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Summary

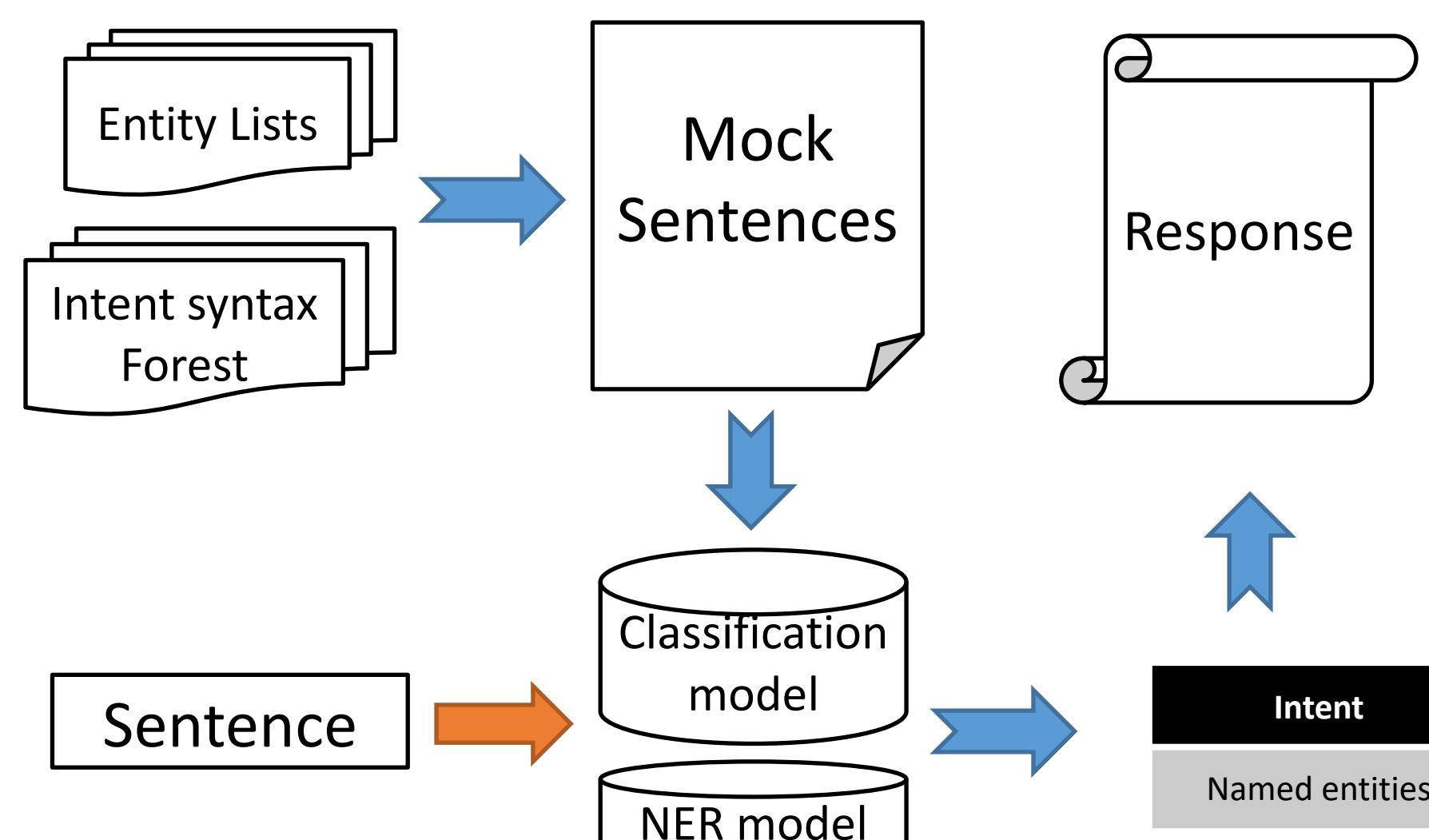
- Teaching machines to converse naturally with humans is challenging and really interesting.
- We propose a fantastic system to help people construct their own chatbots:
 - An interactive syntax tree help people to define question rules.
 - Use visualization methods to understand how to make mock sentences.
 - Use BLSTM-CRF-NER model and LSTM classifier to construct chatbot.

How it works

If you are a chatbot, once a user starts a dialogue, there are mainly three problems you want to understand clearly:

- What is the user's intent. Only if user's intent is accurately captured, you can make correctly actions or response.
- What is the key points (named entity recognizer, NER). If the user want to book a train ticket, you hope to confirm when the user want to go from where to where.
- How to response.

