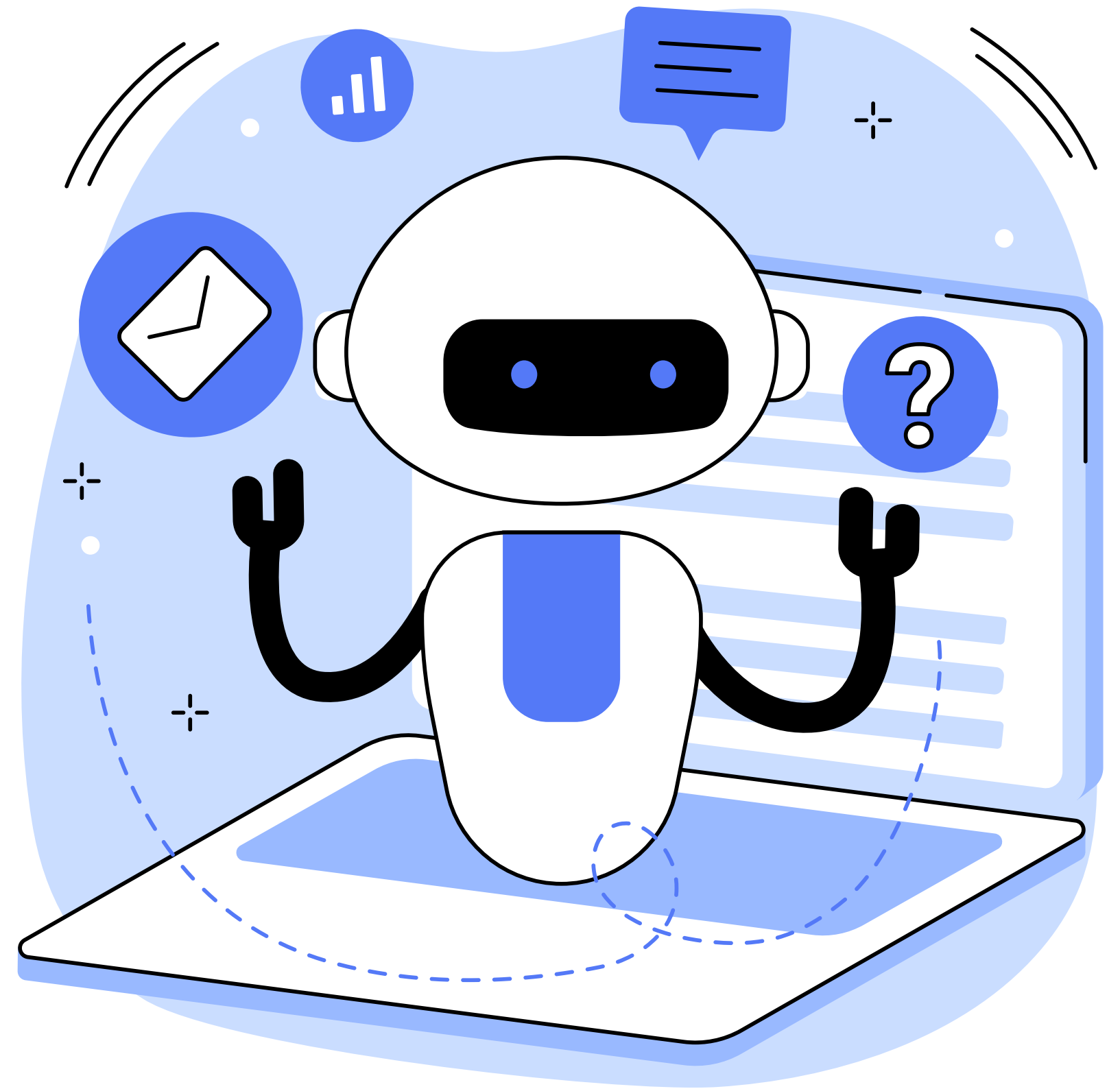
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INTRODUCTION

WHAT IS CHATBOT?

