2nd Workshop on Game Development and Model-Driven Software Development

Robert Walter[1], Maic Masuch[1], and Mathias Funk[2]

[1] Entertainment Computing Group
Department of Computer Science and Cognitive Science
University of Duisburg–Essen
Duisburg, Germany
{robert.walter,maic.masuch}@uni-due.de
[2] Designed Intelligence Group
Department of Industrial Design
Eindhoven University of Technology
Eindhoven, The Netherlands
m.funk@tue.nl

Abstract. Succeeding the 1st Workshop on GD&MDSD at last year's ICEC, this event continues the exchange of both novices and experts in the fields of game development and model-driven software development (MDSD). The overall goal is to further consolidate a platform for researchers and professionals who are interested in the topics of modeling, domain-driven design, and domain-specific languages in the context of game development. This year, we want to focus on future requirements in game design and development and how they can be addressed by MDSD techniques. The workshop covers questions like "how can game design benefit from the language engineering process?", "what are the pros and cons of visual and textual modeling languages?", and "how can model-to-model and model-to-text transformations be used to streamline game development workflows?".

Keywords: Game Development, Model-Driven Software Development, Domain-Specific Languages, Game Modeling, Game Authoring, Tooling, Prototyping.

1 Relevance of Workshop Topic

Games are highly interactive media applications within a hard to define common scope. Developed in multidisciplinary teams, they combine the artistic challenges of multimedia productions with the engineering challenges of IT-productions [1]. Hence, we face ambitious demands regarding the overall development process. However, the growing complexity and scale were not encountered by refined game development methods for many years [2]. Only recently, agile project management methods like Scrum were applied successfully in several productions [3],[4],[5].

M. Herrlich, R. Malaka, and M. Masuch (Eds.): ICEC 2012, LNCS 7522, pp. 500–503, 2012.

In the last decade, MDSD has successfully made the transition from the academic sphere to industrial-grade software development and it provides many advantages [6] game development could benefit from. Key features of a system are formally described on a higher level of abstraction (the problem domain), omitting distracting details like the technical realization on a distinct platform (the solution domain). This allows for a better integration of domain experts (e.g. game designers, game writers, concept artists) in the development process, faster iteration times, and implicit system documentation. Using code generation, the transition from problem space to solution space can be automated, which is more efficient and less error-prone than the manual implementation in a third generation language. Moreover, games feature characteristics of software product lines. Since product-line engineering is an explicit application field of MDSD [6], we see a perfect fit of game development and MDSD. By means of expressive and engaging software tools such as DSLs and generative tooling content authors and game designers are strongly integrated into the development process. That is why we think that game development and MDSD should get in touch in an ICEC workshop, which is an excellent setting for the much needed professional exchange of ideas, feedback from diverse experts, and lively discussions.

2 Workshop Objective

The workshop's main objective is to bring together researchers and professionals of both fields to identify how game development could benefit from MDSD and vice versa. This year, we focus on upcoming requirements in game development fields like novel authoring tools, scripting and programming languages, and agile workflows.

2.1 Proposed Form and Schedule

In order to accomplish the described objective, we plan to provide a full day workshop that is divided into five sections.

8:30 AM *Introduction and Overview*: We start with welcoming all participants, presenting the results of last year's workshop, and giving an overview on the workshop's schedule and goals.

9:00 AM *Future Challenges and Possibilities*: This section comprises two keynotes. One keynote is meant to illustrate the future challenges in game development. The second keynote will introduce current and upcoming developments in MDSD. Markus Vlter, author of several articles and books on MDSD (e.g. [6]), already expressed his interest in doing this keynote.

11:00 AM *Position Papers*: Selected researchers and industry professionals present their experiences and opinions on "model-driven game development", covering

theories, techniques, tools, infrastructure, and boundaries of MDSD. In combination with the former section, this builds the basis for the upcoming panel discussion.

2:00 PM *Panel Discussion*: The panel discussion will be a moderated talk with two invited experts of each field (game development and MDSD). They will discuss the application possibilities of model-driven techniques in the context of future challenges in game development and how the agile development nature of games might influence MDSD techniques. The audience is meant to take an active part in the discussion, raising questions, commenting statements, and giving answers.

4:30 PM *Retrospective*: The first three sections are going to be protocolled by the workshop organizers. In the final section, they present the protocol to identify and evaluate the findings of the workshop together with the participants. As a result, this should lead to a compilation of valuable research and development questions.

5:00 PM *Close*.

2.2 Expected Workshop Outcome

The organizers will compile the results of the workshop, especially the identified research and development questions, in a white paper which will be published on the website of the workshop. In addition, the accepted position papers are published as part of the conference proceedings. The workshop website shall continue to be used as a means to connect the participants, facilitate further discussions and information exchange, and promotion of subsequent events. Another concrete result could be the planning of a special issue devoted to the workshop topic in a suitable journal such as Entertainment Computing or Computers in Entertainment.

3 Bio Information of Workshop Organizers

Robert Walter received a diploma in Software Engineering and a Master of Science in Computer Science. In his Ph.D. studies, he examines the game development process with a focus on the creation and processing of narrative game content, develops concepts for domain-specific languages (DSLs)[1], and tools for an improved integration of all stakeholders-from game writers over artists and voice actors to localization studios-into the game development process. The goal is to find patterns that reduce development time, effort, complexity, and costs.

Maic Masuch holds the chair of Media Technology and Entertainment Computing at the Faculty of Engineering, Department of Computer Science and

[1] "[A DSL is] a computer programming language of limited expressiveness focused on a particular domain." [7]

Cognitive Science at the University of Duisburg-Essen. He received his Ph.D. with a dissertation on computer animation at the University of Magdeburg and, in 2002, became Germany's first Professor for Computer Games. He founded two companies, researches in the field of game design and game development for over twelve years, and is one of the pioneers of German video game research.

Mathias Funk is a Postdoctoral Researcher at the Designed Intelligence group in the Department of Industrial Design of the Eindhoven University of Technology (TU/e). After graduating from RWTH Aachen University in Computer Science he did a PhD at TU/e on the topic of adaptive data collection from commercial products in the field. He is cofounder of UXsuite, a startup company for product experience analytics software. Among others, his research interests are domain-specific languages for creative stakeholders, rapid prototyping, and user experience.

4 Further Information

Further information on the workshop can be found at the workshop site http://gd-mdsd.blogspot.com/.

References

1. Hight, J., Novak, J.: Game Development Essentials: Game Project Management. Delmar Cengage Learning (2007)
2. Petrillo, F., Pimenta, M., Trindade, F., Dietrich, C.: What Went Wrong? A Survey of Problems in Game Development. Comput. Entertain. 7(1), 13:1–12:22 (2009)
3. Esmurdoc, C.: Postmortem: Behind The Scenes Of Brütal Legend (November 2009), http://www.gamasutra.com/view/news/25799/Postmortem_Behind_The_Scenes_Of_Brutal_Legend.php (last access: July 4, 2012)
4. Graft, K.: Racing Evolution: Forza 3 and the Changing Driving Sim, http://www.gamasutra.com/view/feature/4144/racing_evolution_forza_3_and_the_.php (last access: July 4, 2012)
5. Nutt, C.: Q&A: Valve's Swift On Left 4 Dead 2's Production, AI Boost (July 4, 2012), http://www.gamasutra.com/view/news/25701/QA_Valves_Swift_On_Left_4_Dead_2s_Production_AI_Boost.php
6. Stahl, T., Völter, M.: Model-Driven Software Development: Technology, Engineering, Management. Wiley (2006)
7. Fowler, M.: Domain-Specific Languages. Addison-Wesley Professional (2010)