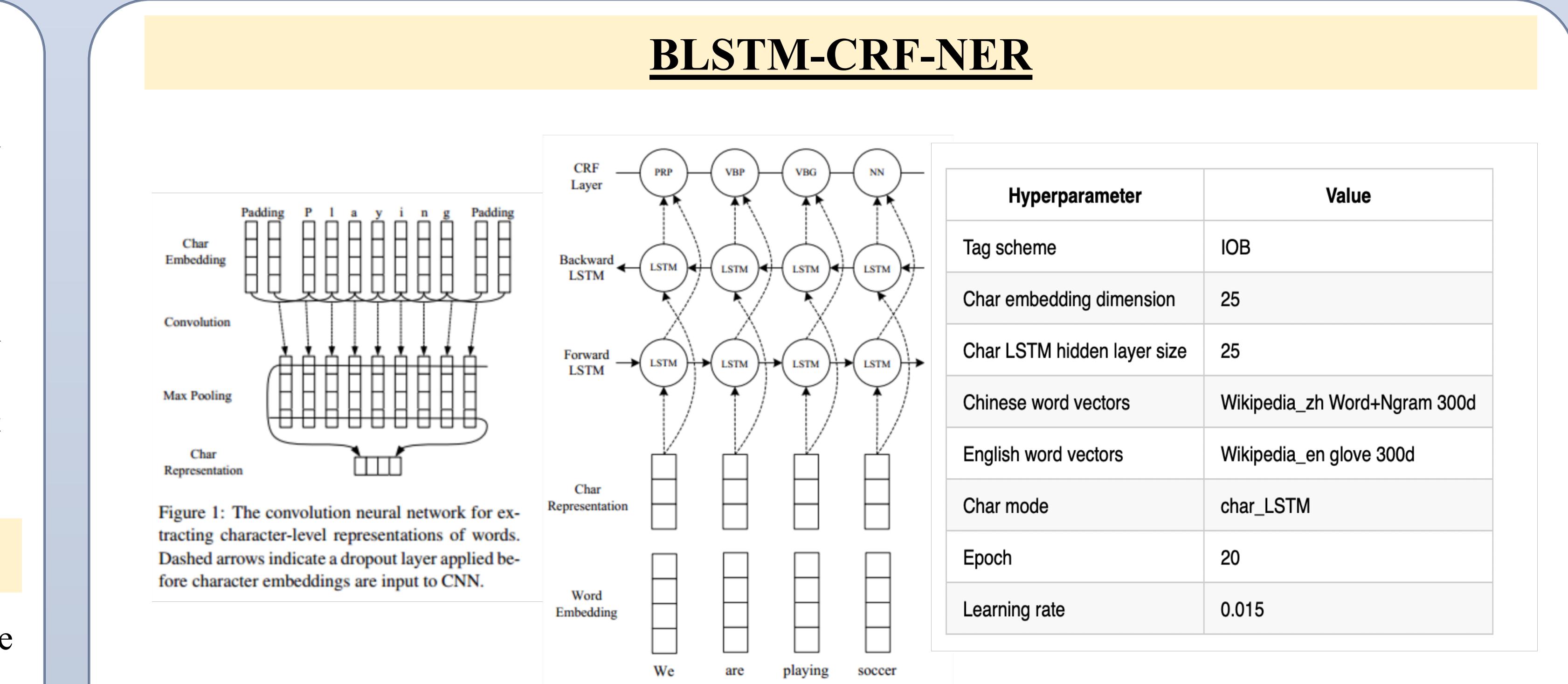
Thus there are many state-of-art classification methods and NER methods using neural network, which usually need many data to train model, we first need to generate some mock data. Then, we use these data to train classification model to capture the user's intent and train NER model to capture the key points of the sentence. Finally, based on those information, we could generate response for a given task.



Define Entity Lists

First we define some entity lists. An entity list is just like a word list. All you need to do is upload some words and give the entity name.

#	Entity Type	Description	Entity
1	DATE	years	
2	VENUE	venues	
3	PER	names	1 1900
4	KEY	keywords	2 1901
5	ORG	organizations	3 1902
6	FILE	filenames	



Sample G, Ballesteros M, Subramanian S, et al. Neural architectures for named entity recognition[J]. arXiv preprint arXiv:1603.01360, 2016.
Ma X, Hovy E. End-to-end sequence labeling via bi-directional lstm-cnn-crf[J]. arXiv preprint arXiv:1603.01354, 2016.