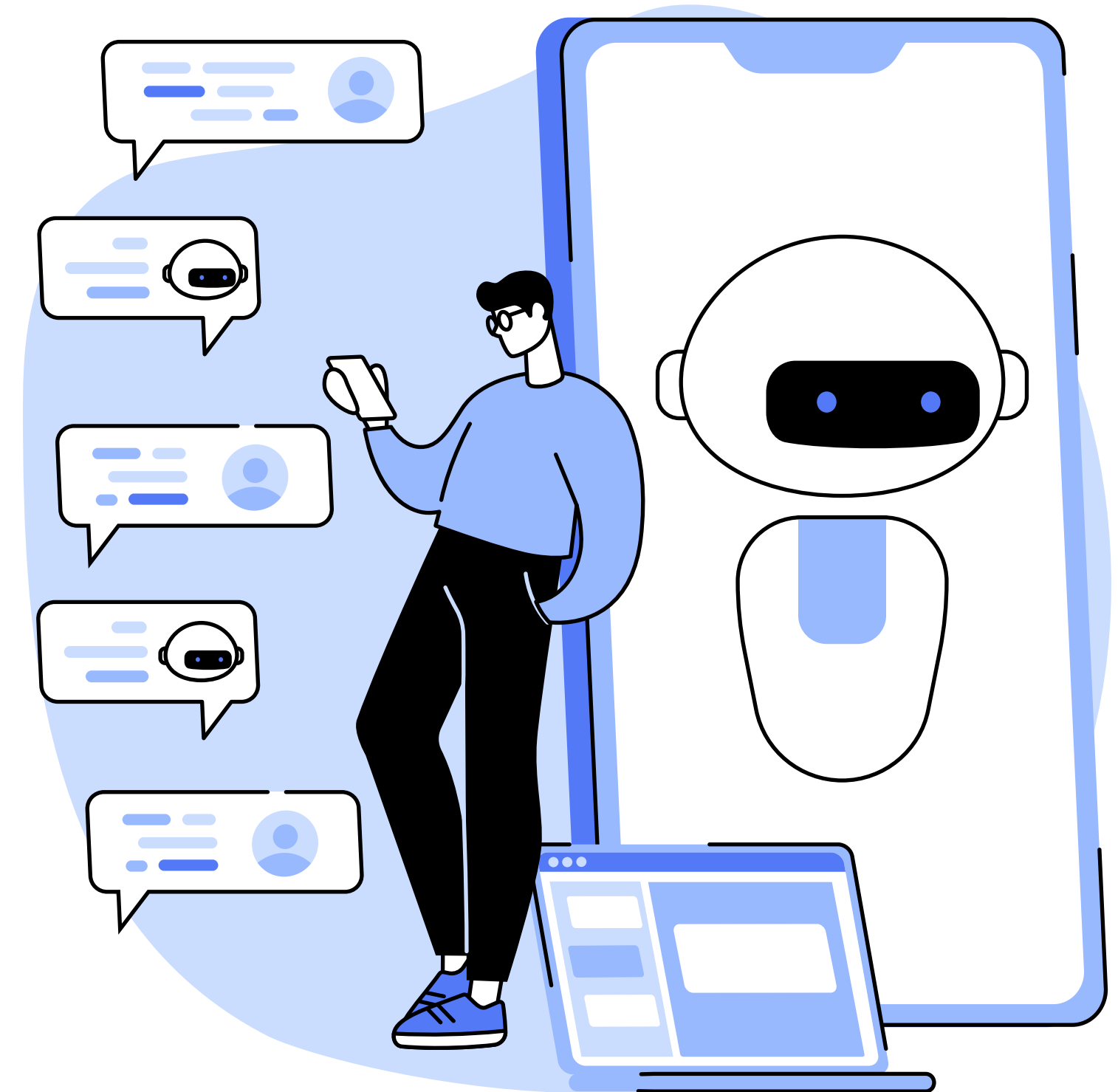
A well built chatbot is capable of understanding and generating human like responses to a given prompt.



