

The machine's role in human's service automation and knowledge sharing

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Abstract The possibility of interacting with remote services in natural language opens up new opportunities for sharing knowledge and for automating services. Easy-to-use, text-based interfaces might provide more democratic access to legal information, government services, and everyday knowledge as well. However, the methodology of engineering robust natural language interfaces is very diverse, and widely deployed solutions are still yet to come. The main contribution is a detailed problem analysis on the theoretical level, which reveals that a text-based interface is best understood as an artificial agent that represents the interests of the remote party who is separated in time and space from the client. A possible ethical issue about the development of such an agent is also discussed.

Keywords Natural languages · Interactive approaches · Communication networks · Artificial intelligence · Software specification

1 Introduction

The focus of this paper is on the automation of certain services that are accessed in natural language by the human

end users. This includes a multitude of tasks as follows: government services, information sharing and gathering, front-desk operations, a company's customer services, commerce, and more.

As Rothstein and Teorell (2008) points out, in developing and transition countries that are often less stable, the presence of impartial government institutions is very important enabling factors of progress. They argue that the former feudalistic relations between government officials and residents persist in cognitive structures even after, e.g., legal reforms were formally carried out. That is, residents do not expect impartial decisions from government officials, who indeed might have problems acquiring the idea of impartial public administration. The lack of trust in an impartial government creates uncertainty, which keeps residents back from investing time and resources that are required for achieving long-term goals. On a macroscale, this problem hinders growth and social welfare.

In our digital age, many of the aforementioned public and commercial services can be made accessible for an end user who is equipped with a suitable appliance—a desktop, laptop, mobile phone, tablet, etc. The electronic way is usually more economic for both parties; thus, end users are often incentivized to use electronic services rather than having to go to a physical office in person. This phenomenon has many benefits: Services can operate 24/7 thus require less adaptation from the users and saving time; well-designed systems eliminate waiting in queue, thus saving time; and there is no need to travel, which also saves money and time.

Moreover, residents might expect more impartiality from a computerized interface to government services, than from the local persons in charge—just because they will be dealing with a computer that does not have its personal agenda. In a naive utopistic vision, giving the decision-making role to

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