

Natural Language Interface Models for Fast Responsiveness Applications

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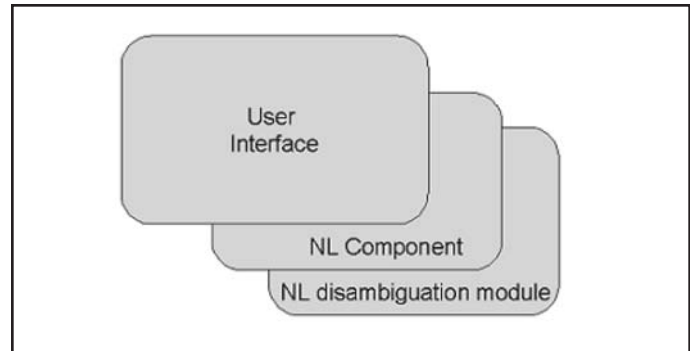


Figure 1. Basic Structure of the Proposed Model

U HCL RESEARCHERS STUDY EFFICIENT MODELS OF interfaces with natural language (NL) capabilities for fast responsiveness systems. A fast responsiveness system is a system that incurs minimum latency and produces high throughput and quick responses. Interacting with such systems requires smart interfaces with capabilities to maintain and support fast responses. The smart interfaces of these systems require natural language (NL) capabilities and a natural language processing (NLP) component. Examples of fast responsiveness systems include Virtual Reality (VR) training programs, real-time text messaging applications, mission-critical systems like aerospace applications, and applications in which immediate responses are needed. The NLP component constitutes an important part of the interface, but it is the hard part since working with NL will lead to facing the difficult problem of NL ambiguity. In addition, having an efficient NL component is very appealing for fast responsiveness applications.

An important part of the interface is the language disambiguation component. The language disambiguation component is based on integrating adaptive and supervised Machine Learning (ML) techniques. ML techniques have demonstrated outstanding success in many similar problems. The basic structure of the proposed design is shown in Fig. 1. The language disambiguation module will be able to perform a number of tasks including the following:

- Predicting words and completion of user input: the system completes a word being typed by the user; thus, many keystrokes can be saved and text entry delay is reduced.
- Correcting real word errors.
- Suggesting words during text entry.

We designed and implemented a word disambiguation and prediction techniques to solve the NL ambiguity problem. The proposed techniques allow for fast word prediction and completion in the NL interfaces of fast responsiveness applications. Experimental results are fairly impressive and encourage more work in this direction.