NEED ANALYSIS

CHATBOTS are very useful in today's world:

- They can be your **personal assistant**
- They can make and suggest **decisions** based on the information you give.
- They are **unbiased** unlike humans
- They are **fast and efficient** for making simple data driven decisions

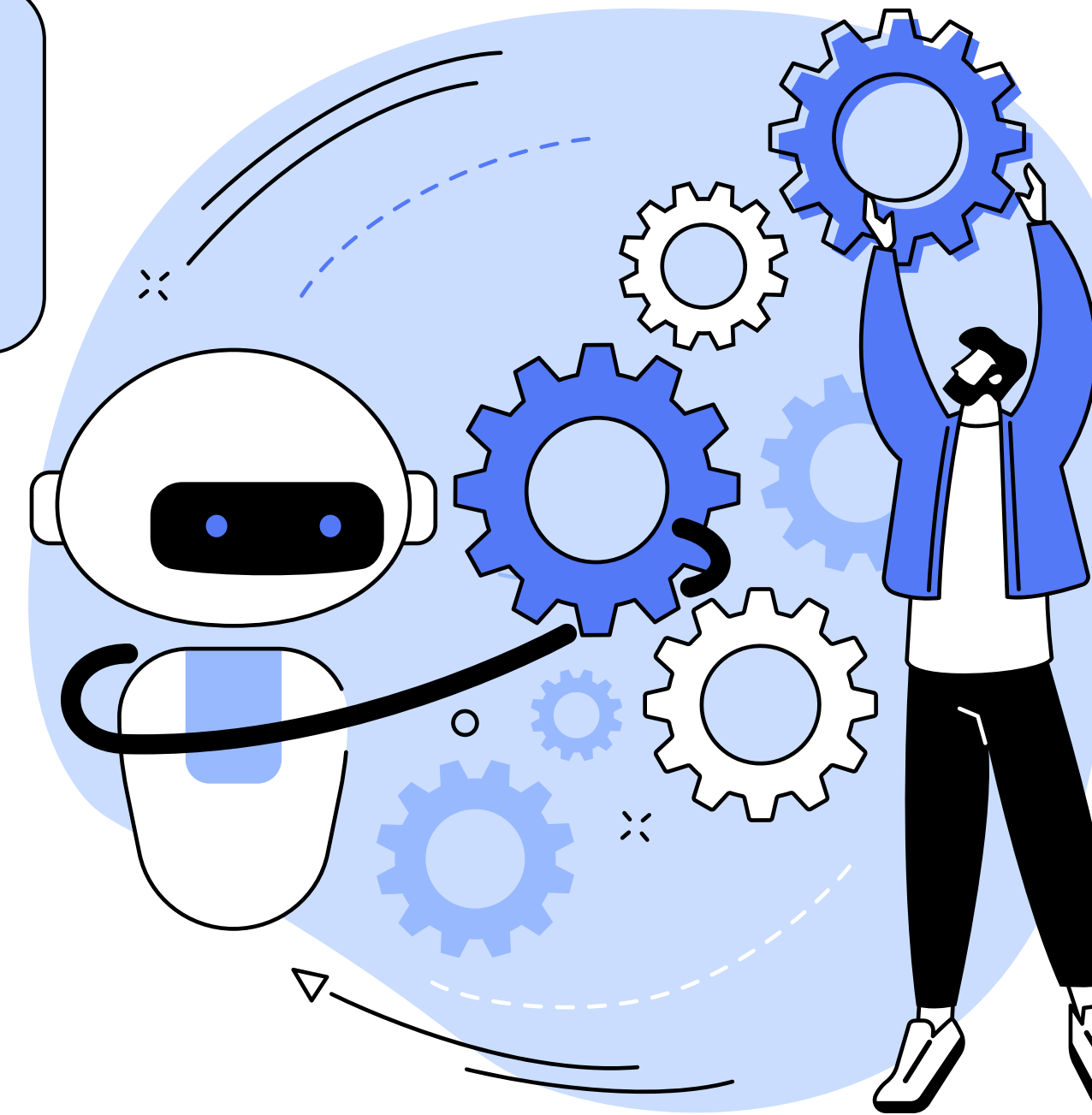


USE CASES

As A Chatbot

You will **feed conversations** to your model and it will learn how to **understand the context** of each one. Not only will it learn **how to answer** questions but it will also know **how to ask questions** if it needs more info.

As A Chat Automater



DATASET

We are using MultiWoz Dataset to train our model, which contains fully-labeled collection of human-human written conversations spanning over multiple domains and topics. At a size of 10k dialogues, it is at least one order of magnitude larger than all previous annotated task-oriented corpora.

Dialogues with MUL in the name refers to multi-domain dialogues. Dialogues with SNG refers to single-domain dialogues (but a booking sub-domain is possible).



OUR APPROACH

We use the ReformerLM as our main architecture built on top of Reformers, as the efficient transformer along with bucketing implementation of Locality Sensitive Hashing, which was a major drawback of the Transformer Models.

