Apple Computer’s Authoring Tools & Titles R&D Program

JAMES C. SPOHRER

Apple Computer, Inc., Advanced Technology Group, 1 Infinite Loop Drive, Cupertino, CA 95014; e-mail: spohrer@applelink.apple.com

Key words: authoring tools, intelligent multimedia, tool building, extensible simulations, interpersonal simulations, end-user programming, learning architectures

This site description reports on four projects that are part of Apple Computer’s Authoring Tools & Titles R&D Program. Our charter is to empower people to build, extend, and maintain interactive multimedia software by lowering barriers to entry for non-programmers and improving the productivity of professional programmers. In addition, we partner with design teams to create software titles that illustrate the potential of intelligent multimedia applications, especially in the areas of education and training.

INTERPERSONAL SIMULATIONS PROJECT (PUPPETEER)

Arthur James and Enio Ohmaye

Puppeteer is a tool designed to empower instructional designers and subject matter experts to build simulations of interactions with people. For example, second language learning simulations allow users to practice their language skills by interacting with native speakers. Puppeteer’s interface uses a comic strip metaphor extended with multiple storylines and control annotations (see Figure 1). The grammar editor allows users to define the language patterns that simulated people will respond to as well as generate. Puppeteer supports user input in various forms: selecting from a fixed set of options, typing in natural language statements, or speaking statements into the Apple speech recognition system. Puppeteer combines animation with speech synthesis to produce talking heads that greatly speeds up the authoring process. Puppeteer is designed to develop apprentice-ship based models of instruction and can support learning techniques such as scaffolding, modelling, and coaching.

EXTENSIBLE SIMULATION PROJECT (KIDSIM)

Allen Cypher and David Canfield Smith

KidSim is a tool designed to empower kids and teachers to build extensible simulations. Simulations are imaginary worlds populated with programmed characters. In KidSim, users can define their own characters and modify existing
Fig. 1. Puppeteer: comicstrip strip script editor, chapters, and cast.

ones. KidSim allows kids with no programming experience to build simulations quickly. Kids can draw characters, place them on a game board, and give them rules of behavior (see Figure 2). Instead of using a programming language, the rules of behavior are defined in terms of screen snapshots. Creating a rule is done via direct manipulation, by specifying the relevant context for the rule and then demonstrating the desired actions to reach an end state.

TOOL CONSTRUCTION ENVIRONMENT PROJECT (TOOLBUILDER)

Ruben Kleiman, Adam Chipkin, Hernan Epelman-Wang, Brian Roddy, Lori Leahy, Sidney Markowitz, Dave Yost, Stephanie Houde

ToolBuilder is a next generation software development environment designed to empower professional programmers and advanced scripters to build intelligent multimedia applications and derivative tools. Derivative tools are tools designed for specific markets. For example, one might want to build a derivative tool that could be used by real estate agents to put together an interactive sales brochure complete with home walking tours and floor plans. Alternatively, one might want to build a tool that authors can use to build interactive mathematics or science titles, or empower kids and teachers to build simulations. In