Return in json, Example:

```

http://166.111.5.228:5011/query/search some selection Thomas Edison State College 1902 Goel Shom 's papers

{
  "LOC": ["selection", "1902"],
  "PER": ["Goel"], "CON": ["Shom's"],
  "DATE": [],
  "ORG": ["Edison", "State"],
  "KEY": ["Thomas", "College"],
  "O": ["search", "some", "papers"]
}
  
```

<https://github.com/AngusMonroe/BLSTM-CRF-NER>

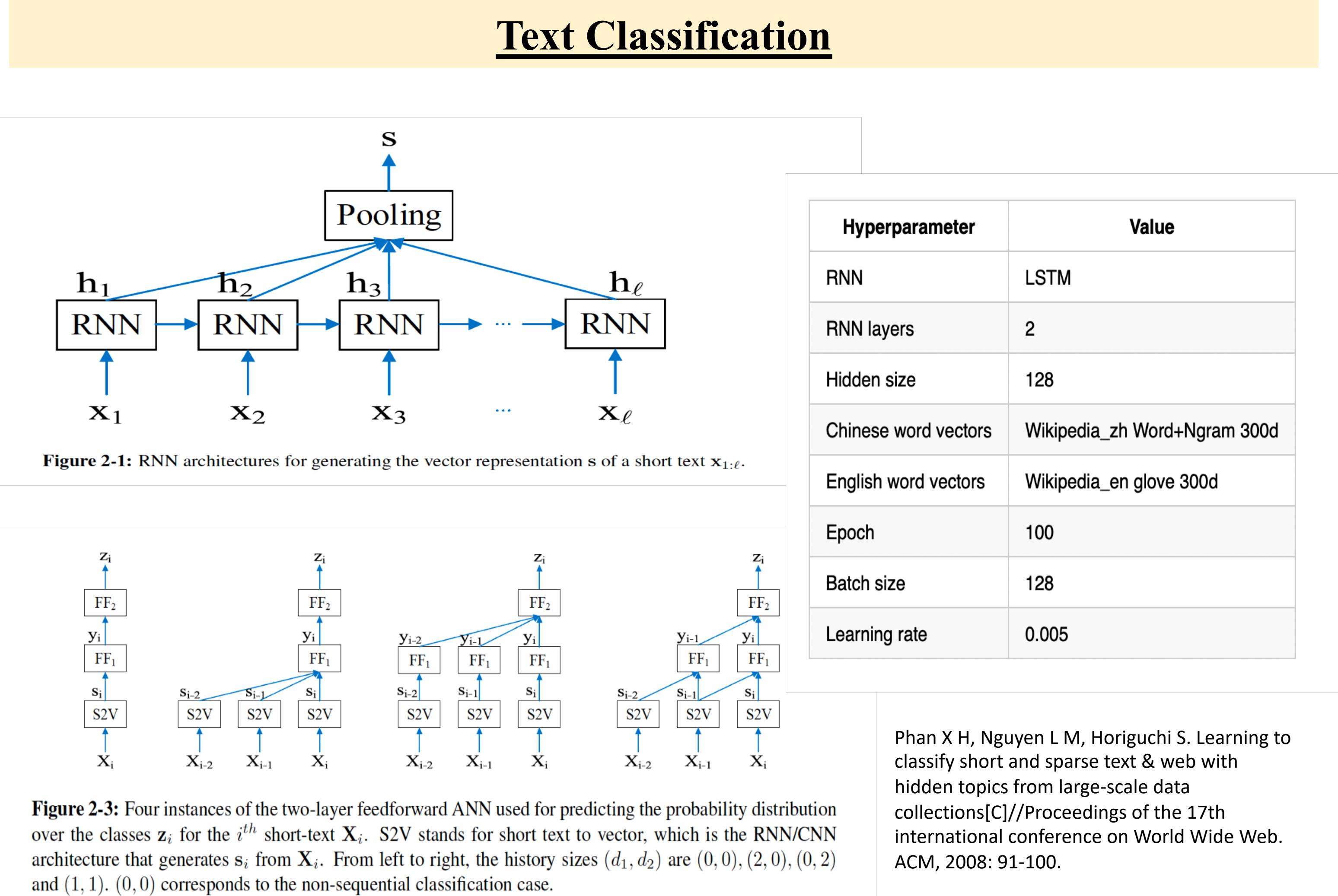


Figure 2-3: Four instances of the two-layer feedforward ANN used for predicting the probability distribution over the classes z_i for the i^{th} short-text X_i . S2V stands for short text to vector, which is the RNN/CNN architecture that generates s_i from X_i . From left to right, the history sizes (d_1, d_2) are (0, 0), (2, 0), (0, 2) and (1, 1). (0, 0) corresponds to the non-sequential classification case.