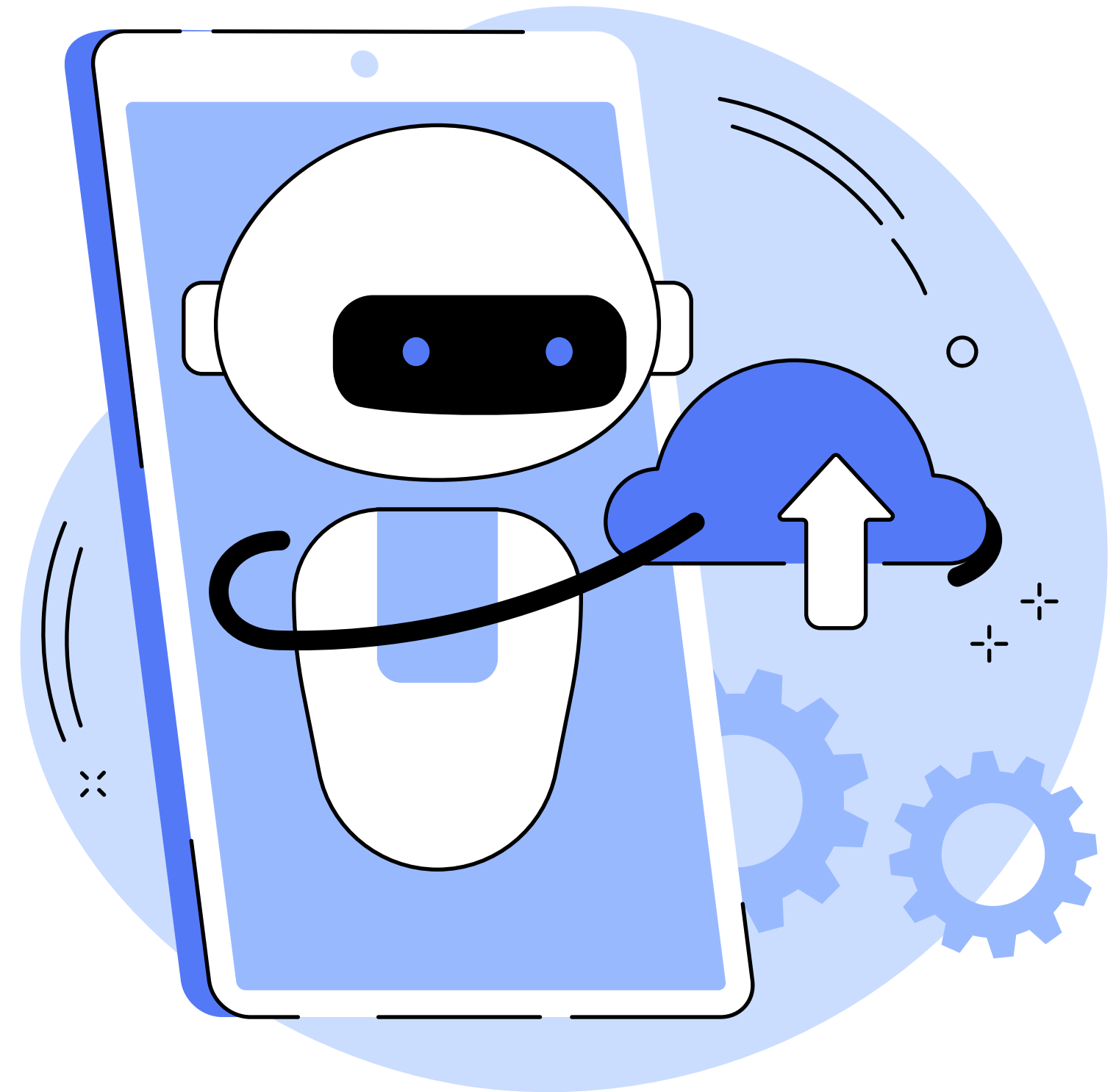
By cleverly combining Locality Sensitive Hashing and ideas from Reversible Networks, the classically huge footprint of the Transformer is drastically reduced. Not only does that mean the model uses less memory, but it can process much longer input sequences.

Other than this, our encoder decoder works on SelfAttention layers, Reformer Language Model and Autoregressive_sample_Stream() decoding method from trax.



