Game Jam 4 Investigating Design Issues with (partly) autonomous systems

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(Team website and associated personal web pages are currently being migrated)

Author Keywords
Games; Automation; critical interactive systems, command and control.

Research question

Autonomous behavior like collecting resources is a key element in a variety of games. Managing autonomous behavior in games does not seem to pose problems when playing a game. The area of safety-critical systems has a variety of autonomous behaviors that have to be managed in their user interfaces. Carrying on with previous work about design and engineering critical interactive systems using contributions from gaming research and practice [7][8] this proposal aims to investigate the ability to use a Game Jam as a research method in the area of safety-critical systems, especially on new design issues encountered with (partly) autonomous systems [4].

In particular, during the Game Jam we could address the research question on how people interact with systems that dynamically change their behavior

whether this change comes from machine learning capabilities or from the degradation of automation.

Position statement

A Game Jam is a very interesting opportunity to collaborate with other people and share experiences, ideas, techniques and methods for the design and development of interactive systems. I personally never attended a Game Jam, but I am eager to learn how such a method works and to what extend if would be applicable to my current research. Overall I am very interested in gaining new competencies and expertise in the design and development of games.

My expectations of this workshop are threefold:

(1) I am interested in investigating whether or not a Game Jam could give some new perspectives on previous work that has been carried out in the area of games to support the engineering of autonomous systems [7][8].

(2) Some elements of current practice in the games community could be integrated to the user interface design and modeling. For example, gamification has been proposed to be used as a method for testing concepts during the conceptual design stage [1]. Could a Game Jam be appropriate for the perspective of refining and extending a set of design guidelines, processes, and evaluation techniques applicable to the domain of safety-critical interactive command and control systems?

(3) I am interested in experiencing this method to think about how to integrate and apply it for teaching in the area of human-computer interaction [2].

Skills and expertise

My main background is Computer Science and Engineering, I have skills in Software Engineering (design, development and integration) but also in programming (particularly Java SWING and Android).

From an HCI perspective I am working on methods and tools that support all phases of the development process (especially for safety-critical systems) especially for task modeling. I have been actively applying these methods in industrial projects among others on ground segment applications in the space domain.

As part of my research, I participate in the development of a variety of tools including HAMSTERS Computer Aided Software Environment (CASE) tool. For a detailed overview on all these tools see: http://www.irit.fr/recherches/ICS-site/node/160/my-stuff

As part of my teaching activities, in the context of Mobile Interactive Systems lessons and practical work with Android, we have been conducting a variety of exercises that tend to take into account playful elements and experiences. For example a recent Android project was on the developing a small game (no more than 2 screens per application for output interactions with the users). The main object manipulated by the user had to be a puck. The application had to be developed in less than 10 days and it had to use several types of touch interactions, accelerometer and gyroscope. Figure 1 presents a screenshot of an application developed during this project.

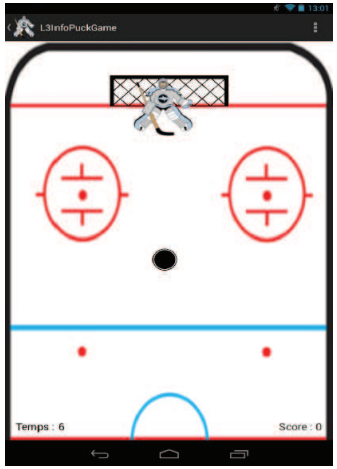

Figure 1. Screenshot of an application developed by a student during practical work I conducted in 2013.

Brief biography

Célia Martinie is an assistant professor in Computer Science at the University of Toulouse 3 (France). She has been involved in research projects dealing with tools to analyze, design and to develop interactive critical systems (such as satellite ground segment applications, flight deck applications and air traffic management systems). In summer 2013 she has been invited to join the NASA Ames research center for 2 months in order to collaborate on the topic of autonomous behavior in safety-critical systems with researchers from the Automation Interaction Design and Evaluation group and from the Robust Software Engineering group.

Célia Martinie finished her PhD in 2011 on Models-Based Approaches to Develop Usable, Reliable and Operable Interactive Critical Systems [6] [5]. She previously worked for 8 years at Motorola Mobile Devices on the design and development of embedded services and innovative technologies for mobile systems were she actively contributed to a variety of patents [1] [3].

In her private live Celia loves to play games (Mario Kart, Angry Birds, Subway Surf, and Just Dance) and is still proud that she manages to beat her son and daughter in Angry Birds and Just Dance.

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