OAK: The Online Annotation Kit

Ovidiu Şerban*,** ovidiu.serban@insa-rouen.fr
Alexandre Pauchet* alexandre.pauchet@insa-rouen.fr

*LITIS, INSA de Rouen,
76801 Saint-Étienne-du-Rouvray, France

**Computer Science Department
"Babeş-Bolyai" University
Cluj-Napoca, Romania

Abstract:
In a Wizard-Of-Oz scenario, most of the current experiments use software platforms very specific to experimental requirements, leading to a very low reusability. Moreover, once the experiment has been carried out, the most difficult part is the annotation of the data collected, which starts from scratch in most of the cases. We present the Online Annotation Kit (OAK) platform, dedicated to WOz experiments. OAK is easily customisable according to the project requirements, and offer some online preliminary annotations, designed by the experimenter.

Keywords: Online Annotation, Wizard-Of-Oz

1 Introduction

In order to formalize interaction models, many research groups [1] proceed first into a collection phase. Usually this phase consists into getting human to human or human to computer interaction data, followed by an annotation and pattern extraction phase, which leads to dialogue [1] model. The method of observing human-computer interaction while the computer is not fully automated but driven by a human pilot, is usually called in the literature WOz, mainly because the subject believes he faces a real Artificial Intelligence entity, whereas he is deceived by the person driving it (e.g. the pilot).

Setting up an experiment for this kind of corpus collection, is usually very time consuming, particularly during the annotation phase after the experiment is done. In some other situations, several other clues observed at the live phase of the experiments could be lost, because they are not observed in time. On the contrary, our approach requires a basic dialogue model, with some observable interaction states, to be built before the experiment starts. This can be done during the experiment formalisation phase, in a less rich or formalised way, so that OAK is just acting as a guide to model all these states. Nevertheless, because human interaction is not predictable, and moreover the purpose of the a WOz experiment is to extend and validate a basic model, OAK offer the possibility to define a set of free context interaction states.

In the next sections we describe how the scenario is formalised in OAK and its architecture. Some final remarks will conclude this paper.

1. In this paper, the terms interaction and dialogue are interchangeable, since we refer to interaction models that are only linked with dialogue (verbal or non-verbal)

2 Scenario formalisation

A scenario in OAK consists in a set of states (which are linked to actions and translated directly into BML [2] code) and a set of observations. While the usage of the states is self-explanatory, the observations are used to keep a certain logic into the scenario. These observations are not mandatory or logged, but their presence keep a logical flow in the scenario. The usage of a state is logged with the timestamps of the appearance in the scenario. There is no restriction in linking multiple states to each other or the presence of observations in the scenario, but nevertheless, to keep the model clean, it is highly recommended to avoid this.

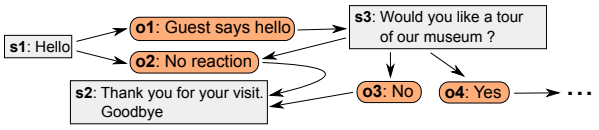

FIGURE 1 – A simple example of a WOz scenario which can be used with OAK. The boxes represent states, while the rounded boxes are observations

Figure 1 presents an example of a scenario, with several states (s1-s3) and observations (o1-o4). As for experimental purpose, the transitions between these states are recorded, there should be only one logical transition from a state to another, through the same observation. In the given example, if state s1 would have had a transition leading to s3 independent of the observation made, the transition model would have been ambiguous.