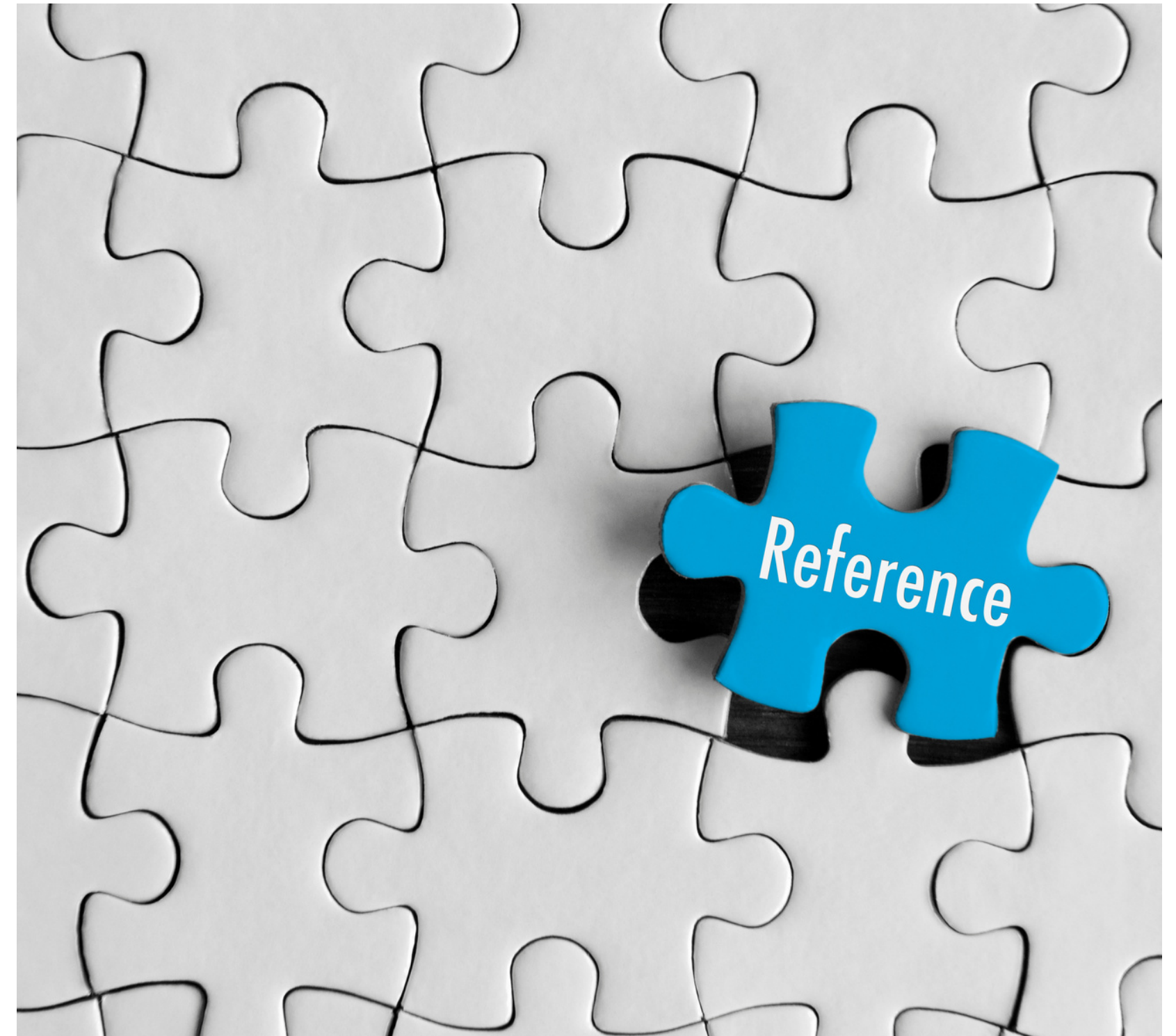
EVALUATION METRICS

- **Average Conversation Length**
- **Total Number of Engaged Conversations**
- **Grammatical Correctness**



REFERENCES

- <https://arxiv.org/pdf/2001.04451.pdf>
- <https://arxiv.org/abs/1706.03762>
- <https://ai.googleblog.com/2017/08/transformer-novel-neural-network>





THANK YOU