



CHAT2LEARN

Chatbot technologies for digital entrepreneurship education and adult learners

Project n. 2020-1-CY01-KA204-065974

*IO1: Developing a chatbot learning environment in the field of digital
entrepreneurship*

*1.1. Collecting best practices and tools on Technology Enhanced Learning and
creation of a resource library on topic*

PREPARED BY





BlenderBot <i>(What is the name that best describes the good practice?)</i>	
29/09/2020	Facebook AI
Domspain	

Element	Guiding question
Type of practice	<i>Open-domain and open-source chatbot (an open source project)</i>
Publisher (optional)	<i>Website: https://ai.facebook.com/blog/state-of-the-art-open-source-chatbot/</i>
Target audience	<ul style="list-style-type: none"> - AI researchers - Managers of Customer Care and HR who aim to empower their organization to more efficiently deliver answers to customers and colleagues.
Objective/Aim	<i>To create a comprehensive AI chatbot framework that would combine empathy, knowledge, and personality.</i>
Location/Geographical coverage	<i>It is an online tool so it can be used worldwide.</i>
Description	<i>Blender is the first chatbot to build a diverse set of conversational skills like empathy, knowledge, and personality in one system. The blog stated that the bot in terms of engagement feels “more human” according to human evaluators. It has been designed in such a manner that it can assume a persona, discuss nearly any topic, and show empathy in natural, 14-turn conversation flows.</i>



<p>Methodological approach</p>	<p>Blender incorporates not just large-scale neural models, with up to 9.4 billion parameters — or 3.6x more than the largest existing system — but also equally important techniques for blending skills and detailed generation. Common to other NLP research, the first step to create this chatbot was large-scale training. They also introduced BST (Blended Skill Talk) for training and evaluating these desirable skills (it consists of: engaging use of personality, engaging use of knowledge; display of empathy and ability to blend all 3 seamlessly)</p>
<p>Finance</p>	<p>The pretrained and fine-tuned Blender models with 90 million parameters, 2.7 billion parameters, and 9.4 billion parameters are available on GitHub, along with a script for interacting with the bot (with safety filtering built in). All code for model evaluation and fine-tuning, including the data sets themselves, is available in ParAI.</p>
<p>Constraints (optional)</p>	<p>Although the results seem excellent, Blender’s skills are still far from achieving human-level intelligence in dialogue systems. So far, the team has only evaluated chatbots with 14-turn conversation flows. Researchers said that Blender likely would be repetitive and dull over the course of several days or weeks of conversation. Another problem is that Blender cannot remember earlier conversations. Blender uses the standard Transformer architectures which have a hard limit of 128 BPE tokens of history, so cannot possibly expand upon things they have learned from or about the user, refer to previous things they said. Blender also tends to collate facts, which is a limitation in deep learning due to the fact it generates sentences based on statistical correlation rather than knowledge.</p>
<p>Outcomes</p>	<p>According to human evaluations:</p> <ul style="list-style-type: none"> ● 75% of evaluators found that Blender is more attractive than Meena (chatbot released by Google) ● 67% of evaluators believe that Blender performs more like humans. ● 49% of evaluators cannot distinguish between chatbot Blender and real humans initially.



	<p>The main difference between the other chatbots and Blender is the ability to assume a persona, show empathy and discuss nearly any topic.</p>
<p>Replicability and/or up-scaling</p>	<p>The researchers are currently exploring ways to further improve the conversational quality of their models in longer conversations with new architectures and different loss functions. They are also focused on <u>building stronger classifiers</u> to filter out harmful language in dialogues. In addition, a preliminary success has been seen in studies to help <u>mitigate gender bias in chatbots</u>.</p> <p>True progress in the field depends on <u>reproducibility</u> --- the opportunity to build upon the best technology possible.</p> <p>Express your opinion on a scale from 1 (= min) to 5 (= max)</p>
<p>Opinion (optional)</p>	<p>Express your opinion on a scale from 1 (=min) to 5 (=max) about:</p> <ul style="list-style-type: none"> ● Usability: 4 ● Relevance: 5 ● Granularity: 4 ● Integration: 4