Workshop title:

Natural language interfaces powered by large language models

Brief abstract: workshop goals and format

Natural language (NL) interfaces have been a topic of research for fifty years. In that time, much has been learned about user experience design for NL interfaces and about how people use language when interacting with NL interfaces. But translating natural language to a deterministic command or structured query that a machine can execute has remained an extremely challenging task. Recently, large language models (LLMs) have made that task much easier. As a result, NL features will become standard for many applications in the coming months and years. We are at the start of a new era of user experience design.

In this hands-on workshop, participants will learn the fundamentals of NL interfaces. Topics will include: the history of NL interfaces, why LLMs now make it easier to implement NL interfaces, which application scenarios are a good fit for NL features, as well as ethics and accessibility considerations. Workshop participants will also gain experience building NL features using an NL interface prototyping web app.

Theme, goals, relevance, impact, success criteria

The theme of this workshop is: A new era in user experience design. Because LLMs have suddenly made implementing NL interfaces much easier, NL features will soon become common in software applications, Internet of Things devices, and other appliances.

There are three main learning goals of the workshop:

1. *Understanding the history and theory of NL interfaces.* Participants are likely to work with NL features in some way in the near future, so it's critical they understanding what is already known about NL interfaces and what has already been tried over the course of the long history of NL interface research and development.

2. *Recognizing the impact of LLMs on NL interface development.* Recent advances in LLMs will spur the adoption of NL features. Understanding how and why this is so will help workshop participants in their own work with NL interfaces.

3. *Getting hands-on experience prototyping NL features.* It's one thing to hear about the challenges of understanding ambiguous language or anaphoric references, it's something else to experiment for yourself with a prototype you built. The struggle and delight of seeing your prototype respond to NL input drives home just how challenging developing NL features is and inspires enthusiasm to continue working on NL interfaces.

This workshop is relevant to CASCON community members because LLMs are already a topic of great interest in research and in industry and their application to NL interfaces promises to revolutionize the development of NL interfaces. Attending this workshop will give participants a head start with what is sure to be an emerging, hot topic.

This workshop will be a success if participants can:

1. Define key aspects of NL interfaces

2. Describe language understanding and user experience issues that have been extensively studied over the last 50 years

3. Explain how LLMs now make building NL features much easier

4. List security, privacy, ethics, and accessibility considerations for NL interfaces

5. Demonstrate an NL feature they have prototyped in the workshop

Workshop structure

The workshop will consist of the following components:

- Slide presentations
- Group discussion
- Interactive activities in an on-line whiteboard ([MURAL](#))
- Quizzes
- Participants will use a web app to prototype NL features

The presentation material will equip participants with information needed for the first four success criteria above. The discussions and MURAL activities will help participants flesh out this information and make connections to their lived experience. Quizzes will help participants confirm their understanding. The hands-on prototyping activity will drive home success criteria 3 and 5.

*Our teams have presented engaging and well-attended workshops at CASCON several times in past years:

- [(2018) Analyzing images](#)
- [(2019) NLP workshops](#)
- [(2020) Model evaluation](#)
- [(2021) Game-playing chatbots](#)
- [(2022) Using NLP with MURAL](#)

This NL interfaces workshop will be similar to previous workshops in structure. And we have presented this new workshop internally at IBM already. So, this workshop will benefit from that experience.

Workshop duration

½ day workshop

Additional requests/ information

- We request that the presentation room have an overhead screen to which presenters can connect our laptops to present slides and demonstrations.
- We request that the presentation site provide internet (eg. wifi) for participants and presenters to use in the workshop.
- Participant prerequisite: To participate in the MURAL activities and the NL interface prototyping, workshop participants must bring a laptop computer on which they can use a web browser to access the MURAL web app and the NL interface prototyping web app.
- Participants who do not bring a laptop can group with participants who brought a laptop or with workshop facilitators.
- Workshop material will be made available after the workshop on GitHub.

Workshop presenters

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