Extensions and Applications of Pogamut 3 Platform

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1 Introduction

We present recent extensions for the intelligent virtual agent development platform Pogamut 3. These extensions are: the agent coordination language StorySpeak designed for the purposes of storytelling applications, support for gestures based on BML, the visual editor of reactive plans, connection of the cognitive architecture ACT-R, an educational application aimed at orientation in urban areas and finally an emotional model.

The Pogamut 3 platform is a tool for rapid prototyping of intelligent virtual agents' (IVAs') behavior in the environment of the Unreal Tournament 2004 (UT04) computer game. So far the Pogamut was concerned mainly with behavior of a single agent developed in Java or reactive planner POSH [3]. New extensions broaden the possible use of the Pogamut platform and make it more usable in areas of storytelling, cognitive science and serious games. All described extensions will be available at the projects homepage [8]. A video[1] presentation showing these extensions in action is also present on the homepage.

Following section will give a short overview of these extensions.

2 Extensions in Detail

StorySpeak is a language for behavior specification of IVAs. It is based on BDI [2] and supports both goal-oriented and reactive plans specification. The language allows a designer to coordinate behavior of multiple actors easily. The designer can write plans for joint-intentions that are executed by multiple actors together.

Gestures module enables to describe poses and transitions between them in the behaviour markup language BML [9]. The module provides a Java parser of the BML, a MPEG-4 based transportation layer [4] and an execution engine written in

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[1] The video is available on http://artemis.ms.mff.cuni.cz/pogamut_files/IVA09-Pogamut.wmv, other Pogamut related videos are on http://artemis.ms.mff.cuni.cz/pogamut/tiki-index. php? page=video+tutorials

Unreal Tournament's scripting language. This extension allows Pogamut to control an IVA's body on a fine level. In conjunction with the StorySpeak module, it provides support for storytelling applications.

POSH visual editor eases creation of reactive plans, making it possible to create simple IVAs even for non-programmers. POSH plans [3] visualized as tree structures can be edited by using drag-and-drop on basic behaviors from a palette of existing prototypes. The visual editor also eliminates syntactical errors that can discourage many newcomers.

ACT-R [1] to Pogamut binding called PojACT-R opens UT04 as a tool for cognitive modeling, allowing computational psychologists to test their models in highly dynamic virtual environments. These models have to be expressed in terms of the ACT-R architecture.

Educational scenarios aimed at enhancing orientation of children in urban areas are an example of the Pogamut platform application. The scenarios are scripted declaratively in the Drools rules engine [5].The extension provides a domain specific language for definition of orientation tasks. This enables users to make new scenarios without deep programming knowledge.

Emotions obtained by the integration of Gebhard's ALMA model [6] provide additional possibilities on how to make virtual agents in Pogamut more believable. ALMA is based on the OCC theory [7] – a widely used paradigm for modeling emotions for IVAs.

Acknowledgements

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