Return in json, Example:

```

http://166.111.5.228:5012/query/John {"tag": "0"}
  
```

0-学者, 1-文章, 2-会议, 3-chitchat

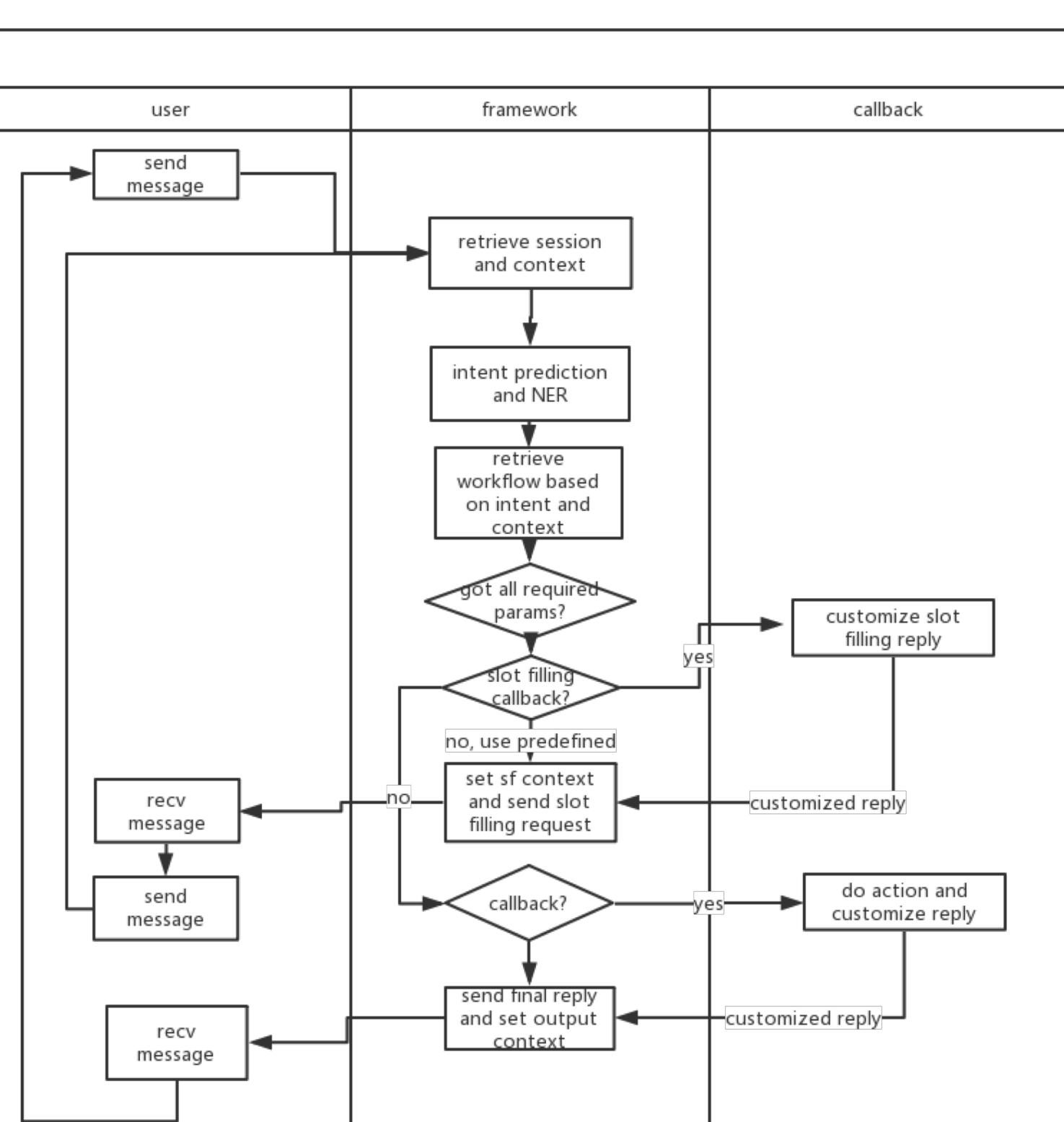
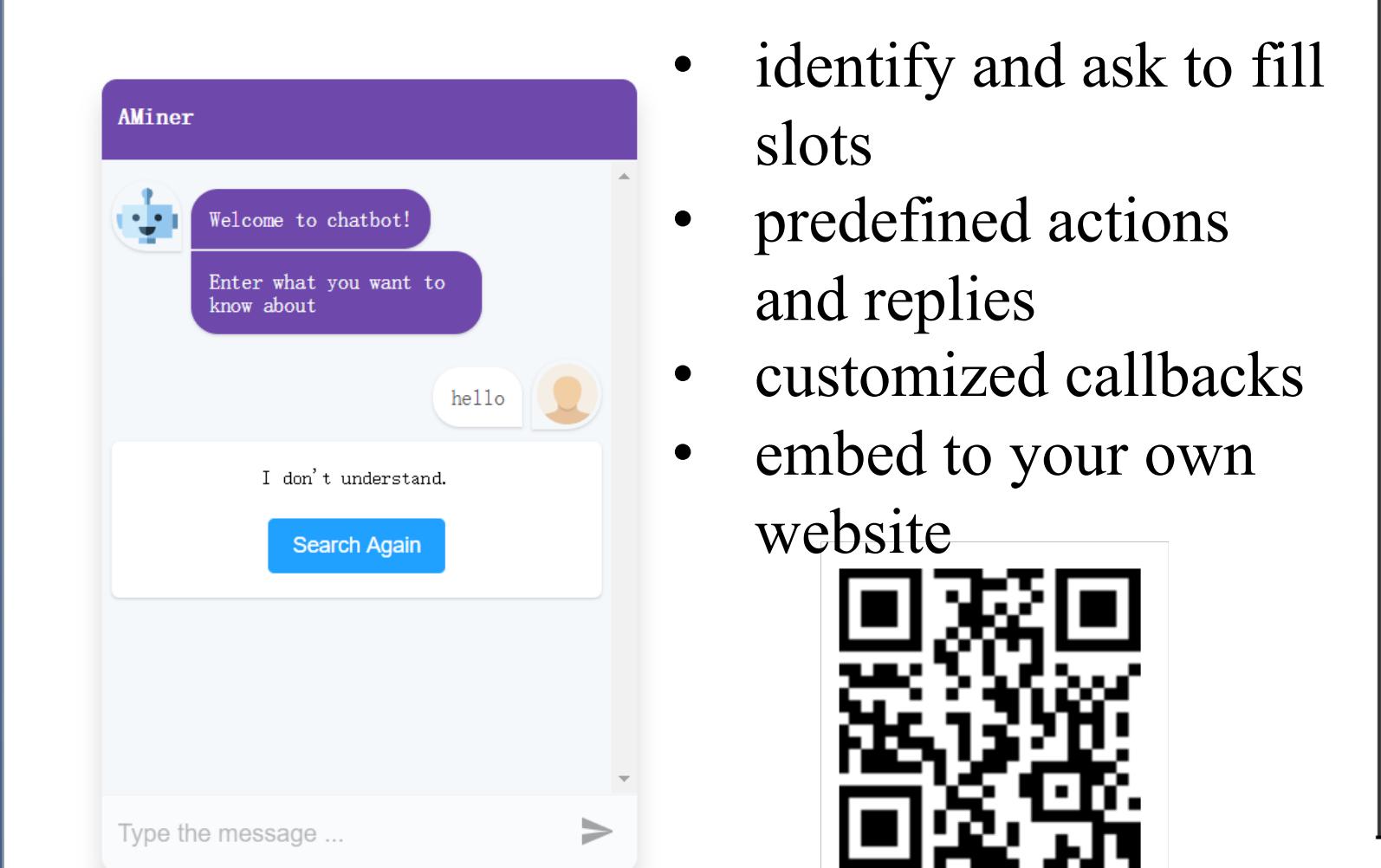
<https://github.com/AngusMonroe/text-classification>



Chatbot Platform

You can easily create your own chatbots with our platform. Define entities and intents, the platform will do the following for you:

- train your model, with one click
- conversation API
- multi-turn dialog with context management



Future Work

- Combine active learning to optimize existing models.
- Encapsulate and reconstruct some code to enhance its robustness.