

# Jennifer for COVID-19: An NLP-Powered Chatbot Built for the People and by the People to Combat Misinformation

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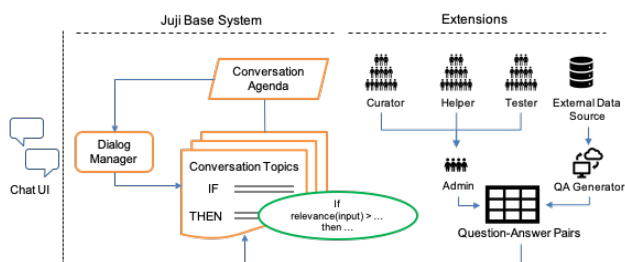


Figure 1: Architecture Overview of Jennifer

Just as SARS-CoV-2 continues to infect a growing number of people around the world, harmful misinformation about the outbreak also continues to spread. We designed and built *Jennifer* chatbot to provide easily accessible information from reliable resources to answer questions related to the current COVID-19 pandemic. It covers a wide variety of topics, from case statistics to best practices for disease prevention and management.

With *Jennifer*, we hope to learn whether public information from reputable sources could be more effectively organized and shared in the wake of a crisis as well as to understand issues that the public are most immediately curious about (New Voices, 2020). Our core design considerations are:

- **Rapid Development:** *Jennifer* should be built within a short amount of time to win the race against fast-spreading misinformation.
- **Ease of Access:** *Jennifer* should provide information to the general public in an easily accessible manner across different platforms.
- **Ease of Maintenance:** *Jennifer* should be maintainable by a diverse group of volunteers.
- **Quality Assurance:** *Jennifer* should provide information from reputable sources in a consumable and empathetic manner, and maintain a rigorous process to ensure its quality and accuracy.
- **Extensibility:** *Jennifer* should be easily extensible to expand its capability with minimal effort.

*Jennifer* depends on the Juji (Juji, 2020) base system for dialog management (Figure 1). Given a question, Juji uses a pre-trained machine learning model to identify relevant questions with known answers and returns an answer or a follow-up question. The main capabilities of *Jennifer* come from the Question-Answer(QA) pairs that are either manually curated by our volunteers or auto-generated via manually-curated templates.

The first version of *Jennifer* was designed and released within 24 hours on March 8, 2020. Since then, over 160 volunteers from 141 institutions around the globe recruited through the New Voices' network have helped make updates to the chatbot to ensure that its content reflects the latest available information from trusted sources. *Jennifer* is available on the Web (<http://bit.ly/jenniferai>), Facebook<sup>1</sup> and embedded in two fact-checking systems.<sup>2</sup> As of June 18, 2020, *Jennifer* has been asked 1,480 questions (excluding questions selected via menus) and answered 1,059 of them (a response rate of 71%), with an average engagement duration of 3 minutes and 15 seconds. We have released COQB-19 (COVID-19 Question Bank)<sup>3</sup>, including 3,924 COVID-19-related questions in 944 groups, gathered from our users and volunteers.

## References

Juji. 2020. Juji document for chatbot designers. <https://docs.juji.io/>. [Online; accessed 14-June-2020].

New Voices. 2020. How the us must respond to the covid-19 pandemic. <https://blogs.scientificamerican.com/observations/how-the-us-must-respond-to-the-covid-19-pandemic/>. [Online; accessed June-2020].

<sup>1</sup>Facebook <http://fb.me/JenniferCOVIDAI>

<sup>2</sup><https://coronacheck.eurecom.fr/en> and <https://idir.uta.edu/covid-19/>

<sup>3</sup><https://www.newvoicesnasem.org/data-downloads>

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