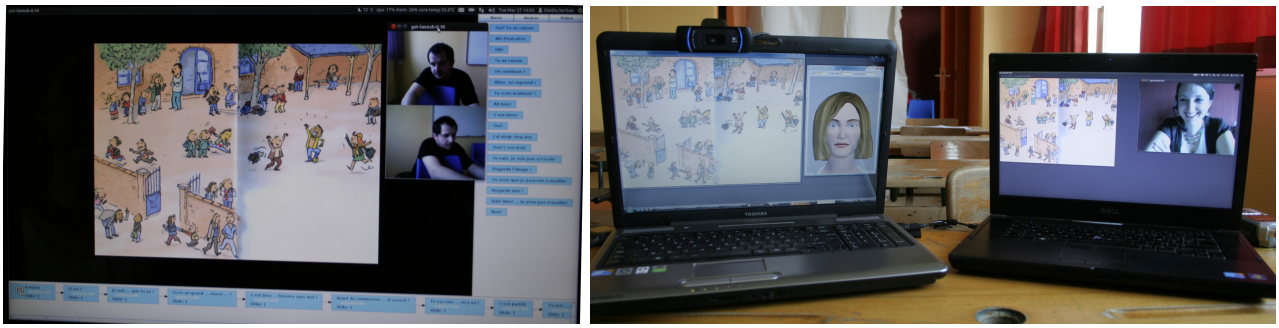

FIGURE 2 – The experimental setup of OAK

3 Architecture

Most of the current experiments done in the WOz perspective are not reusable [5, 3], because of their strict link to the experimental setup. Our system expands the current open source architecture of SEMAINE Project [6], using the simulation part of this project, and embedding new components to gain full control over the architecture.

OAK is compound of three major parts :

1. the Semaine Platform, which contains a component based communication system ;
2. the Greta Agent [4], which is part of the SEMAINE project, and has been preserved in OAK. Potentially, it can be replaced by any other virtual avatar or robot ;
3. OAK, which consists in a pilot graphical interface (first image in figure 2), and two views at the user level (second image in figure 2) : 1st is an avatar view and 2nd is video conference view.

All the three views (pilot view and the 2 user views) embed a presentation component, consisting in a set of images which can be used to support the interaction. The pilot view, has also the scenario area, in which the states of the scenario are modelled, in the bottom of the first image in figure 2. The free context area, consisting of a library of interaction action, which can occur at any point in the scenario, can be observed at the right of the presentation component in the first image in figure 2.

All the components of OAK are fully customizable, having independent XML based configuration files for each of them. The actions are translated into BML [2] code by an action interpreter and forwarded to the required agent.

4 Conclusion

This paper presents the OAK system, which is a graphical user interface which can be used to drive WOz experiments. It is fully configurable, on experiment basis and it uses a reliable platform as back-end : the SEMAINE Project. In a real experimental situation it has been proven very flexible, with good feedbacks from some psychologist partners as end users.

Acknowledgement

This demonstration is part of the ACAMODIA project, funded by the CNRS (PEPS INS2I-INSHS 2011).

Références

[1] Z. Ales, G. Dubuisson Duplessis, and A. Serban, O.and Pauchet. A methodology to design human-like embodied conversational agents. *Proceedings of the 1st International Workshop on Human-Agent Interaction Design and Models*, 2012.

[2] S. Kopp, B. Krenn, S. Marsella, A. Marshall, C. Pelachaud, H. Pirker, K. Thórisson, and H. Vilhjálmsson. Towards a common framework for multimodal generation : The behavior markup language. In *Intelligent Virtual Agents*, pages 205–217. Springer, 2006.

[3] D. Maulsby, S. Greenberg, and R. Mander. Prototyping an intelligent agent through wizard of oz. In *Proceedings of the INTERACT'93 and CHI'93 conference on Human factors in computing systems*, pages 277–284. ACM, 1993.

[4] I. Poggi, C. Pelachaud, F. Rosis, V. Carofiglio, and B. Carolis. Greta. a believable embodied conversational agent. *Multimodal intelligent information presentation*, pages 3–25, 2005.

[5] D. Salber and J. Coutaz. Applying the wizard of oz technique to the study of multimodal systems. *Human-Computer Interaction*, pages 219–230, 1993.

[6] M. Schroder. The semaine api : towards a standards-based framework for building emotion-oriented systems. *Advances in HCI*, 2010 :2–2, 2010.