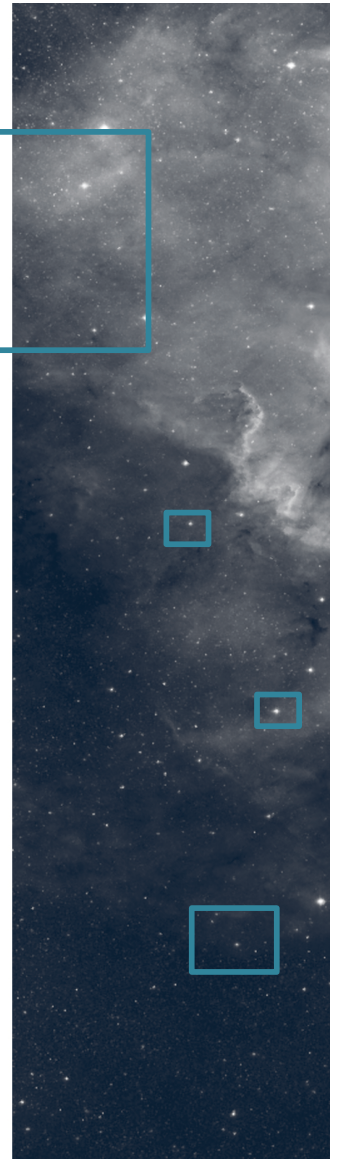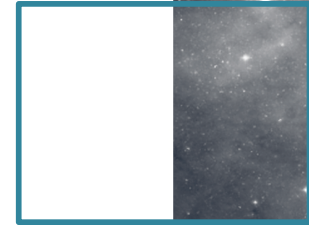# AI in querying of astronomical data services

IVOA May 2023, Bologna

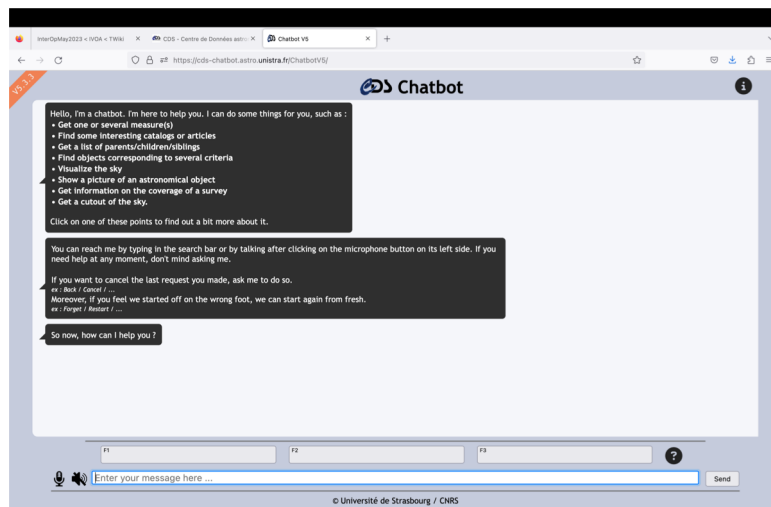**KDIG Session, Tuesday 9 May 2023**

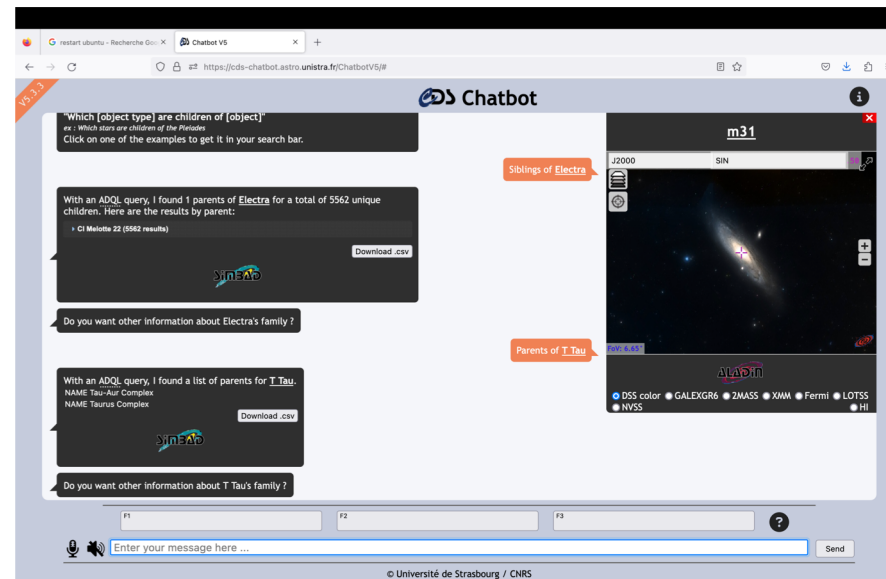**André Schaaff, CDS**

Purpose

- In the context of astronomical data services querying and user interfaces.

- Reminder about CDS Chatbot and comments.

- hot topic of the moment, ChatGPT (and similars) impact, questions

- Other investigations

CDS Chatbot reminder

- Presented at several times: IVOA, astroinformatics, ADASS (with S. derriere, T. Boch and several students)
- Initially based on Dialogflow and now Rasa

CDS Chatbot, comments

- AI is in the conversation capabilities (based on Rasa ML) to detect the user intents (a measure ?, a table ?, an object name ?, etc.)

- Close link with CDS services
  - an intent is transformed into a query (based on IVOA protocols) to the services
  - the result is formatted (text, list of items, link(s), displayed in a widget (Aladin Lite, Photometry viewer, …)
  - context limited to the last queries

CDS Chatbot, comments (2)

- It is now possible to integrate chatGPT into a Rasa chatbot as Rasa framework was enhanced recently with new capabilities around Large Language Models

- Rasa business model has also evolved…

- Pay-as-you-use with a monthly bill is not always possible

- Support to Community Edition is decreasing

ChatGPT impact ?, questions

- Which effort to use ChatGPT with Rasa ?

- Which effort (especially concerning the customization) to generate (maybe) a new chatbot from scratch with chatGPT ?

- Cost of ChatGPT upgrading ? New generation and re-customization ?

- Uncertain future
  - Technical and commercial evolutions
  - It could be forbidden (or restricted) in some countries…

Other investigations

- We have probably all Alexa, OK Google, Siri, …, Embedded in our smartphone, laptop, car, or a dedicated device in the living room, kitchen, etc. => common and no real additional cost, nothing to pay to use it !

- These tools are useful to
  - react to commands
  - answer to questions where the context understanding is not too specific.

Other investigations (2)

- But it is possible to add voice interaction models, for example through new skills in the Alexa Ecosystem.

- A skill extending the assistant capabilities to the astronomy domain could be investigated.

- Comments…

Conclusion

- Technological evolutions were always fast but now we have paradigm changes.

- Maybe still true: evaluation and investment if it brings a real benefit to the astronomers without being somewhere in a jail

  - From free to pay-as-you-use
  - Compatibility break after a framework major evolution
  - Etc.